



Licensed Practical Nurses in Florida: Analysis of 2007 Workforce Survey Data

October 2007

Licensed Practical Nurses in Florida: Analysis of 2007 Workforce Survey Data

Executive Summary

In an effort to understand the work behavior of licensed nurses in Florida, The Florida Center for Nursing (Center) collaborated with the Florida Board of Nursing (FBON) to implement a survey of nurses in concert with license renewal cycles. The 2007 survey improved upon a previous attempt to collect data from renewing nurses in 2004. In both studies, renewing nurses received notice of the survey in license renewal materials mailed by the FBON. In 2004, nurses wishing to participate had to manually enter the web address of the Center's survey or call the Center to request a paper copy. In 2007, however, nurses renewing online were automatically redirected to the Center's survey when renewal was complete.

This report describes the methods used, response rates, and findings from the second cohort of nurses renewing in 2007 - all Licensed Practical Nurses (LPNs) in the state. Key findings of the study are listed below.

- It was hoped that the change in survey methodology would increase response rates by making access to the survey easier for nurses renewing online. Of the 56,907 renewing or newly licensed LPNs we hoped to reach with this survey, **only 2,864 usable surveys were completed for a response rate of 5.0 percent**. This is insufficient to produce unbiased findings that can be generalized to the population of Florida LPNs.
- Results of the survey suggest that survey responders are more likely to be employed, more likely to work within the field of nursing, and more likely to work full time than what could be expected of the entire population of LPNs. Respondents were also highly likely to be enrolled in a program leading to Registered Nurse (RN) licensure.
- Respondents were most likely to work in a long term care setting (29.6%) or a hospital (22.6%). Most reported hourly wage rather than annual salary, and their responses were strongly clustered; almost 60 percent of respondents reported making \$16-\$20 per hour.
- Profiles of survey respondents by work field revealed that those working outside of nursing were much more likely to have a college degree in a non-nursing discipline, and they also had substantially higher incomes. Profiles of survey respondents by employment status showed that per diem employment is most common in the home health industry, while part-time work is common in long term care and full-time work is common in the hospital setting.
- The report concludes by reiterating the need for an integrated data collection strategy in which both license renewal and workforce information are simultaneously collected from renewing nurses on a single form. Integration is our best hope for improving response rates.
- With the FBON and Medical Quality Assurance, the Center looks forward to a first test of this integrated strategy in January 2008. A voluntary workforce questionnaire will be incorporated into online license renewal for the cohorts of RNs renewing next year. We hope that the effort will yield data that are more representative and useful for supply forecasting.

Licensed Practical Nurses in Florida: Analysis of 2007 Workforce Survey Data

Background

Surprisingly, we know very little about Florida's licensed nurse population. We *do* know how many people have a license to practice nursing in the state, and we know their age, gender, race/ethnicity, and mailing address. These nurse characteristics are tracked by the Florida Board of Nursing (FBON), the regulatory body responsible for nurse licensure. In January 2007, the Florida Center for Nursing analyzed FBON licensure data and released a report describing the demographic and geographic distribution of licensed nurses.¹

However, the FBON is not required by statute or regulation to collect information on the work behavior of nurses, including their employment status, hours worked, and setting of employment. These data elements are critical for workforce planners and legislators. They define how much *nursing labor* is being provided to residents of the state, rather than simply how many *nursing licenses* are held. Forecasts of the nursing shortage in Florida must be based on how many nurses are actually working within the field of nursing, as well as how many hours these nurses are willing to work at different points in their lives.

The Florida Center for Nursing (Center), a state entity charged with tracking and providing solutions for Florida's nursing shortage, first collaborated with the FBON in 2004 to implement a survey of nurses renewing their licenses. The main mechanism for providing notice of the survey was an invitation enclosed within the packet of materials sent by the FBON to nurses who were due to renew. Those completing the survey could do so online with the URL provided in the Center's survey invitation, or they could request a paper copy of the survey. Unfortunately, this initial attempt to survey Registered Nurses (RNs) renewing in 2004 yielded a very low 4.1 percent response rate. The Center's report on the survey concluded that the validity of results was questionable and that alternative strategies for collecting the data were needed.² After two cohorts of RNs had renewed, the Center closed its 2004 workforce data survey.

In 2006, the Center, FBON, and Department of Health's Medical Quality Assurance (MQA) staff agreed on a modified data collection strategy that was expected to boost response rates. The most significant change to the methodology was adding an automatic redirect from the MQA online renewal website to the FCN website where the workforce survey is housed. The survey was implemented in January 2007, and RNs renewing from January through April 2007 were invited to participate. In spite of the improved methodology, which was expected to make completing the survey easier for renewing nurses, the 2007 survey of RNs attained a response rate of only 7.9 percent.

The Center's report on the 2007 survey of RNs argued that the data showed evidence of response bias, a common finding when response rates are very low.³ For example, it appeared that nurses responding to the survey were more likely to be working in nursing, working in the hospital setting, and working more hours at older ages than what could be expected from an unbiased sample. The results could not be generalized to the population of renewing RNs or used for

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

shortage forecasting or workforce planning. The report concluded by recommending further changes to the data collection strategy for renewals beginning in 2008, but it also recognized the need to learn more about the state's population of Licensed Practical Nurses (LPNs). Because LPNs renew as a single group between March and July of odd years, any changes made in the survey methodology would not allow collection of LPN data until 2009. As LPNs had not been surveyed in the 2004 study, the decision was made to keep the 2007 survey open for LPNs renewing between March and July of 2007.

This report details the study methods, response rates achieved, and survey results from the LPNs who renewed their licenses and completed the 2007 workforce survey. We conclude with a discussion of future collaboration with the FBON and MQA to improve response rates and, hopefully, the quality of data collected on the state's licensed nurses.

Study Design, Response Rate, and Representativeness

The 2007 study design, like the 2004 study, calls for a census (a survey of the total population) rather than a random or other type of sample. The population includes all licensed nurses – Registered Nurses (RNs), Advanced Registered Nurse Practitioners (ARNPs), and Licensed Practical Nurses (LPNs) in the state. The design requires that workforce data be collected in concert with initial licensure in the state and license renewal. All licensed nurses renew on a biennial basis, so updated information would be collected from nurses every two years with this design. Two cohorts of nurses renewed in 2007. From January through April, approximately one-third of RNs and ARNPs in the state renewed their licenses. From March through July, all LPNs in the state renewed. In 2008, the remaining two-thirds of RNs/ARNPs will renew, completing the biennial renewal cycle for all licensed nurses in the state.

An improvement on the 2004 attempt, the Center's 2007 Workforce Survey was publicized formally to nurses through three different means. In collaboration with the FBON, the renewal notices sent to all nurses with licenses expiring contained an invitation to participate in the survey when renewing online or by contacting the Center via phone (for a paper copy) if renewing by mail. Second, nurses in Florida who had requested a temporary license from the FBON during this time period received a letter that included a welcome note from the Center and an invitation to participate in the survey. The 2004 study had no way of reaching newly licensed nurses. Finally, nurses who renewed online were automatically routed to the FCN survey when they completed the final step in renewal. This third form of contact was expected to dramatically improve response rates, since it meant that all nurses renewing online would be directed to the survey without any additional effort.

In addition to these formal methods of contacting nurses, the survey was publicized through several informal means, including electronic email lists, communication with nursing leaders in the state, and a notice printed in *The Florida Nurse*, a publication produced by the Florida Nurses Association and distributed to all licensed RNs and ARNPs in the state. A copy of the questionnaire is provided in Appendix A to this report.

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

The vast majority of LPN respondents, on whom this report is based, completed the survey online. Only 10 paper copies of the survey were requested and returned by LPNs. Information provided by Medical Quality Assurance for the renewal period ending July 31, 2007 revealed that about half of processed returns for LPNs had occurred online. Since our respondents overwhelmingly come from the one-half of LPNs who chose (or had the technological ability and access) to use MQA's online renewal system, we can expect some response bias at the outset associated with differences in the characteristics of people who complete license renewal by U.S. mail versus online.

Although the URL was not shared with non-nurses or those not renewing their nursing licenses during the April-July 2007 LPN renewal cycle, to ensure validity of the sample we asked respondents to use their nursing license numbers and type (LPN, RN, or ARNP) as a survey login. The study design called for matching of survey records with licensure database records in order to verify that all respondents are licensed nurses in the state and that they are eligible to take the survey because of their license expiration date or initial licensure date. After merging survey data with licensure data, a total of 2,864 survey records were retained for LPNs. Around 130 survey records were discarded because the respondent failed to provide a valid LPN license number.

To compute response rates and assess the representativeness of the survey respondents, an extract from the FBON licensure database on August 20, 2007 was used to isolate a matched sample of LPNs who were eligible to take the Workforce Survey. The matching sample of licensed nurses was constructed by retaining only LPNs meeting one of two criteria: 1) their licenses were set to expire in July, 2009 or 2) their initial licensure date occurred between January and July 2007. A total of 56,907 LPNs were selected from the complete database for comparison with survey respondents.

The response rate achieved among renewing LPNs, based on usable survey records and the matched licensure file of those eligible to take the survey, was 5.0 percent. This very low response rate means that results for survey respondents may not reflect the full population of LPNs in Florida. To examine the fit of respondents to the population of LPNs, the survey respondents were compared with the matched licensure file on demographics and regional location. Tests of statistical significance are not presented in this report since the respondents were not randomly sampled from the population represented in the matched licensure file. As a result, inferential statistics are inappropriate.

Table 1 presents a profile of the survey respondents and entire population of LPNs. In many ways, the respondents look similar to the LPN population. They are distributed across the six regions of Florida in roughly similar proportions, and in both groups the vast majority of persons have an active license status. Respondents did differ slightly from the population in the areas of age, gender, and race/ethnicity. Respondents are nearly two years younger than the LPN population, on average, and they have been licensed in the state of Florida for about one year less. In addition, survey respondents were disproportionately male (11.8% vs. 8.7%) and of White race (68.8% vs. 63.5%). The comparison suggests that persons responding to the survey

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

may have had greater access to (or proficiency with) the internet for completing license renewal. Although survey respondents do not look strikingly different from the LPN population on several demographic variables, we cannot say with confidence that our survey results are unbiased for key measures of workforce participation. When response rates are very low, there is usually some difference between the intended and actual respondents associated with the differential motivation (or ability) they have to respond to the survey. We caution readers against generalizing these results to the LPN population. Results apply to respondents, but they may not represent others well. In the remaining sections of this report, we draw from alternative sources of data on LPNs to assess how representative respondents' work behaviors and other characteristics might be.

Table 1. Comparison of Survey Respondents and Matched Licensure Data

	Survey Respondents (N=2,864)		Licensure Data (N=56,907)	
	Frequency	Percent	Frequency	Percent
License Status				
Active	2,856	99.7	56,030	98.5
Inactive	8	0.3	835	1.5
Region				
Central	577	20.2	10,466	18.4
North	273	9.5	5,143	9.0
Northwest	244	8.5	4,943	8.7
South	213	7.4	4,370	7.7
Southeast	429	15.0	9,826	17.3
Southwest	984	34.4	18,555	32.7
Outside Florida	143	5.0	3,530	6.2
Gender				
Female	2,521	88.2	45,628	91.3
Male	339	11.8	4,360	8.7
Race/Ethnicity				
White	1,817	68.8	31,680	63.5
Black	525	19.9	12,756	25.6
Hispanic	200	7.9	3,362	6.7
Asian	56	2.1	1,099	2.2
Native American	9	0.3	146	0.3
Others	33	1.2	815	1.6
Average Age	45.0		46.9	
Average Years Licensed	11.0		12.2	

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

Results

Fields and Settings of Employment

Figure 1 highlights the large proportion of survey respondents (86.3%) who work in the field of nursing, defined as holding a job that requires a nursing license. Of the remaining respondents, 4.2 percent report that they are seeking nursing employment, and only five percent report that they are not working or seeking work.

Unfortunately, there exist few national statistics on the work behaviors of LPNs useful for evaluating our findings. Analyzing data from the Current Population Survey, Seago et al. found that the proportion of LPNs reporting employment had increased from 80 percent in 1984 to 94 percent in 2001.⁴ However, changes in the Current Population Survey and identification of LPNs based on their reported occupation (and not licensure) mean that neither the trend toward greater employment nor the estimated percentage of employed LPNs can be considered reliable.

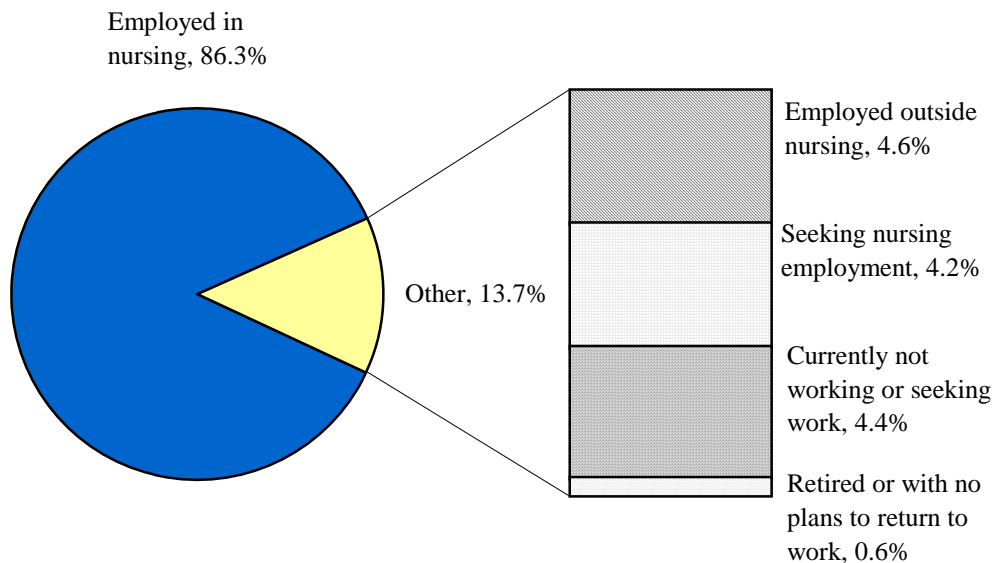


Figure 1. Respondents' Work Status and Field

Several state-level nurse workforce centers and state boards of nursing have collected and published data on the employment status of their LPNs, and these sources report a very large range in the proportion of LPNs employed in nursing. The most complete and recent state-level data on the LPN workforce has been published in North Carolina, where all nurses update employment status when they renew. Similar to results reported here, in 2006 about 84 percent of North Carolina LPNs were employed in nursing, and around 5 percent were employed outside of nursing.⁵ On the other hand, a 2002 survey of New Jersey LPNs found that only 71 percent of respondents worked in a nursing job.⁶ A 2001 survey of Illinois LPNs found that 78.6 percent of respondents were employed in nursing.⁷ Due to the very low participation rate of Florida LPNs

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

and the wide-ranging estimates from other sources, it is unknown how accurate our estimates of employment status and field are.

Figure 2 details the employment settings of respondents who reported that they work in the field of nursing. Almost 30 percent of respondents – the largest single category – reported that they worked in a long term care setting. This finding is consistent with national data on setting of LPN employment reported by Seago et al.⁴ It is also consistent with state-level data from Florida’s Agency for Workforce Innovation (AWI). AWI employment estimates for 2006 show that about 29 percent of LPNs work in either nursing care facilities or community care facilities for the elderly.⁸ Indeed, the top four settings reported by our respondents are all within the top five settings reported by AWI. The single exception is that AWI reported nearly one-fifth of LPNs were working for employment services, or staffing agencies that sell temporary labor to health care providers. Only 1.7 percent of our survey respondents reported working for a temporary agency. It is unknown whether our respondents are less likely to work for temp agencies or whether they are more likely to have selected as a response the setting in which they have been placed by an agency.

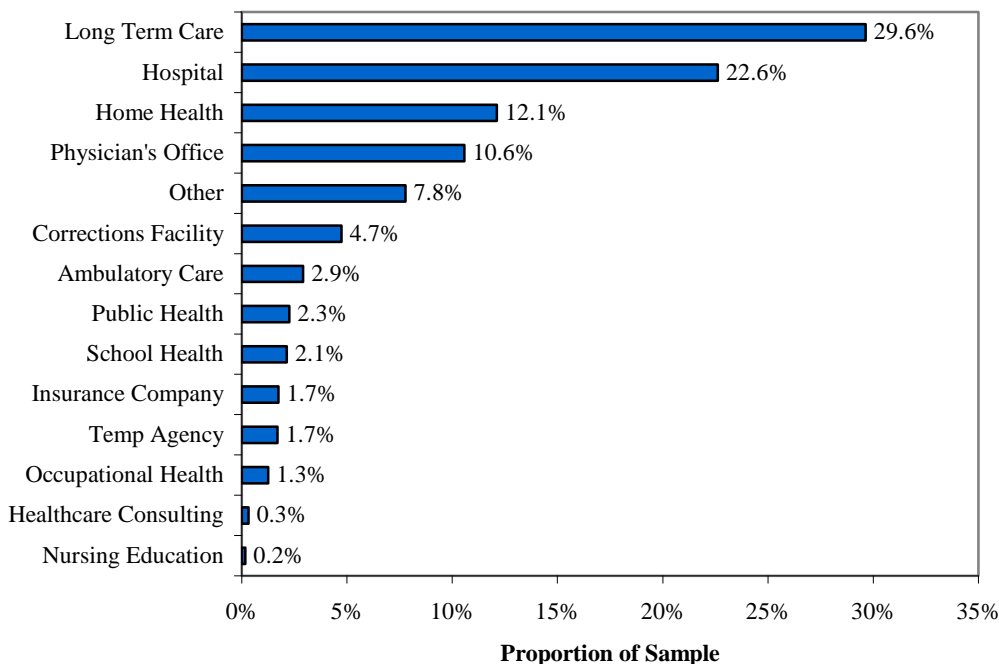


Figure 2. Employment Setting of Respondents Working in Nursing

Amount of Labor Provided

Table 2 describes the work habits of LPN survey respondents who are in the nursing or non-nursing labor force. Over 80 percent of the respondents reported working full-time, and the remaining respondents were split evenly between part-time status and per diem status.

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

Interestingly, this pattern is almost identical to the one reported by RNs renewing earlier in 2007.³ Also similar to results for RNs, LPN respondents overwhelmingly reported working year round, and the majority of respondents reported fewer than 10 hours of overtime in a typical two-week period.

Responses to our survey item on the number of *scheduled* hours worked in a typical two-week period were clustered at both the low and high ends of the spectrum, an atypical pattern given the large proportion who reported working full-time. More than 30 percent of respondents reported that they worked fewer than 50 hours in a two-week period, for example, while only 20 percent of respondents reported working part-time or on a per diem basis. Some respondents may have considered a one-week time frame when responding to the question. Others may consider themselves full-time employees when combining scheduled hours and the overtime they typically work. Analysis of hours worked (scheduled plus overtime) by employment status suggests that the inclusion of overtime hours makes average hours worked look more reasonable for full-time, part-time, and per diem employees, respectively.

Table 2. Work Habits of Employed Respondents

Status	% of Sample	Weeks Worked	% of Sample
Full-time	80.8	0-10	2.4
Part-time	9.2	11-20	1.6
Per Diem/Agency	10.0	21-30	3.4
		31-40	8.5
		41-52	84.2
Hours Scheduled in Typical 2 Wks.	% of Sample	Overtime Worked in Typical 2 Wks.	% of Sample
Less than 40	12.0	Less than 10	64.7
40-49	23.1	10-15	17.4
50-59	3.3	16-20	7.8
60-69	5.3	21-25	2.6
70-79	12.8	26-30	2.1
80	31.5	More than 30	5.4
More than 80	12.0		

There is little external data with which to evaluate our respondents' report of work habits, but what exists suggests that the behavior of our working respondents is typical for LPNs. Based on Current Population Survey data, Seago et al. report that the majority of LPNs work full-time, or around 38 hours each week.⁴ When our survey items on scheduled and overtime hours are recoded to category midpoints, combined, and averaged across survey respondents, we estimate that the median number of hours worked is 37.5. The average number of hours worked is slightly lower at around 34 hours.

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

Education and Income

Table 3 displays the educational characteristics of survey respondents. About two-thirds of responding LPNs received their basic nursing education in Florida, and most of the remaining third were educated in another U.S. state. This is in stark contrast to RN respondents to our survey earlier in 2007. More than half of the RNs reported having received their basic nursing education outside of Florida, and more than 7 percent reported they were educated in another country.³ Comparatively, then, our LPN respondents are home-grown.

Although a large majority of LPNs reported that their highest degree earned was a Certificate in Licensed Practical Nursing, almost 15 percent reported higher degrees. The bulk of these LPNs reported having an associate’s degree (which may be in any field) or a non-nursing baccalaureate degree. More surprisingly, nearly one-quarter of respondents said they were currently enrolled in a nursing program which would lead to RN licensure. Most of the enrolled (86.8%) reported they are currently pursuing the ADN degree, while an additional 11 percent are pursuing a BSN degree. Younger LPN respondents were *much* more likely to report pursuing a degree leading to RN licensure. Almost 40 percent of LPNs aged 30 or younger were enrolled, for example, while only 12.5 percent of LPNs aged 51-60 were pursuing additional education.

Table 3. Respondents’ Educational Characteristics

Location of Basic Nursing Education	% of Sample	Current Enrollment in Nursing Program	% of Sample
Florida	67.1	Yes	23.5
Other state	30.9	No	76.5
US Territory	0.5		
Foreign Country	1.5		
Highest Degree Attained	% of Sample	Type of Nursing Program (if enrolled)	% of Enrolled
LPN Certificate	84.3	ADN	86.8
Diploma	1.2	BSN	11.0
Associate Degree	8.4	MSN	0.2
BSN	0.9	Nursing Ed. Certificate	1.4
BA/BS	4.2	Nursing Doctorate	0.0
MSN	0.0	Non-nursing Degree	0.6
MA/MS	0.9		
Nursing Doctorate	0.0		
Other Doctorate	0.1		

It is doubtful that one-quarter of Florida’s licensed LPNs are currently pursuing additional degrees. The finding likely reflects response bias towards LPNs who are career-oriented and academically motivated – and therefore more inclined to complete our workforce survey. However, the relationship of enrollment with LPN age is consistent with anecdotal evidence that some students who have been turned away from entry-level RN programs are becoming LPNs in

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

hopes of soon entering an LPN-RN articulation program. Because the capacity of many entry-level RN programs is far exceeded by the number of qualified applicants to the programs, LPN articulation programs are a logical choice for young persons who seek RN licensure.

Respondents were given the option of reporting either hourly wages or annual salary as measures of personal income. As Table 4 shows, the vast majority chose to report hourly wages. Compared with findings for RNs, reported LPN wages showed much less variation. Nearly 60 percent of respondents reported making \$16-\$20 an hour, and more than 96 percent reported making \$10-\$25 an hour. Although fewer reported an annual salary, these respondents also clustered into a small number of categories. One third reported making \$40,001-\$50,000, and more than 70 percent reported making \$30,001-\$60,000.

To derive a consistent measure of income for all respondents, hourly wages were converted to annual salary using information on the number of hours worked per week and weeks worked per year. This conversion produced an interval-level measure of income rather than the categorical measure used for respondents reporting annual salary. A matching interval-level measure of salary was generated for these respondents by assigning the midpoint of each category's income range to respondents who selected the category. The interval-level annual salary measure, computed for all respondents, averaged \$34,227. In comparison, Occupational Employment Statistics data for Florida as of May 2006 estimated the average annual LPN salary to be \$37,170.⁹ Our lower figure may reflect the younger age of respondents in addition to measurement differences.

Table 4. Reported Salaries and Wages

Annual Salary (if reported)	N	%	Hourly Wage (if reported)	N	%
Less than \$20,000	10	3.0	Less than \$10	6	0.3
\$20,001-\$30,000	32	9.5	\$10-\$15	361	17.9
\$30,001-\$40,000	71	21.1	\$16-\$20	1191	59.0
\$40,001-\$50,000	112	33.2	\$21-\$25	399	19.8
\$50,001-\$60,000	59	17.5	\$26-\$30	45	2.2
\$60,001-\$70,000	27	8.0	More than \$30	15	0.7
\$70,001-\$80,000	19	5.6	Totals	2,017	100.0
\$90,001-\$100,000	4	1.2			
\$100,001-\$110,000	1	0.3			
\$110,001-\$120,000	1	0.3			
More than \$120,000	1	0.3			
Totals	337	100.0			
	Mean	Std. Dev.	Minimum	Maximum	
Salary as Interval (all respondents)	\$34,227	\$15,343	\$2,187	\$125,000	

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

Profiles of LPN Survey Respondents

The primary reason for conducting a survey of the licensed nurse workforce is to better understand how the work behaviors of nurses change over time and over the life course. Without reliable information on the work habits of licensed nurses, forecasts of the active nurse supply are impossible to accomplish. Our analysis of LPN response rates and response patterns suggests that the data presented here are not as reliable as we would like for the purpose of LPN supply forecasting. Still, the data can be used to identify important patterns in work behavior that can shape our understanding of how LPNs make decisions about work habits and what types of LPNs are likely to be a part of the active LPN supply.

Table 5 presents profiles of LPN survey respondents by work status and field. Respondents working in nursing are compared with those working in another field and those not working at all. As the table shows, the work *habits* of LPNs are similar whether the nurse is working in the field of nursing or in another field. The majority of both groups work full-time, although the field of nursing facilitates per diem or agency work more than do most other fields. The average hours worked in a week are slightly higher for those working in nursing, but generally quite similar.

Table 5. Profiles of Survey Respondents by Work Status and Field

	Works in Nursing (N=2,467)	Works in Another Field (N=131)	Does Not Work (N=262)
Employment Data			
% Full-time	80.9	79.4	
% Part-time	8.8	15.3	
% Per Diem/Agency	10.3	5.3	
% working 2+ jobs	20.4	17.5	
Average Hrs. / Week	33.8 hrs.	32.3 hrs.	
Average Annual Salary	\$33,867	\$41,639	
Education Data			
% educated in FL	67.4	74.8	60.3
% enrolled currently	25.4	6.3	13.8
% > LPN certificate	15.3	32.8	11.1
Gender			
% Female	86.8	91.0	93.4
Race/Ethnicity			
% White	67.3	76.6	80.3
% Black	20.8	17.1	11.8
% Hispanic	8.0	4.5	5.3
% Asian	2.1	0.9	2.19
% Native American	0.4	0.9	0.0
% Other	1.4	0.0	0.4
Average Age	44.5 yrs.	47.3 yrs.	48.6 yrs.

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

The most striking difference between the two groups among the employment variables occurred for *income*. LPNs working within the field of nursing made almost \$8,000 less each year than did their counterparts working in other fields. A look at other characteristics helps to make sense of the income disparity. For example, almost one-third of respondents working in another field hold a degree that is higher than an LPN certificate, which is likely to increase their marketability for higher paying jobs outside the field of nursing. In addition, those working in nursing are nearly three years younger on average. Age tends to bring career mobility, and in the case of LPNs this may mean movement to a non-nursing profession since mobility is limited within the LPN role.

On the other hand, the younger LPNs working in the field of nursing are much more likely to be working toward the career mobility offered by degrees leading to RN licensure. A quarter of those working in nursing are pursuing an additional degree, compared with only 6 percent of those working in another field and 14 percent of those who are not working at all.

Finally, the group working in nursing is proportionately more male and from racial/ethnic minority groups than is true of LPNs working in another field or LPNs not working at all. The highest proportions of women and White respondents were within the group of LPNs not working at all. Not surprisingly, this group also has the oldest nurses on average, since it contains persons who have retired. However, note that the average age is only 48.6 years in this group – much lower than what would be expected if the group contained mostly retirees who choose to renew their LPN license. A more detailed analysis of work status and field by age shows that a large majority of our oldest survey respondents report working. Among those over the age of 60, for example, more than 70 percent are employed in nursing and less than 20 percent are not working or seeking work.

Table 6 presents profiles of the respondents within the LPN workforce – those working within the field of nursing – by employment status. Employment and income information varies predictably across the three groups. LPNs working full-time reported an average annual salary of \$35,919, while those working part-time or on a per diem basis earned around \$10,000 less each year. Those reporting full-time employment worked an average of 36 hours each week, while those reporting part-time or per diem status worked about 10 less each week. Interestingly, a much larger proportion of those working per diem (36.5%) said that they worked for more than one employer when compared with those reporting either full-time or part-time work. Per diem or agency employment clearly lends itself better to multiple job-holding.

Certain industries, or settings of employment, also seem better suited for per diem or agency workers. Fully one-third of those working on a per diem basis reported employment in the home health industry, compared with only nine percent of those working full-time. In contrast, part-time workers are clustered heavily in the long term care setting, and full-time workers are more likely to work in the hospital setting than are those working part-time or per diem. Almost all survey respondents working in the office of a physician or other health care provider reported regularly scheduled full- or part-time employment.

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

Table 6. Profiles of Respondents Working in Nursing by Employment Status

	Works Full-time (N=1,995)	Works Part-time (N=218)	Works Per Diem / Agency (N=254)
Employment Data			
% working 2+ jobs	18.2	20.7	36.5
Average Hrs. / Week	36.0	23.7	25.8
Average Annual Salary	\$35,919	\$23,354	\$26,851
Employment Setting			
Long Term Care	29.9	36.2	21.6
Hospital	24.5	15.6	14.2
Home Health	9.0	15.6	33.9
Physician's Office	11.9	10.1	0.8
All Other Settings	24.7	22.5	29.5
Education Data			
% educated in FL	67.7	63.3	68.9
% enrolled currently	24.2	29.9	31.2
% > LPN certificate	14.5	16.5	20.5
Gender			
% Female	86.4	90.6	86.2
Race/Ethnicity			
% White	67.9	70.9	59.6
% Black	20.8	15.8	25.4
% Hispanic	7.4	7.9	12.1
% Asian	2.2	3.9	0.0
% Native American	0.3	0.5	0.4
% Other	1.3	1.0	2.5
Average Age	44.5	45.7	43.4

Per diem workers were more likely than full-time workers to be enrolled in a nursing education program, and one-fifth of them reported that they already held a degree higher than the LPN certificate. They also tended to be younger than full- or part-time workers by one or two years. Finally, racial/ethnic minorities, particularly Blacks and Hispanics, were better represented among those working on a per diem basis or for an agency.

As with work status and field, the relationship of employment status to age was not as strong as one might expect. Among respondents over the age of 60, for example, almost three-fourths reported that they worked full-time. A more detailed analysis of age and hours worked found that less than eight hours a week – one work day – separated the average hours worked within each age category. Together, the findings regarding age and work suggest that older respondents to this survey are more likely to work (and to work more hours) than are their counterparts who did not respond. Another possibility is that LPNs are unlikely to renew their licenses (and thus be invited to participate in the survey) if they are retired or do not intend to practice nursing again.

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

Conclusions and Next Steps in Data Collection

Our survey was conducted for the purpose of describing the state's nurse workforce supply. To do this accurately and reliably, we need survey respondents to be representative of the licensed nurse population. Very low response rates, even when the total *number* of surveys returned is large, increase the probability that substantial response bias exists. Our study has a large number of respondents – almost 3,000 LPNs are included in this report – but they represent only 5.0 percent of the LPNs we hoped to reach with this study. In general, researchers regard survey results as valid when response rates are above the 50 percent mark. Since our results are considered unreliable by this standard, no firm conclusions regarding the LPN workforce in Florida can be made.

Although the respondents look typical in some ways – their wages, geographic distribution, and demographic characteristics, for example – they look quite atypical in others. A very high proportion of respondents work in the field of nursing and work full-time – and they tend to do so late into their careers. A large proportion of respondents (nearly one-quarter) reported being enrolled in an education program leading to RN licensure. Unfortunately, there is little available information useful for evaluating the patterns we uncovered among LPN respondents to this survey. National and Florida-specific data on LPNs are sparse and themselves suffer from methodological flaws.

As we argued in our report on RN respondents, the atypical characteristics of LPN respondents to this survey are not surprising from a research methods perspective. Low response rates tend to create bias associated with the motivation (or ability) to respond to a survey. As noted previously, the large proportion of LPN respondents reporting current enrollment in a nursing program may indicate that our respondents are more career-oriented and therefore motivated to complete our survey. They may also be more technologically savvy. Our respondents are, on average, younger than the LPN population, which means they may have both greater proficiency and greater access to the internet for online renewal and survey completion.

In our report on RN respondents, we concluded that the methodological improvements in the 2007 Workforce Survey did result in slightly higher response rates but that the increase was not sufficient to warrant calling the survey a success.³ Analysis of results for LPNs supports this conclusion. The survey did not collect data of the quality necessary for supply forecasting, and the Center remains unable to report basic information on our nursing workforce, such as how much nurses work and in what settings.

We closed the report on RN respondents by recommending a fundamental change in data collection methods. In order to obtain sufficient participation, we argued that workforce data collection must occur seamlessly with license renewal. This would be accomplished by including key employment variables as part of a questionnaire (voluntary or involuntary) embedded in the license renewal forms on paper and online.

Disclaimer: Due to the low 5.0% response rate in this study, reported findings apply only to the respondents and may not be construed as representing Florida LPNs at large.

We are pleased to report that the Florida Board of Nursing and Department of Medical Quality Assurance have agreed to pursue part of this request with us. Beginning in January 2008, nurses renewing through the online MQA renewal website will have the opportunity to complete a voluntary workforce survey that appears as part of the license renewal process. The Center staff and Board of Directors look forward to continued collaboration with the FBON and MQA, and we are hopeful that future workforce data collection efforts will yield data with increased reliability and validity.

References

1. Florida Center for Nursing. (2007). *Analysis of Nurse Licensure Data in Florida: Methods and Statewide Results*. Retrieved September 25, 2007 from http://www.flcenterfornursing.org/files/Nurse_Licensure_Data_Report.pdf.
2. Florida Center for Nursing. (2004). *Survey of Florida Nurses Renewing their License: Analysis of Combined 1st and 2nd Renewal Periods 2004*. Orlando, FL: author.
3. Florida Center for Nursing. (2007). *Analysis of Workforce Survey Data from the 1st RN Cohort Renewing in 2007*. Retrieved September 25, 2007 from http://www.flcenterfornursing.org/files/2007_Workforce_Survey_Report.pdf.
4. Seago, J. et al. (2004). *Supply, Demand, and Use of Licensed Practical Nurses*. Retrieved September 25, 2007 from <ftp://ftp.hrsa.gov/bhpr/nationalcenter/lpn.pdf>.
5. North Carolina Center for Nursing. (2007). *North Carolina Trends in Nursing: 1987-2006 RN and LPN Supply Trends*. Retrieved September 25, 2007 from <http://www.ga.unc.edu/NCCN/research/Trends2007/supply%20report%202007.pdf>.
6. New Jersey Collaborating Center for Nursing. (2003). *The New Jersey Board of Nursing and Colleagues in Caring LPN Survey: Findings 2003*. Retrieved September 25, 2007 from http://www.njccn.org/pdf/LPN_Survey_Rpt.pdf.
7. State of Illinois Department of Professional Regulation. (2002). *The Illinois LPN Workforce in the year 2001: A Final Report*. Retrieved September 25, 2007 from http://www.idfpr.com/dpr/NEWSRLS/nrelease/lpn_idpr.pdf.
8. Florida Agency for Workforce Innovation employment statistics were produced by request for the Florida Center for Nursing in September 2006.
9. Wage estimates for Florida LPNs were obtained from the Bureau of Labor Statistics' Occupational Employment Statistics Program and downloaded September 25, 2007 from http://www.bls.gov/oes/oes_dl.htm.

Appendix A: Workforce Survey Questionnaire

Surprisingly, we know little about nurses in our state. We don't know where and how much nurses practice, or their education level. Such data are critical if legislators and nursing leaders are to resolve our nursing shortage. YOU CAN HELP by completing this brief survey. The Center will combine individual responses and report findings for regional and state levels. Participation is voluntary and does not influence license application or renewal. Ten minutes of your time can make a difference in our future nursing workforce. Please return the completed survey in the enclosed envelope.

Thank you, Florida Center for Nursing

Select only one answer for each item.

1. License Type: ARNP RN LPN

2. License Number: _____

3. Last four digits of your SSN: _____ (fill-in)

4. Birth year: 19__ __ (fill-in)

5. Gender: Male Female

6. Race/Ethnicity:

<input type="checkbox"/> White – Hispanic	<input type="checkbox"/> White – non-Hispanic
<input type="checkbox"/> Black – Hispanic	<input type="checkbox"/> Black – non-Hispanic
<input type="checkbox"/> Asian	<input type="checkbox"/> Pacific Islander / Native Hawaiian
<input type="checkbox"/> American Indian / Alaskan Native	<input type="checkbox"/> Multi-racial
<input type="checkbox"/> Other	

7. Range of your family annual income:

<input type="checkbox"/> less than \$20,000	<input type="checkbox"/> \$120,001-140,000
<input type="checkbox"/> \$20,001-40,000	<input type="checkbox"/> \$140,001-160,000
<input type="checkbox"/> \$40,001-60,000	<input type="checkbox"/> \$160,001-180,000
<input type="checkbox"/> \$60,001-80,000	<input type="checkbox"/> \$180,001-200,000
<input type="checkbox"/> \$80,001-100,000	<input type="checkbox"/> more than \$200,000
<input type="checkbox"/> \$100,001-120,000	

8. Where did you complete your basic (first) nursing degree?

<input type="checkbox"/> Florida	<input type="checkbox"/> US Territory
<input type="checkbox"/> Other State within USA	<input type="checkbox"/> Foreign Country

9. Highest education degree completed:
 - Certificate – Licensed Practical Nurse
 - Diploma – Registered Nurse
 - Associate Degree
 - Bachelor Degree in Nursing
 - Bachelor Degree in field other than nursing
 - Master Degree in Nursing
 - Master Degree in field other than nursing
 - Doctorate in Nursing
 - Doctorate in field other than nursing

10. Are you currently enrolled in a nursing education program? Yes No

If yes, select the one (1) item below that best describes your program:

- Associate Degree in Nursing
- Bachelor Degree in Nursing
- Master Degree in Nursing
- Certificate in Nursing Education
- Doctorate in Nursing
- Degree in field other than nursing

11. Current employment situation:

- Employed in nursing (nursing license required for job)
- Employed in field other than nursing
- Seeking nursing employment
- Currently not working and not looking for a job
- Retired or with no plans to return to work

12. County of primary employment setting (if you are not working, please indicate your county of residence):

Other than in Florida

- | | | | | | | |
|------------------------------------|------------------------------------|---------------------------------------|------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> Alachua | <input type="checkbox"/> Collier | <input type="checkbox"/> Glades | <input type="checkbox"/> Jackson | <input type="checkbox"/> Marion | <input type="checkbox"/> Pasco | <input type="checkbox"/> Suwanee |
| <input type="checkbox"/> Baker | <input type="checkbox"/> Columbia | <input type="checkbox"/> Gulf | <input type="checkbox"/> Jefferson | <input type="checkbox"/> Martin | <input type="checkbox"/> Pinellas | <input type="checkbox"/> Taylor |
| <input type="checkbox"/> Bay | <input type="checkbox"/> De Soto | <input type="checkbox"/> Hamilton | <input type="checkbox"/> Lafayette | <input type="checkbox"/> Miami-Dade | <input type="checkbox"/> Polk | <input type="checkbox"/> Union |
| <input type="checkbox"/> Bradford | <input type="checkbox"/> Dixie | <input type="checkbox"/> Hardee | <input type="checkbox"/> Lake | <input type="checkbox"/> Monroe | <input type="checkbox"/> Putnam | <input type="checkbox"/> Volusia |
| <input type="checkbox"/> Brevard | <input type="checkbox"/> Duval | <input type="checkbox"/> Hendry | <input type="checkbox"/> Lee | <input type="checkbox"/> Nassau | <input type="checkbox"/> St Johns | <input type="checkbox"/> Wakulla |
| <input type="checkbox"/> Broward | <input type="checkbox"/> Escambia | <input type="checkbox"/> Hernando | <input type="checkbox"/> Leon | <input type="checkbox"/> Okaloosa | <input type="checkbox"/> St Lucie | <input type="checkbox"/> Walton |
| <input type="checkbox"/> Calhoun | <input type="checkbox"/> Flagler | <input type="checkbox"/> Highlands | <input type="checkbox"/> Levy | <input type="checkbox"/> Okeechobee | <input type="checkbox"/> Santa Rosa | <input type="checkbox"/> Washington |
| <input type="checkbox"/> Charlotte | <input type="checkbox"/> Franklin | <input type="checkbox"/> Hillsborough | <input type="checkbox"/> Liberty | <input type="checkbox"/> Orange | <input type="checkbox"/> Sarasota | |
| <input type="checkbox"/> Citrus | <input type="checkbox"/> Gadsden | <input type="checkbox"/> Holmes | <input type="checkbox"/> Madison | <input type="checkbox"/> Osceola | <input type="checkbox"/> Seminole | |
| <input type="checkbox"/> Clay | <input type="checkbox"/> Gilchrist | <input type="checkbox"/> Indian River | <input type="checkbox"/> Manatee | <input type="checkbox"/> Palm Beach | <input type="checkbox"/> Sumter | |

If you are NOT currently working, you have completed the survey. Thank you for providing this important information.

If you ARE currently working, please continue.

Answer **EITHER** item 12 or 13, **NOT BOTH**, for your primary place of employment.

13. If you are paid a wage (per hour), what is your hourly wage?

- less than \$10
- \$10 - 15
- \$16 - 20
- \$21 - 25
- \$26 - 30
- more than \$30

14. If you are paid a salary, what is your personal annual income?

- | | |
|---|--|
| <input type="checkbox"/> less than \$20,000 | <input type="checkbox"/> \$70,001-80,000 |
| <input type="checkbox"/> \$20,001-30,000 | <input type="checkbox"/> \$80,001-90,000 |
| <input type="checkbox"/> \$30,001-40,000 | <input type="checkbox"/> \$90,001-100,000 |
| <input type="checkbox"/> \$40,001-50,000 | <input type="checkbox"/> \$100,001-110,000 |
| <input type="checkbox"/> \$50,001-60,000 | <input type="checkbox"/> \$110,001-120,000 |
| <input type="checkbox"/> \$60,001-70,000 | <input type="checkbox"/> more than \$120,000 |

15. Present employment status: ___ FT ___ PT ___ Per Diem/Agency

16. Do you work for more than one employer? ___ Yes ___ No

17. **TOTAL** number of hours **SCHEDULED** to work in a typical **2-WEEK** period at **ALL JOBS**:
 ___ less than 40 ___ 40-49 ___ 50-59 ___ 60-69 ___ 70-79 ___ 80 ___ more than 80

18. **AVERAGE** number of hours you work **ABOVE** your **SCHEDULED** hours in a **2-WEEK** period at **ALL JOBS**:
 ___ less than 10 ___ 10-15 ___ 16-20 ___ 21-25 ___ 26-30 ___ more than 30

19. Number of weeks per year that you work at **ALL JOBS**:
 ___ 0-10 ___ 11-20 ___ 21-30 ___ 31-40 ___ 41-52

If you are NOT currently working in nursing, you have completed the survey. Thank you for providing this important information.

If you ARE currently working in nursing, please continue.

20. If you work in nursing, select one setting that best describes your primary nursing employer:

- ___ Hospital
- ___ Ambulatory Care
- ___ Public/Community Health
- ___ Occupational Health
- ___ Long Term Care
- ___ Home Health Care
- ___ Insurance Company
- ___ Nursing Education – Academic Setting
- ___ School Health
- ___ Physician or other Health Provider Office
- ___ Temporary Agency
- ___ Healthcare Consulting / Product Sales
- ___ Corrections Facility
- ___ Other

21. If you work in nursing, does your primary nursing position involve providing **DIRECT CARE SERVICES** to patients/families?
 ___ Yes ___ No

Thank you for providing this important information. Please visit the Center for Nursing’s website (www.FLCenterForNursing.org) to learn more about us, provide feedback on the survey, and for information on the nursing shortage.