



# Licensed Nurses in Florida: 2007-2008 Trends and Longitudinal Analysis

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**Addressing Nurse Workforce Issues for the Health of Florida**

[www.FLCenterForNursing.org](http://www.FLCenterForNursing.org)

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### Executive Summary

The Florida Center for Nursing (Center) analyzed nurse licensure data from January 2007 and January 2008 to evaluate change in the state's nurse supply occurring during calendar year 2007. The Center subsets the complete set of licensed nurses in Florida to isolate a group of nurses who could reasonably be practicing nursing in the state. This subset, called the *potential nurse workforce*, includes all nurses with an active license, eligibility to practice nursing, and a Florida address. This report describes one-year trends and a longitudinal analysis identifying nurses who joined – and left – the potential nurse workforce during 2007.

Biennial license renewal cycles impact the accuracy of one-year trends because nurses are unevenly distributed into the four renewal periods that comprise the two-year cycle. In 2007, all Licensed Practical Nurses (LPNs) were scheduled to renew but only one-third of Registered Nurses (RNs) and Advanced Registered Nurse Practitioners (ARNPs) were scheduled to do so. Since losses from the potential nurse workforce are typically evident when a nurse fails to renew or provides an out-of-state address during renewal, the one-year trends reported here may overestimate one-year losses for LPNs and underestimate one-year losses for RNs and ARNPs.

While the two-year trends we find when analyzing January 2009 licensure data will be more accurate, one-year trends provide timely information on the health of Florida's potential nurse workforce:

- Though it is difficult to estimate the true net change in nurse supply size over the course of one year, results suggest that the net increase in the potential RN workforce was insufficient to fill existing vacancies and projected growth during 2007. The nursing shortage likely became more severe in 2007 and may deepen further in 2008.
- Large numbers of nurses joined and left the potential nurse workforce to create the net change in nurse supply we found. Although more than 13,000 RNs joined the potential nurse workforce, more than 7,000 RNs left, resulting in a net increase of about 6,000 RNs.
- For RNs and LPNs, the primary reason for exit from the potential nurse workforce was failure to renew a nursing license as scheduled. The second most prevalent reason for RNs and LPNs, and the most prevalent reason for ARNPs, was that the nurse is no longer living and/or working in Florida.
- Florida's potential nurse workforce grew slightly older during 2007, consistent with national trends and projections of an aging nurse workforce. More than 40% of the potential nurse workforce is over the age of 50 and will reach typical ages for retirement over the next decade.
- New licensees by examination in 2007 averaged 32 years of age for RNs and 33 years for LPNs. This is also consistent with national studies finding that the average age of new nurses is increasing. Nurses who begin a career later in life generally have shorter nursing careers.
- Florida's potential nurse workforce grew more diverse in terms of race and ethnicity during 2007. New entrants to the potential workforce were much more likely to be non-white and male than their counterparts who left the potential workforce during the year.

The Center offers three primary recommendations for further research and intervention efforts to alleviate the nursing shortage based on these findings:

1) *Trend and longitudinal analyses should be conducted biennially to maximize the accuracy of our reports of net change, additions, and losses.* The biennial renewal cycles in Florida create an uneven account of change during a single year because LPNs only renew in odd years and the majority of RNs and ARNPs renew in even years. Given that renewal outcomes are critical to assessing loss from the potential nurse workforce, the two-year trends we can report in 2009 will be more accurate.

2) *Losses from the potential nurse workforce must be reduced to keep Florida's nursing workforce from operating as a "revolving door."* Although Florida has increased its production of new graduate nurses and continues to draw nurses from other states, the magnitude of losses from the potential nurse workforce means that the *net* increase in nurse supply each year is insufficient to keep pace with increasing demand for nurses. Employers must be incentivized for maintaining work environments that retain nurses, and programs which contribute to the knowledge base for best retention practices – such as the Center's Retention and Recruitment Funded Initiative Program – must be increased in scale.

3) *The nursing profession must be made attractive to younger persons choosing a first career.* Entrants into the nursing profession at any age are certainly welcome, but the rising average age of graduation from nursing school means that new nurses will have a shorter nursing career than was true of cohorts born before 1970. To maximize the tenure of new nurses, efforts to attract younger persons into nursing are warranted.

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### Background and Data

The Florida Center for Nursing (Center) was established in 2001 to address issues of nurse supply, demand, and shortage. One important source of nurse supply data is the Florida Board of Nursing (FBON) nurse licensure database, which is a dynamically changing record of nursing licenses and associated regulatory information including license status and type. In addition, the FBON collects information on applicants' birth year, year of initial licensure, gender, race/ethnicity, and address. In 2006, the Center and FBON reached an agreement whereby an electronic copy of the database is provided regularly to the Center for nurse supply analyses and forecasting.

When licensure data files from two or more time points are available, trends in the supply of nurses can be evaluated. For example, we can observe changes in the size of the licensed nurse population over time, including differences in the growth rate of Registered Nurses (RNs), Licensed Practical Nurses (LPNs), and Advanced Registered Nurse Practitioners (ARNPs). In addition, we can track changes in the demographic composition of these populations and evaluate regional differences in growth and demographic change. Multiple licensure files also permit longitudinal analyses of the nurse population. In contrast to trend analysis, which follows aggregate changes in a population over time, longitudinal analysis tracks changes in the status of individual nurses. For example, a longitudinal analysis can identify the subset of nurses who leave the licensed nurse population during the study period and report their characteristics.

This report describes the results of trend and longitudinal analyses of two years of licensure data to derive one-year trends and longitudinal outcomes during the 2007 calendar year. As more years of data become available to the Center, the time period covered by our reports will increase, allowing more confidence in the direction and magnitude of changes observed over time. In addition to change over time at the state level, which is presented in this report, detailed statistics for trends within each of six regions of the state tracked by the Center can be found on our website at <http://www.flcenterfornursing.org/workforce/data.cfm>. Information on the number and characteristics of nurses at a single time point (January 2008) is also available from that web page at the Regional Workforce Board and county levels.

The data presented in this report are beginning-of-year estimates for 2007 and 2008 such that change over time can be interpreted as occurring during calendar year 2007. The FBON does not collect information about the work behaviors of licensed nurses, so it is not possible to know how many of the nurses counted in this report are actually working in nursing, how much they work (e.g., full-time vs. part-time), or in what settings. Therefore, the data must be interpreted as reflecting the *licensed nurse population*, **not** the *nurse workforce*.

Because the Center's interest is in the amount of *nursing labor* provided, in contrast to the number of *nursing licenses* held, we subset the complete file sent by the FBON to isolate nurses who are more likely to be working as nurses in Florida. We call this subset of nurses the ***potential nurse workforce***. Nurses analyzed by the Center must meet the following inclusion criteria: 1) have active licenses, 2) have license statuses that render them eligible to practice

nursing, and 3) provide a Florida address. **In each table and chart presented in this report, counts and characteristics are always reported for the potential nurse workforce, not the full set of nursing licenses that comprise the licensure database.** Table 1 shows the number of nurses excluded from the January 2008 file because they did not meet our analysis criteria.

**Table 1. Membership in the Potential Nurse Workforce, January 2008**

	All Florida Licensees	Potential Nurse Workforce	Others
<b>RN</b>	226,827	175,581	51,246
<b>ARNP</b>	13,894	11,094	2,800
<b>LPN</b>	68,551	55,735	12,816
<b>Total Licensed Nurses</b>	<b>309,272</b>	<b>242,410</b>	<b>66,862</b>

For more information about the process used to subset the complete file, please see our technical notes presented in “[Technical Documentation: Florida Center for Nursing Analyses of Nurse Licensure Data.](#)” The technical documentation also includes information about license renewal cycles for nurses in Florida, analysis of excluded nurses by reason for exclusion, discussion of data cleaning procedures, and information on missing data.

Trends in Potential Nurse Workforce Size and Composition

Table 2 shows trends in the size of the potential nurse workforce. **It is important to point out that Florida’s license renewal cycles have an impact on one-year trends in population size.** In most cases, attrition from the potential nurse workforce is only evident after a nurse has failed to renew or provided an out-of-state address during the renewal process. In 2007, one-third of RNs and ARNPs were asked to renew their licenses, as were *all* LPNs. In 2008, the remaining two-thirds of RNs and ARNPs will renew. Thus, while the one-year trends show growth in the RN/ARNP populations and losses from the LPN population, it is likely that losses for RNs and ARNPs are understated because only one-third of those nurses were due to renew during 2007. Likewise, gains from new licensees in 2008 may balance out the LPN losses in 2007. **The complete picture of gains and losses will not be visible until the two-year renewal cycle is completed and presented in our 2009 report.**

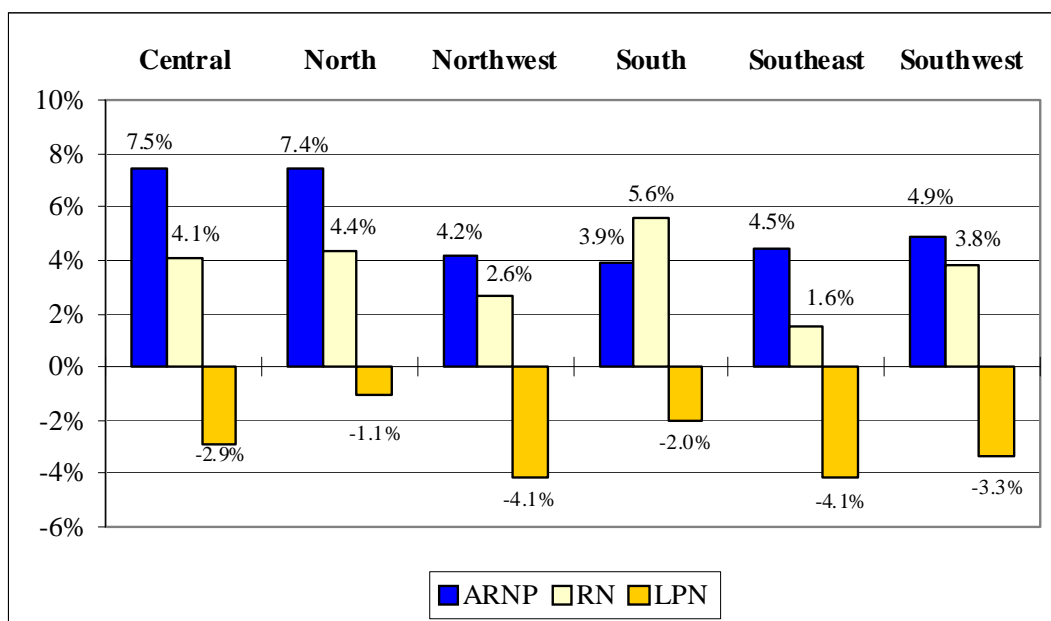
**Table 2. Change in Potential Nurse Workforce Size During 2007**

	2007	2008	# Change	% Change
<b>RN</b>	169,555	175,581	6,026	3.55%
<b>ARNP</b>	10,528	11,094	566	5.38%
<b>LPN</b>	57,561	55,735	-1,826	-3.17%
<b>Total</b>	<b>237,644</b>	<b>242,410</b>	<b>4,766</b>	<b>2.01%</b>

Still, it is clear that LPN losses during their 2007 renewal outweighed the gains from newly licensed LPNs or those endorsing into the state. The potential LPN workforce in Florida shrank by more than three percent (1,826 nurses) during the year. In contrast, the gains from newly licensed RNs and ARNPs outweighed the losses incurred among the one-third of nurses who were scheduled to renew. As a result, the potential RN workforce increased by about 3.5 percent (6,026 nurses) and the potential ARNP workforce increased by about 5.4 percent (566 nurses).

Overall, the potential nurse workforce increased by about two percent and added 4,766 licensed nurses to the pool during 2007.

Figure 1 illustrates the percentage change in potential nurse workforce within each of the six regions of the state that the Center uses (see Appendix A for a map showing the county composition of each region). Although each region shows a gain for RNs/ARNPs and a loss for LPNs, consistent with statewide figures, the Northwest and Southeast regions experienced some of the smallest gains and largest losses. The RN supply grew only 1.6 percent in the Southeast and 2.6 percent in the Northwest, and both regions lost 4.1 percent of their LPN populations over the year. The North, Central, and South regions tended to fare better, although the South shows the least growth in ARNP supply. More detailed regional figures can be accessed from the [Workforce Data](#) page of the FCN website.



**Figure 1. One-Year Change in Potential Nurse Workforce, By FCN Region**

In addition to change in size, the potential nurse workforce has changed – in most cases, very slightly – in demographic composition. Tables 3-5 show the demographic characteristics of RNs, ARNPs, and LPNs in both 2007 and 2008. The only consistent demographic change for all three nurse types is a decline in the proportion reporting White race. The racial/ethnic categories experiencing gains in percentage points tended to be Black and Hispanic.

Table 3 details results for RNs. Consistent with national projections of an aging nurse population<sup>1</sup>, the average age of RNs in Florida increased by about 0.2 years during 2007. As of January 2008, the average age of RNs in the potential nurse workforce was 47.7 years. The breakdown of age into categories shows that the proportion of RNs aged 61 or older increased by more than a percentage point during the year. The proportion of RNs aged 21-30 also increased by half a percent, but the influx of younger nurses was insufficient to keep the average age of RNs from rising during the year. In 2008, nearly 15 percent of RNs meeting our inclusion criteria

were over the age of 60. More than 43 percent were over the age of 50. If prevalent retirement patterns hold, Florida will face a considerable loss of RNs as these nurses retire over the next ten years.

Florida's RNs are slightly more diverse in terms of gender and race/ethnicity in 2008. The proportion of males is very slightly higher (about 0.2 percentage points) in 2008. More striking is the one-year change in the proportion reporting White race. During 2007, the RN population reporting White race decreased by a full percentage point, while increases in proportions were found for Black, Hispanic, and Asian nurses. The potential RN workforce remains heavily skewed towards White females, however. In 2008, more than 90 percent were female and more than 70 percent were White.

**Table 3. Trends in Florida's Potential RN Workforce**

	<b>2007</b>	<b>2008</b>
<b>Number of Nurses</b>	169,555	175,581
<i>Average Age</i>	47.48	47.66
<i>Age in Categories (%)</i>		
<b>20 or younger</b>	0.01	0.01
<b>21-30</b>	9.04	9.59
<b>31-40</b>	20.09	19.81
<b>41-50</b>	28.99	27.41
<b>51-60</b>	28.14	28.45
<b>61 or older</b>	13.73	14.72
<b>Average Years Licensed in FL</b>	13.03	13.16
<i>Gender (%)</i>		
<b>Female</b>	90.74	90.56
<b>Male</b>	9.26	9.44
<i>Race/Ethnicity (%)</i>		
<b>White</b>	74.13	73.03
<b>Black</b>	10.98	11.21
<b>Hispanic</b>	6.57	7.18
<b>Asian</b>	6.71	6.94
<b>Native American</b>	0.18	0.17
<b>Others</b>	1.43	1.48

Table 4 presents trends for Florida’s potential ARNP workforce. As with RNs, the ARNP population increased in average age – by about 1/3 of a year – during 2007. Again, the largest increase in proportion occurred for those over the age of 60, and ARNPs aged 51-60 increased by half a percentage point. In 2008, about 46 percent of ARNPs meeting our inclusion criteria were above the age of 50. As is the case for RNs, the next decade is likely to bring large losses of ARNPs due to retirement.

Although the proportion of male ARNPs did not increase substantially, this population *is* becoming more diverse in terms of race and ethnicity. The proportion reporting White race declined by more than half a percentage point, and these losses were accounted for by increases in the proportion reporting Hispanic and Asian ethnicity or race.

**Table 4. Trends in Florida’s Potential ARNP Workforce**

	<b>2007</b>	<b>2008</b>
<b>Number of Nurses</b>	10,528	11,094
<i>Average Age</i>	48.17	48.49
<i>Age in Categories (%)</i>		
<b>20 or younger</b>	0.00	0.00
<b>21-30</b>	4.25	4.29
<b>31-40</b>	19.92	19.91
<b>41-50</b>	31.75	29.87
<b>51-60</b>	33.55	34.10
<b>61 or older</b>	10.54	11.83
<b>Average Years Licensed in FL</b>	16.21	16.51
<i>Gender (%)</i>		
<b>Female</b>	85.88	85.78
<b>Male</b>	14.12	14.22
<i>Race/Ethnicity (%)</i>		
<b>White</b>	82.09	81.44
<b>Black</b>	7.81	7.82
<b>Hispanic</b>	5.37	5.83
<b>Asian</b>	3.25	3.41
<b>Native American</b>	0.22	0.20
<b>Others</b>	1.26	1.30

Unlike RNs and ARNPs, Florida’s potential LPN workforce declined in size. Also in contrast to other nurse types, the average age of LPNs actually decreased very slightly. Inspection of the age distribution in categories shows increases in the proportion of those younger than 30 years and decreases in the proportion aged 30-50. In 2008, almost 40 percent of LPNs were above the age of 50 and will be nearing retirement age in the next decade.

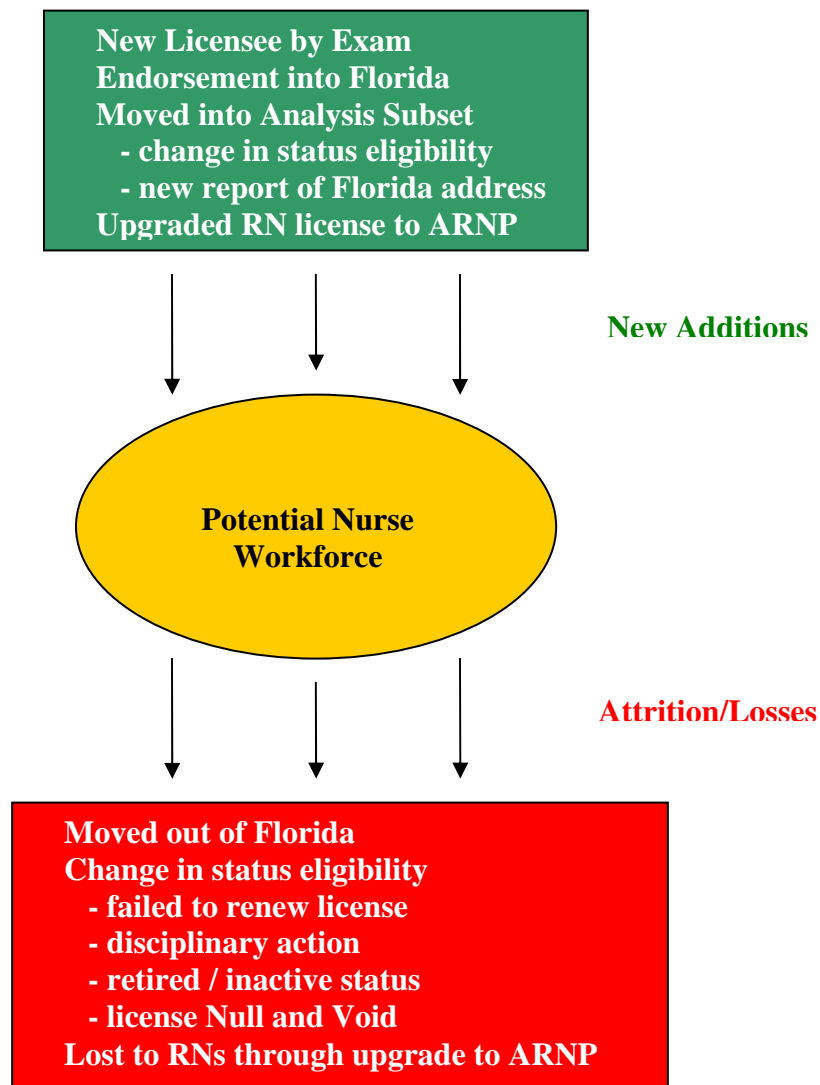
Like the other nurse types, however, the LPN population is becoming more diverse in terms of gender and especially race/ethnicity. The most striking one-year change occurred in the proportion reporting White race, which declined by two full percentage points. The proportion reporting Black race increased by almost 1.5 percentage points, and the proportion reporting Hispanic ethnicity also increased.

**Table 5. Trends in Florida’s Potential LPN Workforce**

	<b>2007</b>	<b>2008</b>
<b>Number of Nurses</b>	57,561	55,735
<i>Average Age</i>	46.39	46.28
<i>Age in Categories (%)</i>		
<b>20 or younger</b>	0.27	0.32
<b>21-30</b>	11.00	11.54
<b>31-40</b>	22.74	22.57
<b>41-50</b>	26.94	26.34
<b>51-60</b>	25.94	26.07
<b>60 or older</b>	13.11	13.17
<b>Average Years Licensed in FL</b>	11.69	11.64
<i>Gender (%)</i>		
<b>Female</b>	91.33	91.13
<b>Male</b>	8.67	8.87
<i>Race/Ethnicity (%)</i>		
<b>White</b>	64.11	62.11
<b>Black</b>	25.38	26.61
<b>Hispanic</b>	6.48	7.11
<b>Asian</b>	2.17	2.23
<b>Native American</b>	0.28	0.26
<b>Others</b>	1.58	1.68

Longitudinal Analysis: Accounting for Net Change in Potential Nurse Workforce Size

The net change in potential nurse workforce size, shown in Table 2, is a function of the difference between two much larger groups of nurses flowing into and out of this population. Figure 2 is a graphic description of the ways in which nurses enter and leave the population of licensed nurses who are eligible to work in nursing and report a Florida address. Additions to the population occur through four main pathways that can be detected using FBON licensure data: 1) newly licensed nurses, 2) those who applied for endorsement from other states, 3) movement into the analysis subset, including new report of a Florida address during renewal and changes in status eligibility, and 4) license upgrading from the RN to the ARNP, which increases the size of the ARNP population.



**Figure 2. Factors Creating Net Change in Potential Nurse Workforce Size**

There are three detectable pathways by which nurses leave the population: 1) relocation to another state, 2) changes in status eligibility including retirement, failure to renew a license, and disciplinary action, and 3) license upgrading from the RN to the ARNP, which reduces the size of the RN population.

Using licensure data files from January 2007 and January 2008, a longitudinal analysis was performed to identify the nurses comprising additions to and subtractions from the potential nurse workforce in 2007. Each nurse was then classified according to the reason for his or her membership in the group of additions or subtractions. Table 6 presents the number of nurses who entered and left the population to account for the net change during the course of the year. Unfortunately, data limitations and the complexity of tracking individual nurses mean that some slippage occurs in the match between gains, losses, and net change. This slippage is very small, however. Only 11 RNs, 6 ARNPs, and 49 LPNs could not be traced over time.

**Table 6. Components of Net Change in the Potential Nurse Workforce During 2007**

	RNs	ARNPs	LPNs
<b>Total Gains to Potential Workforce</b>	13,309	869	5,592
<b>Total Losses from Potential Workforce</b>	7,294	308	7,467
<b>Net Change in the Potential Workforce</b>	+ 6,026	+ 566	- 1,826

Note: The difference between gains and losses does not precisely equal net change due to the complexity of tracking individual nurses.

As Table 6 shows, although more than 13,000 nurses were added to the potential RN workforce, more than 7,000 RNs left this population, reducing the net increase to about 6,000 RNs. Although the potential ARNP workforce experienced the largest net percentage growth, gaining over 500 nurses, more than half this number left the population during the year. LPNs are a much smaller population when compared with RNs, yet the number of nurses lost from this population is larger than for any other nurse type. Even a healthy gain of over 5,500 nurses could not compensate for these losses. As noted previously, a similar gain in the absence of license renewal for LPNs in 2008 will help to make up for these losses. And, total losses from the RN and ARNP populations may be underestimated because only 1/3 of these nurses were asked to renew their licenses in 2007. The complete picture will be available to us at the close of this biennial renewal cycle.

While license upgrading to the ARNP is detectable because nurses retain their license numbers, LPNs who obtain an RN license receive new license numbers and thus cannot be tracked using licensure data. Although this type of license change is important, evidence indicates that it does not explain the large losses from the LPN population during 2007. A Center analysis of data from 95.7 percent of Florida’s Associate Degree in Nursing programs found that only 583 RNs were produced through “bridge” programs, which typically accelerate the progress of students holding an LPN or paramedic license<sup>3</sup>.

**Table 7. New Additions to the Potential Nurse Workforce During 2007**

	RNs	ARNPs	LPNs
New Licensee by NCLEX Examination	6,926	NA	3,516
Endorsement into FL	3,152	120	878
Movement into Analysis Subset	3,210	178	1,197
Upgrade from RN to ARNP	NA	571	NA
Unclassifiable Additions	21	0	1
<b>Total Additions</b>	<b>13,309</b>	<b>869</b>	<b>5,592</b>

Table 7 details the documentable reasons for each nurse’s addition to the potential nurse workforce. Florida has historically gained as many or more RN licensees through endorsement as through NCLEX (National Council Licensure Examination) examination<sup>2</sup>. However, the Center’s interest in nurses newly licensed in Florida relates to their potential contribution to the state’s nursing *workforce*, and many endorsement applicants do not live in Florida at the time they apply for licensure. Analysis of a previous cohort of out-of-state endorsement applicants due to renew during 2007 reveals that many do not renew their Florida license after initial licensure, and many others do not indicate living or working in Florida when they do renew<sup>4</sup>. It appears that many endorsers intend to move to and work in Florida but are unable to realize that goal right away. Alternatively, they may work for short periods of time in Florida as traveling nurses. Until endorsement applicants report a Florida home and/or practice address, these nurses are not considered additions to the potential nurse workforce. If and when those non-Florida endorsement applicants renew and provide a Florida address, they will be added to the count in future reports.

For RNs, more than half of additions to the potential nurse workforce occurred via NCLEX examination. The remaining half was roughly split between nurses who endorsed into the state and nurses who entered the analysis subset during the year. The vast majority of nurses who entered the analysis subset reported a Florida address as of January 2008 but previously had an out-of-state address on file. Others who entered the subset had changes in status eligibility that allow one to work as a nurse in Florida. For ARNPs, the majority of additions occurred due to license upgrading within the state of Florida. Fewer than 300 joined the population in other ways, such as endorsing into Florida *as* an ARNP or movement into the analysis subset. For LPNs, the majority of additions occurred via NCLEX examination. As with RNs, the remaining portion was roughly split between nurses who endorsed into the state and nurses who entered the analysis subset during the year.

Table 8 shows the total losses to the potential nurse workforce, by type of nurse and the loss category assigned to each. For RNs and LPNs, the largest number of losses occurred when nurses who were scheduled to renew their licenses during one of the two renewal cycles in 2007 failed to do so. Since all LPNs were due to renew in 2007, it is not surprising that 78 percent of losses in that population were a result of failure to renew. Nearly half of the RN losses were due to failure to renew, but another sizable portion of nurses were lost from the population because they now report living and/or working outside the state of Florida. For ARNPs, the single largest category holds nurses who moved out of Florida. The completion of the biennial renewal cycle during 2008, when the remaining two-thirds of RNs and ARNPs are scheduled to renew, will further clarify the prominent reasons for RN and ARNP losses.

**Table 8. Losses from the Potential Nurse Workforce During 2007**

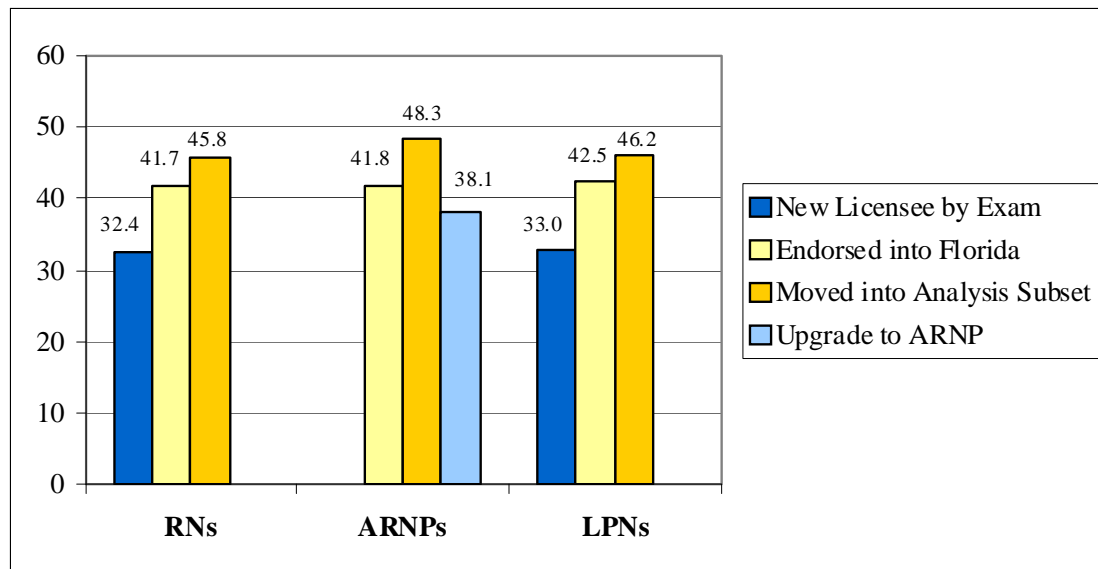
	<b>RNs</b>	<b>ARNPs</b>	<b>LPNs</b>
Failed to Renew License as Scheduled in 2007	3,469	116	5,839
Changed to Retired Status	418	21	384
Disciplinary Action	141	5	65
No longer living and/or working in FL	2,075	141	719
Changed to Inactive Status	458	15	307
License Went Null and Void	138	4	144
Lost to RN Population due to ARNP upgrade	544	NA	NA
Other Reason for Attrition	51	6	9
<b>Total Attrition</b>	<b>7,294</b>	<b>308</b>	<b>7,467</b>

Detectable losses due to status changes were generally much smaller. However, failing to renew a license may actually indicate other types of changes. For example, nurses who retire from nursing practice may choose to keep their nursing license and select a retired status, but they may also simply stop renewing their licenses. The same applies to nurses who relocate to another state. Because these choices are available for nurses who are scheduled to renew, it is not possible to estimate with certainty the number of nurses who actually retired from nursing practice or moved out of the state.

Characteristics of New Additions to the Potential Nurse Workforce

Auerbach and colleagues reported in 2007 that the U.S. is experiencing an increase in the number of persons beginning a nursing career in their late twenties and early thirties, often as a second career<sup>5</sup>. This trend is in sharp contrast to the traditional start of a nursing career during the early twenties, which was common for cohorts born before the 1970s. New additions to the potential nurse workforce in Florida resemble their national counterparts in this regard. The average age of nurses newly licensed by examination in 2007 was 32.4 years for RNs and 33 years for LPNs. RNs and LPNs endorsing into the state were substantially older at around 42 years, and nurses moving into the analysis subset (by new report of a Florida address or status change) had an average age very similar to that of all nurses in the population.

ARNPs become newly licensed in Florida when they upgrade a Florida RN license or when they endorse into Florida as ARNPs. Nurses who upgraded an RN license were youngest at around 38 years old, on average. As with other nurse types, ARNPs who moved into the analysis subset were very similar in age to the total population of ARNPs.



**Figure 3. Average Age of New Additions to the Potential Nurse Workforce**

In addition to being younger, newly licensed nurses tended to look more diverse in terms of gender and race/ethnicity than both the total population of nurses and those who moved into Florida with an existing nursing license. Nurses who were newly licensed by NCLEX examination or a license upgrade were the most distinct group: about 43 percent of RNs, 27 percent of ARNPs, and 58 percent of LPNs reported non-White race or Hispanic ethnicity. Compared with the roughly one-third of nurses in the total population who report non-White race, these proportions suggest a dramatic shift in the profile of persons who choose nursing as a career. If this trend continues, a substantially more diverse future nursing workforce will result.

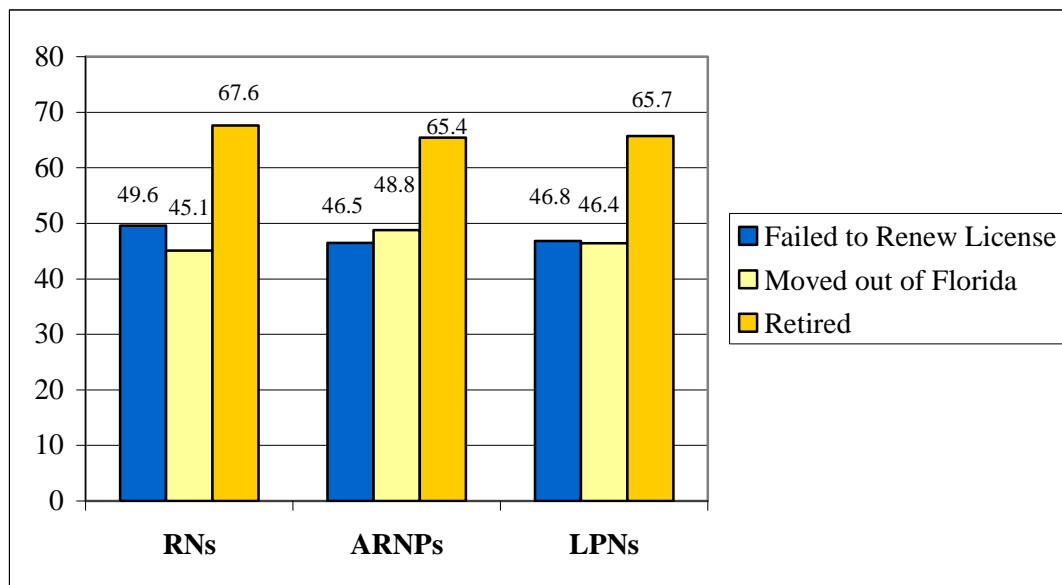
**Table 9. Gender and Racial/Ethnic Diversity Among New Additions**

	RNs		ARNPs		LPNs	
	% male	% non-white	% male	% non-white	% male	% non-white
Newly Licensed by Exam	14.1	42.5			12.6	58.0
Endorsed into Florida	10.4	34.7	18.4	14.7	10.0	35.0
Moved into Analysis Subset	10.0	27.2	20.0	17.1	8.6	30.7
Upgraded to ARNP			13.2	27.1		

Characteristics of Losses from the Potential Nurse Workforce

Figure 4 and Table 10 present the same demographic information for nurses who dropped out of the potential nurse workforce due to failure to renew a license, newly reported residence and/or work address outside of Florida, and retirement. Interestingly, nurses classified as drop-outs for reasons other than retirement were very similar to the total nurse population in average age. Nurses who renewed a license but selected a retired status were significantly older. The average age of an RN moving to retired status was 67.6, for example. Since it is unknown whether those

who retired without a license status change or by failing to renew are different in average age, it is not possible to estimate the actual average age of retirement among Florida nurses.



**Figure 4. Average Age of Losses from the Potential Nurse Workforce**

In general, nurses who dropped out of the Florida nurse population look much less diverse in terms of race/ethnicity. As was true for average age, the most distinctive group contains nurses changing to a retired status, and this group is heavily populated by White females. Combined with the influx of a more diverse newly licensed population, the trend suggests continuing diversification of the nursing workforce.

**Table 10. Gender and Racial/Ethnic Characteristics of Drop-Outs**

	RNs		ARNPs		LPNs	
	% male	% non-white	% male	% non-white	% male	% non-white
Failed to Renew License	10.5	21.8	9.7	8.8	9.7	33.4
Moved Out of Florida	11.5	22.2	18.6	15.2	9.6	28.6
Retired	3.0	14.0	9.5	15.0	4.1	19.7

### Conclusions

Licensure data show that the supply of licensed nurses who are eligible to practice and report a Florida address – the potential nurse workforce – has increased over the past year by almost 5,000 nurses, or about 2 percent. While the supply of RNs increased by about 6,000 (3.55%) and the supply of ARNPs increased by 566 (5.38%), the supply of LPNs dropped by over 1,800 nurses (-3.17%). **We have emphasized in this report that license renewal cycles in Florida may cause our one-year report of trends to overstate net growth in the RN and ARNP populations and understate losses from these populations.** In many cases, attrition is only recognizable when nurses fail to renew their licenses (or provide updated address information if they do renew). Likewise, the LPN losses reported here may be recouped during 2008 since no

LPNs are scheduled to renew during the 2008 renewal cycles. **The two-year trends we can report next year will be a more accurate estimation of gains and losses.**

However, taking what we know about one-year trends at face value, results still suggest that we increased the shortfall of nurses in 2007 and that the shortage will continue to deepen during 2008. A 2007 Center survey completed by 678 nurse employers in hospitals, home health agencies, skilled nursing facilities, public health departments, and hospices found that *respondents alone* carried a total of about 5,000 vacant positions for licensed nurses as of 06/30/07.<sup>6</sup> About 1,000 of those positions were for Licensed Practical Nurses, a population which has experienced losses during the year. About 4,000 were for RNs and ARNPs, populations which experienced gains during the year. However, the vacant positions counted in that report were only those reported by respondents to the survey, which represented only 37 percent of the population of facilities included in the study. It is reasonable to assume that the remaining 63 percent of facilities that did not respond also have vacancies, as do facilities within industries we did not survey (such as physician's offices), so the actual number of vacancies is undoubtedly much higher than 5,000. *It is very likely, therefore, that the gains experienced for RNs and ARNPs in 2007 would not even fill the vacant positions that were open on 6/30/2007.*

In addition to existing vacancies, employers we surveyed planned to create many new positions during 2008, a situation which requires considerable growth in the licensed nurse population during the 2008 calendar year just to maintain the nursing shortage at its current level. An additional 2,000 positions for RNs and 500 positions for LPNs may be created by the 678 respondents during 2008, if their expectations come to fruition. And again, these figures represent estimates *for respondents* to the survey. The true number of new positions to be created is undoubtedly much larger. Florida's Agency for Workforce Innovation estimates, for example, that RN jobs will increase by over 5,000 positions annually between 2007 and 2015. The number of LPN jobs may increase by more than 1,300 annually during the same time.<sup>7</sup> It is unlikely, given the anticipated growth in the health care sector and in specific industries employing nurses, that the nurse supply will increase at a rate commensurate with growth in demand. The rate of growth will need to increase in order to avoid a worsening nursing shortage.

The net rate of change in the size of the potential nurse workforce is a function of much larger groups of nurses entering and leaving the population. Using two years of licensure data, the Center was able to track the status of individual nurses to understand how gains and losses translate into overall change in population size. We learned that *more than half* of the number of new additions to the potential nurse workforce is lost each year via failure to renew, relocation to another state, retirement, and other reasons. If the net number of nurses is to be increased, the rate of loss from the potential nurse workforce *must* be decreased. Increasing production of new nurses alone is unproductive without a strategy for retaining existing nurses and results in a "revolving door" for the nursing profession in Florida.

A further complication is our lack of information about the work habits of Florida's nurses. Although our data cleaning procedures isolate a group of nurses who are more likely to practice as nurses in the state, it is very likely that some of the nurses we assume will provide nursing labor are not working. The increase in *licensed nurses* needed to provide a commensurate increase in the *nursing workforce* may be 10 to 20 percent higher than the number of new and

open positions to be filled by employers. Although licensure data do not contain information on the work behavior of nurses, a survey fielded by the Center in collaboration with the Florida Board of Nursing and Medical Quality Assurance for nurses who renew beginning in 2008 is intended to provide this information for a large majority of nurses. It is anticipated that future reports will benefit from a more detailed knowledge of additions and losses that can incorporate not only data on workforce participation of nurses but also the settings in which care is provided.

Since information on age, gender, and race/ethnicity is collected by the FBON, our analyses *can* track the aging and diversification of the workforce. Trend analyses indicated that the supply of RNs and ARNPs meeting our analysis criteria has aged slightly, on average, during 2007. Longitudinal analyses identified one reason for this aging. New additions to the nurse supply were older than expected for those beginning a first career: new licensees by exam were in their early thirties, on average, and those coming in through endorsement or moving into the analysis subset were quite similar in age to those already in the population. New entrants into the profession, therefore, may not have as long a work-life when compared with pre-1970s birth cohorts who were more likely to enter nursing in their early 20s. An aging nurse population means that losses to retirement are almost certainly going to increase over the next decade. In 2008, more than 40 percent of RNs were above the age of 50, and calendar year 2007 saw increases in the proportion of nurses aged 61 and older.

In more positive news, trend and longitudinal analyses suggest that the potential nurse workforce became more diverse in terms of race and ethnicity during 2007. The trend is a function of the much more diverse new entrants into the potential nurse workforce combined with the less diverse group of nurses leaving. As noted in a recent report, the Center believes that a more diverse nursing workforce – one that matches the diversity of the state’s general population – will be beneficial to the quality of patient care in Florida. A more diverse workforce will be better able to understand the values, beliefs, and language preferences of the population.<sup>8</sup>

This first longitudinal look at the state’s nurse supply has benefited from a strong collaborative relationship with the Florida Board of Nursing and Medical Quality Assurance over the past two years. With their continued support, future Center reports will be able to provide more accurate information and longer historical trends to inform forecasts of nurse supply and shortage. Preliminary results based on only one year’s worth of change in the licensure database do not encourage a positive outlook regarding the future of Florida’s nursing shortage. Nonetheless, such results do position the state to evaluate efforts to correct the shortage through increased production of nurses and more effective retention within the profession and state.

### Recommendations

Trend and longitudinal analyses covering the 2007 calendar year yield three primary recommendations for further research and intervention efforts to alleviate the nursing shortage:

1) *Trend and longitudinal analyses should be conducted biennially to maximize the accuracy of our reports of net change, additions, and losses.* The biennial renewal cycles in Florida create an uneven account of change during a single year because LPNs only renew in odd years and the majority of RNs and ARNPs renew in even years. Given that renewal outcomes are critical to

assessing loss from the potential nurse workforce, the two-year trends we can report in 2009 will be more accurate.

2) *Losses from the potential nurse workforce must be reduced to keep Florida's nursing workforce from operating as a "revolving door."* Although Florida has increased its production of new graduate nurses and continues to draw nurses from other states, the magnitude of losses from the potential nurse workforce means that the *net* increase in nurse supply each year is insufficient to keep pace with increasing demand for nurses. Employers must be incentivized for maintaining work environments that retain nurses, and programs which contribute to the knowledge base for best retention practices – such as the Center's Retention and Recruitment Funded Initiative Program – must be increased in scale.

3) *The nursing profession must be made attractive to younger persons choosing a first career.* Entrants into the nursing profession at any age are certainly welcome, but the rising average age of graduation from nursing school means that new nurses will have a shorter nursing career than was true of cohorts born before 1970. To maximize the tenure of new nurses, efforts to attract younger persons into nursing are warranted.

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## Appendix A: County Composition of Regional Workforce Boards and FCN Regions

