



Analysis of Workforce Survey Data from the 1st RN Cohort Renewing in 2007

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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 FBON license renewal cycles. The 2007 survey improved upon the methods used in the Center's first attempt to survey renewing nurses in 2004. In both studies, renewing nurses received notice of the survey in license renewal materials mailed by FBON, and the studies were publicized in electronic mailing lists and state nursing publications. To participate, nurses had to key in the web address of the 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. In addition, new Florida licensees who requested a temporary license from FBON received a letter including an invitation to participate in the survey.

Approximately one-third of Registered Nurses (RNs) and Advanced Registered Nurse Practitioners (ARNPs) renewed their licenses from January through April of 2007. These nurses, and those becoming newly licensed in Florida during the time period, were eligible to take the survey. Of the 79,197 nurses we hoped to reach with the survey, only 6,293 usable surveys were received for an overall response rate of 7.95%. While this is an improvement over the 4.1% response rate obtained in the 2004 study, it is insufficient to produce unbiased results that can be generalized to all licensed RNs and ARNPs. Results suggest that our survey respondents are more likely to work, more likely to work in nursing, more likely to work in the hospital setting, and more likely to have advanced degrees than what could be expected from the entire population of licensed nurses.

After expenditure of considerable resources for the 2004 and 2007 studies, both resulting in low response rates and unreliable findings, a fundamental change in data collection methods is indicated:

Recommendation #1: Collection of workforce data must occur seamlessly with license renewal, since previous attempts at a separate survey have failed. This could be accomplished by including key employment variables as part of a voluntary questionnaire embedded in the license renewal form, both on paper and online. Alternatively, the key items could be made mandatory.

Recommendation #2: The most critical workforce data elements must be identified from the larger set of items on the current questionnaire, since it is unlikely that our current instrument can be included in the renewal process in its entirety. Items related to employment status, setting, amount of labor provided, and level of education are most important for supply forecasting.

Recommendation #3: The FCN should complete data collection and reporting of results provided by Florida's LPNs, all of whom are renewing March through July, 2007. Since LPNs will not renew again until 2009, we should learn what we can about this population while pursuing alternative data collection strategies.

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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, 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 FBON in 2004 to implement a survey of nurses renewing their licenses. The survey design called for nurses to update their workforce information each time they renewed, or every two years. An invitation to participate in the survey was distributed with license renewal materials to all nurses renewing in 2004. The invitation encouraged nurses to take the survey online, and a URL was provided for accessing the survey. If a paper copy was preferred, nurses could call the Center and a paper copy was mailed to them. This invitation was the only formal notice of the survey that renewing nurses received, and it was among many other notices distributed to nurses as part of the renewal packet. Though not personalized for renewing nurses, the survey effort was also publicized by the Center in electronic mailing lists and state nursing publications.

The methods available for access to the 2004 survey were burdensome for potential respondents. At that time FBON did not provide a link to or notice of the survey (housed on the Center's server) on their renewal website. Such a link would have functioned as a reminder to nurses who opened their renewal packets long before completing renewal. Nurses who wanted a paper version of the questionnaire had to place a phone call to the Center and request a copy, which would then arrive days after their request. Presumably as a result of these obstacles, the 2004 survey – fielded with two cohorts of Registered Nurses (RNs) and Advanced Registered Nurse Practitioners (ARNPs) renewing that year – achieved a very low 4.1 percent response rate. The Center's report concluded that the validity of the results was questionable and that alternative strategies for collecting the data were needed.²

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In 2006, the Center, FBON, and the Department of Health's Medical Quality Assurance (MQA) staff agreed on a modified data collection strategy that solved some of the problems experienced in 2004. We thank MQA and FBON for their support – both conceptual and practical – of our effort. This report describes the new methodology, response rates achieved, and survey results from the first cohort of RNs renewing their licenses from January through April of 2007. We conclude with a discussion of the project's success and recommendations for future collection of workforce information.

Survey Methods, 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. Two cohorts of nurses renew 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 will renew. In 2008, the remaining two-thirds of RNs/ARNPs will renew. This report describes data collected from the first cohort of RNs/ARNPs completing renewal on April 30, 2007.

An improvement on the 2004 attempt, the Center's 2007 Workforce Survey was publicized formally to nurses through three different means. In collaboration with FBON, the renewal notices sent to all nurses with licenses expiring on April 30, 2007 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 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.

The vast majority of respondents completed the survey online. Only 27 requests for paper copies were received by the Center, and only 18 of those were returned. Information provided by Medical Quality Assurance as of May 1, 2007 showed that the majority of processed returns for RNs (around 69%) and ARNPs (72%) had occurred online, which would increase the probability of online survey completion.

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Although the URL was not shared with non-nurses or those not renewing their nursing licenses during the January-April 2007 cycle, to ensure validity of the sample we asked respondents to use their nursing license numbers and type (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 5,851 survey records were retained for RNs and 442 were retained for ARNPs. Around 300 survey records were discarded because the respondent failed to provide a valid RN or ARNP license number or was not eligible to renew. In most of these cases (about 250), the respondent provided a license number that could not be matched with the licensure database.

To compute response rates and assess the representativeness of the survey respondents, an extract from the FBON licensure database on May 20, 2007 was used to isolate a matched portion of licensed nurses who were eligible to take the Workforce Survey. The matching sample of licensed nurses was constructed by retaining only RNs and ARNPs meeting one of two criteria: 1) their licenses were set to expire in April, 2009 or 2) their initial licensure date occurred between January and April 2007. A total of 74,580 RNs and 4,607 ARNPs were selected from the complete database for comparison with survey respondents.

Table 1. RN and ARNP Response Rates

	RNs	ARNPs	Combined
Matched Licensure File	74,580	4,607	79,187
Total surveys completed	5,851	442	6,293
Response Rate	7.84%	9.59%	7.95%

The response rate achieved for this survey, based on usable survey records and the matched licensure file of eligible survey respondents, was 7.95%. The response rate for ARNPs was slightly higher than the rate for RNs (9.59% vs. 7.84%). While this rate is nearly double that of the 2004 response rate (4.1%), a non-random sample of less than 10 percent of the population may yield biased conclusions. The validity of the survey sample was further tested by comparing characteristics of the respondents with those of the matched licensure data. We do not provide statistical significance tests in this report since the respondents were not randomly sampled from the population represented in the matched licensure file. Therefore, inferential statistics are inappropriate.

As Table 2 shows, the respondents are very similar to the matched licensure sample in most respects. About 7 percent of respondents are ARNPs, compared with around 6 percent of the matched sample. The vast majority of respondents and matched sample members have an active license to practice nursing (99.7% vs. 97.9%). The respondents come from the different regions of Florida in roughly the same proportions as do matched sample members, with one exception. The survey respondents are more likely to come from outside the state of Florida than are the matched sample members (9.8% vs. 2.8%). Finally, on basic demographic characteristics – gender, race/ethnicity, and age – respondents strongly resemble the matched licensure file.

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Table 2. Comparison of Survey Respondents and Matched Licensure Data

Type	Survey Respondents (N=6,293)		Licensure Data (N=79,187)	
	Frequency	Percent	Frequency	Percent
RN	5,851	92.98	74,580	94.18
ARNP	442	7.02	4,607	5.82
License Status				
Active	6,273	99.68	77,463	97.94
Inactive	20	0.32	1,627	2.06
Region				
Central	1,209	19.25	13,928	19.68
North	713	11.35	8,015	11.33
Northwest	472	7.51	5,024	7.10
South	548	8.72	7,179	10.14
Southeast	968	15.41	13,963	19.73
Southwest	1,756	27.96	20,656	29.19
Outside Florida	615	9.79	2,000	2.83
<i>Missing Data</i>	<i>12</i>	<i>0.2</i>	<i>8,422</i>	<i>11.9</i>
Gender				
Female	5,586	88.93	64,373	89.65
Male	695	11.07	7,435	10.35
Race/Ethnicity				
White	4,545	76.79	52,090	72.98
Black	589	9.95	8,263	11.58
Hispanic	471	7.96	5,082	7.12
Asian	236	3.99	4,796	6.72
Native American	14	0.24	128	0.18
Others	64	1.08	1,016	1.42
Average Age	45.6 years		46.5 years	

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Comparison of the survey respondents and matched licensure file sample increases our confidence in the validity of survey results, since respondents appear representative on many characteristics. However, this does not mean our survey results are unbiased with respect to other characteristics. When response rates are very low, there is usually some difference between respondents and non-respondents associated with the differential motivation they have to respond to the survey. Since we do not know the work behaviors or education level of the matched licensure file members, we cannot say with confidence that our respondents are similar to others on these characteristics. Therefore, we caution readers against generalizing these results to the population of RNs and ARNPs. Results apply to respondents, but they may not represent others well.

Results

Fields and Settings of Employment

The vast majority of survey respondents (93.4%) reported that they were employed at the time of the survey. Nearly 90 percent of the respondents reported that the jobs they held required a nursing license, which places the job within the field of nursing. Another 2 percent of respondents were seeking nursing employment. In contrast, the National Sample Survey of Registered Nurses estimated in 2004 that 78.3 percent of Florida RNs were working in nursing.³ This discrepancy may reflect bias in our sample toward nurses working in the field of nursing.

Table 3. Respondents' Work Status and Field

	Frequency	%
Employed in nursing	5593	89.05
Employed outside nursing	270	4.30
Seeking nursing employment	133	2.12
Currently not working or seeking work	235	3.74
Retired or with no plans to work	50	0.80

A large majority of respondents (82%) reported that they worked for only one employer. Respondents working in the field of nursing were asked about the setting for their primary job, if they held more than one. A majority of these nurses (64.8%) reported that the setting of their primary job was a hospital. The nearly one-third of remaining respondents are distributed across a number of other settings, the most populous being home health (5.0%), ambulatory care settings (4.3%), offices of physicians or other primary care provider (4.1%), and long term care (3.7%). The large proportion of hospital-based respondents to this survey is higher than the 54 percent reported by Florida's Agency for Workforce Innovation for 2006.⁴ It is unknown whether this discrepancy reflects bias in the survey data or measurement differences between FAWI and the Center.

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Respondents were also asked whether their nursing position involved providing direct care services to patients. In keeping with the large proportion of hospital-based nurses, 81.2 percent of those working in nursing reported that they did provide direct care.

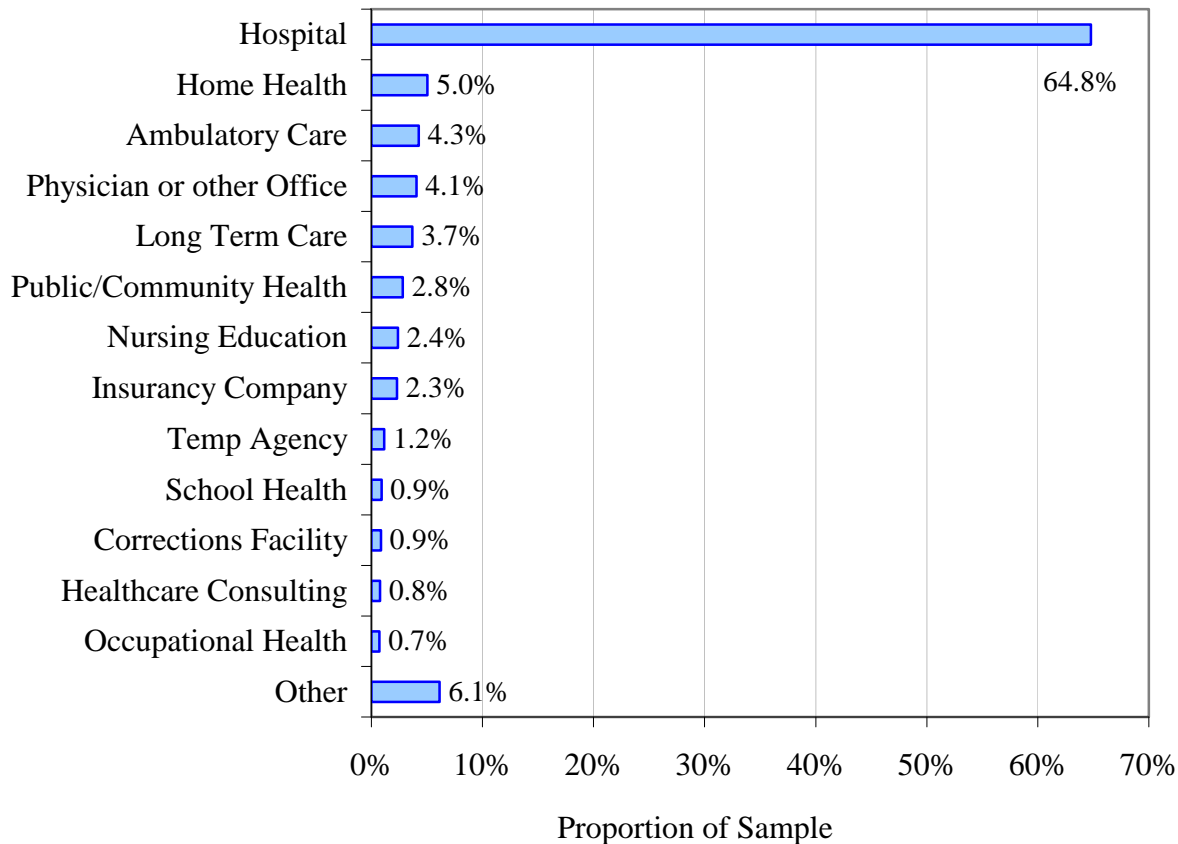


Figure 1. Employment Setting of Respondents

Amount of Labor Provided

Table 4 details the work habits of survey respondents. More than 80 percent of respondents reported working full-time, with the remaining 20 percent split evenly between part-time and per diem/agency status. Most respondents (60.6%) reported that they were scheduled to work at least 70 hours during a typical two-week period, but 31.7 percent reported that they were scheduled for fewer than 50 hours in two weeks – a finding that is unusual given the large proportion of respondents working full-time. It is possible that some respondents were considering a one-week time frame when answering this item.

It is also possible that part-time nurses working substantial overtime may function as a full-time employee even if they are classified by an employer as “part-time” for benefit purposes. These nurses may see themselves as working full-time yet have fewer scheduled hours. Most

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respondents (61.2%) reported working fewer than 10 overtime hours in a two-week period, but more than 10 percent report working at least 20 overtime hours.

A major driver of work habits is age, since aging nurses are more likely to work part-time and eventually leave the workforce permanently through retirement. Younger nurses, especially women, may also leave the workforce for a period of time while raising children. Movement through the life course brings changes in physical ability (for example, the ability to do the physically demanding work of direct care), competing family concerns, and financial motivation to work.

Table 4. Work Habits of Respondents

Status	% of Sample	Weeks Worked	% of Sample
Full-time	80.42	0-10	1.66
Part-time	9.79	11-20	0.66
Per Diem/Agency	9.79	21-30	2.32
		31-40	7.97
		41-52	87.39
Hours Scheduled in Typical 2 Wks.	% of Sample	Overtime Worked in Typical 2 Wks.	% of Sample
Less than 40	10.93	Less than 10	61.16
40-49	20.77	10-15	21.56
50-59	3.50	16-20	7.04
60-69	4.18	21-25	4.06
70-79	23.04	26-30	1.48
80	25.89	More than 30	4.69
More than 80	11.68		

To learn more about the work habits of respondents in relation to age, information about the typical number of hours scheduled, overtime hours worked, and weeks worked per year was combined to assign each nurse a “full-time equivalent (FTE) in nursing” value. Nurses working 40 hours each week – the standard for full-time employment in the U.S. – were assigned an FTE value of 1.0. Nurses working fewer (or more) than 40 hours each week have values below or above 1.0 signifying the proportion of a 40 hour work week the nurse completes. If respondents reported that they did not work, or were employed outside the field of nursing, they were assigned an FTE value of 0 to indicate that they provide no nursing labor. The average FTE value for all respondents was 0.82, reflecting the fact that most respondents are employed in nursing and are working full-time.

Figure 2 shows how the average nursing FTE value of respondents changes with their age. Nurses aged 22-30 had an average FTE value of 0.88, and this value declines very gradually through the 51-60 age category (average FTE = 0.81). In the 61-70 age category, average FTE

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value takes a steep drop to 0.61, and among those 71-80 it is 0.39. Although there is a predictable drop in average nursing FTEs as we move through the age categories, the FTE values in the older age categories are unusually high. Among respondents aged 71-80, for example, the value means that the average licensed nurse is working in nursing nearly half-time. This likely indicates bias in the survey sample, not only towards nurses who work but also nurses who work an above-average number of hours.

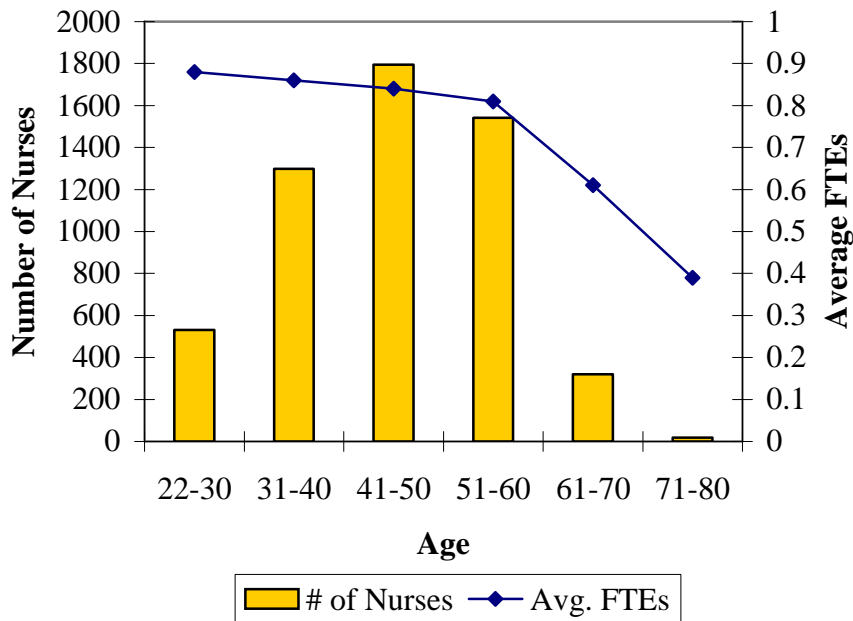


Figure 2. Average FTE Value by Age

Education and Income

Table 5 displays the educational characteristics of survey respondents. Fewer than half of the respondents completed their basic nursing education – the first degree leading to nursing licensure – within the state of Florida. This finding is consistent with figures reported by FBON regarding the large proportion of licensed nurses in Florida that come from other states. Florida routinely endorses as many or more nurses into the state as it licenses by examination.⁵ As well, the proportion coming from a foreign country (7.23%) is consistent with Florida’s draw as a destination for foreign-born nurses.

The educational attainment of respondents to our survey appears weighted toward higher levels of education when compared with results from the 2004 National Sample Survey. Sample survey results for Florida showed that 57 percent of nurses working in the field of nursing were prepared at the diploma or associate’s level, and around 12 percent had attained master’s or doctoral degrees.³ In contrast, only 49.5 percent of respondents to our survey were prepared at the diploma or associate’s level, and nearly 16 percent reported having a master’s or doctoral degree.

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In addition, 11 percent of respondents were currently pursuing more advanced degrees. Of those currently enrolled, 47.5 percent of respondents were working towards bachelor’s degrees and 39.2 percent were working towards master’s degrees.

Table 5. Respondents’ Educational Characteristics

Location of Basic Nursing Education	% of Sample	Current Enrollment in Nursing Program	% of Sample
Florida	47.05	Yes	11.26
Other state	43.91	No	88.74
US Territory	1.81		
Foreign Country	7.23		
Highest Degree Attained		Type of Nursing Program (if enrolled)	
Diploma	10.85	ADN	1.45
AD	38.60	BSN	47.47
BSN	28.24	MSN	39.22
BA/BS	6.61	Certificate in Nursing Education	2.60
MSN	9.16	Nursing doctorate	5.50
MA/MS	5.02	Degree in non-nursing field	3.76
Nursing doctorate	0.53		
Other doctorate	1.00		

Respondents were given the option of reporting either annual salary or hourly wages as measures of income. As Table 6 shows, the majority chose to report hourly wages. More than 90 percent of those reporting wages were making at least \$21/hour, with the largest proportion of respondents (one-third) making between \$26-\$30/hour. A large proportion reported making more than \$30/hour, and it is unknown exactly how high the average wage of these respondents is. Among those reporting annual salary, the most frequently selected category was \$50,001-\$60,000. Most respondents made between \$40,000 and \$80,000.

To standardize measures of income across 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 procedure 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 created for these respondents by assigning the midpoint of each category range to respondents who selected the category. The interval-level annual salary measure, computed for all respondents, ranged from \$3,250 to \$130,000 and averaged \$57,681 dollars.

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Average income was compared across education levels and settings of employment to better understand the financial incentives associated with each. Figure 3 shows the affect of education on income, while Table 7 shows income differences across settings.

Table 6. Salaries and Wages Reported

Annual Salary (if reported)	N	%	Hourly Wage (if reported)	N	%
Less than \$20,000	12	0.69	Less than \$10	7	0.19
\$20,001-\$30,000	26	1.50	\$10-15	25	0.68
\$30,001-\$40,000	71	4.09	\$16-20	242	6.60
\$40,001-\$50,000	202	11.64	\$21-25	1122	30.60
\$50,001-\$60,000	347	20.00	\$26-30	1220	33.27
\$60,001-\$70,000	346	19.94	More than \$30	1051	28.66
\$70,001-\$80,000	282	16.25	Totals	3667	100.0
\$80,001-\$90,000	160	9.22			
\$90,001-\$100,000	100	5.76			
\$100,001-\$110,000	63	3.63			
\$110,001-\$120,000	35	2.02			
More than \$120,000	91	5.24			
Totals	1735	100.0			
	Mean	Std. Dev.	Minimum	Maximum	
Salary as Interval (all respondents)	\$57,681	\$22,954	\$3,250	\$130,000	

As the figure shows, higher educational attainment is associated with a higher annual salary. Diploma and AD nurses reported making less than \$55,000 per year, while those with master’s and doctoral degrees made more than \$70,000. Of interest in these results, however, is the very small difference between the salaries of bachelor’s prepared nurses and those with less education. Those with a BSN make less than \$3,000 additional per year than their counterparts with diplomas and associate’s degrees. Similarly, there is little difference in the salaries of those with master’s and doctoral degrees. Those with doctoral preparation make only a few thousand dollars more than those prepared at the master’s level. These results suggest that there is little financial incentive for nurses to upgrade their education from the associate’s to bachelor’s level, unless they plan to pursue graduate work. They also suggest little incentive to attain a doctoral degree.

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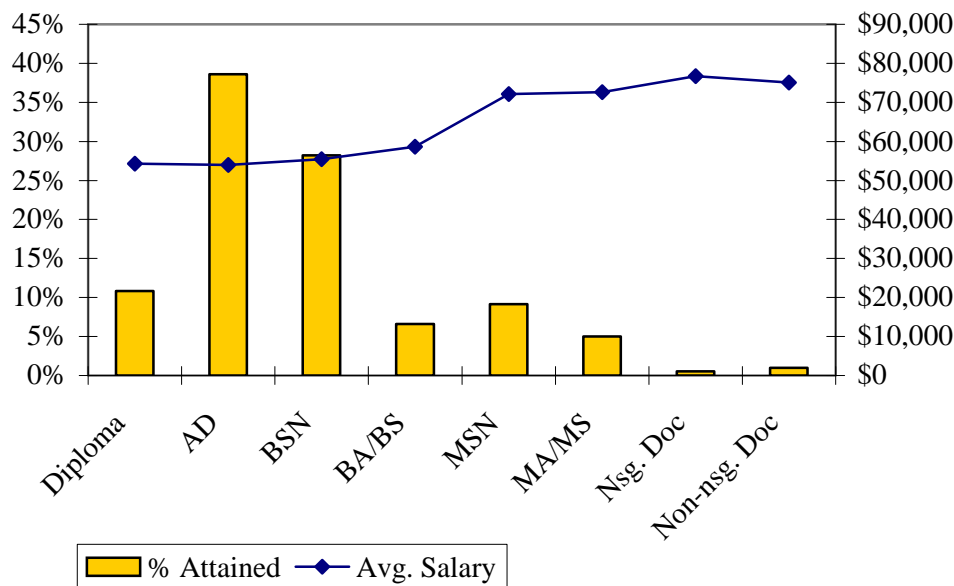


Figure 3. Annual Salary by Education Level

Table 7. Annual Salary by Setting and Education

Setting	Average Salary (all respondents)	Average Salary (master's or higher)
Healthcare Consulting	77,115	94,140
Insurance Company	61,852	72,176
Occupational Health	60,562	68,384
Other	59,371	68,538
Nursing Education	59,022	64,673
Physician or other Office	59,004	74,401
Ambulatory Care	58,798	77,506
Hospital	57,239	74,529
Temp Agency	56,135	51,671
Long Term Care	55,860	67,707
Home Health	54,432	64,667
Corrections Facility	52,233	56,987
Public/Community Health	50,346	67,515
School Health	39,230	66,788

Of course, the desired setting of employment shapes both salary and the level of education needed. As Table 7 shows, the most profitable settings for respondents were Healthcare Consulting, Insurance Company, and Occupational Health. The least profitable were School

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Health, Public Health, and Corrections Nursing. Note that the three lowest paid settings are comprised mostly of government positions within public schools, health departments, and prisons. The highest paid settings are exclusively private, drawing on the larger bankrolls of private companies.

When the salaries of those with higher levels of education are broken out, as shown in the third column of the table, it is clear that in most settings there are financial rewards for moving from undergraduate to graduate preparation. Notably, there is little benefit for highly educated nurses within corrections or temporary agency employment. Comparison across setting in this column indicates which settings are paying above or below the average (about \$73,000) for highly educated nurses. It is interesting to note that highly educated nurses working in nursing education programs make nearly \$10,000 less than is average for respondents with master's or higher preparation. If this finding is representative of the situation in Florida, it forecasts a worsening faculty shortage in the state.

This presentation of results underscores the analytic possibilities and benefits of workforce data collection among nurses. However, we stop short of the analyses that *could* be performed with these data elements. Were we more confident in the reliability of these results and the extent to which they represent all licensed nurses in the state, we could pursue analysis of work habits by type of nurse (RN vs. ARNP) or demographic characteristics. We could also accomplish supply forecasting based on age and work habits. The results we have shared in this report caution us against over-interpreting the data, since it appears to contain substantial bias. In the concluding section of this report, we discuss in more detail the study's failure to accurately represent nurses in the state.

Conclusions and Recommendations

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, compared with many other studies, but the 6,293 surveys we received represents only 7.95 percent of the nurses we hoped to reach with the survey. Although a 100 percent response rate is unrealistic, reliable results could be obtained if response rates were above 50 percent. Since our results are considered unreliable by this standard, the remainder of this report focuses on reasons for the low response rate, types of bias that may be present, and ways to make future data collection efforts more successful.

Although comparison of survey respondents to the matched sample of nurses from the licensure database showed that respondents were similar on basic demographic characteristics, analysis of survey results suggests that survey respondents are different from non-respondents in important ways. It is important to point out that there exists no satisfactory way to evaluate the validity of results, since existing sources of data on the characteristics of Florida's nurses are sparse and

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may themselves suffer from methodological flaws. Our best guess, however, is that our survey respondents are more likely to work, more likely to work in nursing, more likely to work in the hospital setting, and more likely to have advanced degrees than what could be expected from the entire population of licensed nurses.

From a research methods perspective, this particular set of differences should not be surprising. Low response rates tend to create bias associated with the motivation (or ability) to respond. For example, it is possible that our respondents are more likely to be working in nursing than are non-respondents because working in nursing – and being exposed to nursing shortage conditions on the job – could increase the perceived relevance or value of a survey from an agency charged with addressing the shortage. A similar explanation might apply to nurses working in the hospital setting, where shortage conditions are often found, or to nurses working many hours each week to compensate for short-staffing at a facility of any type. Highly educated members of the population are more likely to respond to any self-administered survey. The response task might be easier for them, but more importantly for a study like this one, it might be clearer to them why the information is needed and how it can be used to create positive change for the nursing workforce. Respondents to this survey may be more professionally oriented than others.

The methodological improvements in our survey process since the 2004 Workforce Survey did result in higher response rates, but the increase was not sufficient to warrant calling the 2007 survey a success. Even the most important improvement – an automatic redirection to the FCN survey when online renewal is complete, designed to reduce respondent burden – made little difference in the overall response rates. It is possible that identifying information required by the survey (e.g., license number) may have discouraged some nurses from participating. The 2004 survey was anonymous in the sense that survey records could not be linked with an individual nurse. The 2007 survey was designed so that information provided on the survey could be linked with information from the licensure database. This design increases our control over the timing and validity of responses, since we can discard records from non-nurses or those who are not renewing in the current cycle. It is also possible that the questionnaire content was off-putting in some way. People are often reluctant to share information about income, for example.

Whatever the reasons for bias or non-response, the result of this low response rate is that the Center remains unable to report the number of nurses working in nursing, how much they work at various ages, and their settings of employment. Without this information, accurate forecasts of the nurse supply – needed to advise policy-makers and nursing leaders of appropriate solutions – cannot be made. From the Center's perspective, the result is that we remain unable to meet the mission, established for us by the legislature, of generating and disseminating credible information regarding our state's nurse supply.

Disclaimer: Due to the low 7.9% response rate in this study, reported findings apply only to the respondents and may not be construed as representing the Florida nursing population at large.

After expenditure of considerable resources for the 2004 and 2007 studies, both resulting in low response rates and unreliable findings, we call for a fundamental change in data collection methods:

Recommendation #1: Collection of workforce data must occur seamlessly with license renewal, since previous attempts at a separate survey have failed. This could be accomplished by including key employment variables as part of a voluntary questionnaire embedded in the license renewal form, both on paper and online. Alternatively, the key items could be made mandatory. Medical Quality Assurance has included voluntary employment items for physician renewals, and they report very high response rates for the items. This suggests that a voluntary questionnaire embedded in license renewal for nurses might be successful.

Recommendation #2: The most critical workforce data elements must be identified from the larger set of items on the current questionnaire, since it is unlikely that our current instrument can be included in the renewal process in its entirety. Items related to employment status, setting, amount of labor provided, and level of education are most important for supply forecasting. Other items could be ranked according to their importance for forecasting or policy and included if space is available.

Recommendation #3: The FCN should complete data collection and reporting of results provided by Florida's LPNs, all of whom are renewing March through July, 2007. Since LPNs will not renew again until 2009, we should learn what we can about this population while pursuing alternative data collection strategies.

Disclaimer: Due to the low 7.9% response rate in this study, reported findings apply only to the respondents and may not be construed as representing the Florida nursing population at large.

References

1. Florida Center for Nursing. (2007). *Analysis of Nurse Licensure Data in Florida: Methods and Statewide Results*. Orlando, FL: author.
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. 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.
4. Florida Agency for Workforce Innovation employment statistics were produced by request for the Florida Center for Nursing in September 2006.
5. Florida Board of Nursing. (2005). *Annual Report: Nursing Licensure in Florida 2001-2005*. Tallahassee, FL: Florida Department of Health.

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.