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Florida Nursing Education and Nurse Faculty Supply and Demand: 2010 Survey Results

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Executive Summary

This report presents the newest information on Florida's nursing education capacity and nurse faculty supply and demand using data from the 2010 Florida Center for Nursing Survey of Nursing Programs. The number of nursing programs in Florida is expanding – all 27 new programs responded to our survey. Further growth in nursing programs could be tempered by the ongoing difficulty in funding faculty positions, recruiting for vacant faculty positions, and placing students in appropriate clinical experiences. Economic constraints may further compromise nursing programs as colleges and universities cut budgets in response to state requirements. These issues directly impact the number of students that can be admitted to Florida's nursing programs – and therefore the number of new graduate nurses that can be produced.

Highlights of our findings include:
- From Academic Year (AY) 2008-2009 to AY 2009-2010, the number of graduates from ADN and BSN pre-licensure programs increased slightly (1.1% and 7.8%, respectively), but the number of graduates from LPN programs declined 6 percent. A relatively stable number of graduates over this time period is to be expected, as the first cohorts of students enrolled in new nursing programs have not yet graduated. We should expect an increase in the number of graduates from the state's newly licensed nursing programs beginning next year.
- The combined pre-licensure RN graduate rate increase of 2.9 percent is lower than that predicted by forecast simulations to meet demand in 2022.
- Qualified applicants continue to be turned away by all programs in large numbers (13,609 for RN and 6,830 for LPN) though it is assumed that some of the applications are duplicates. Nonetheless, available student seats are not being filled in any pre-licensure program group.
- Pre-licensure program Deans and Directors reported that "limited clinical sites" and "lack of funds to hire faculty" were the most problematic barriers to admitting more students. Since AY 2008-2009, the number of post-licensure graduates has increased by 28.7 percent for MSN programs and 56.7 percent for doctoral programs overall. Unfortunately, given the shortage of nurses prepared to assume faculty roles, both MSN Educator and PhD student enrollment decreased from AY 2008-2009.
- Faculty vacancy rates have increased at all levels of nursing education, and are now 7.6 percent in ADN programs and 12.4 percent in BSN programs. Nursing school deans and directors projected that 488 new faculty positions will be created over the next two academic years, and about 42 percent of this growth is concentrated in LPN programs.
- Given the increased faculty vacancies, a slight increase in the ratio of number of students to full time faculty member is noted, indicating an increasing faculty workload.

The Center puts forward the following research and policy recommendations to better understand and address the capacity limitations within our education system:

1) *Solutions to the specific problem of clinical capacity must be evaluated*. The Center is conducting a project funded by The Blue Foundation for a Healthy Florida and the Robert

Wood Johnson Foundation/Northwest Health Foundation Partners Investing in Nursing's Future to recommend actions for increased use of simulation in Florida nursing education. Pre-licensure clinical programs report an average of only 5.1 percent of clinical education conducted via simulation. Clinical education within healthcare settings such as hospitals will always be limited, but advancing technology in simulation creates limitless opportunities for safe, effective clinical learning experiences.

2) *Faculty positions must be made more attractive to nurses considering pursuit of an advanced degree in nursing*. Survey results from the past four years show that advanced practice degree programs are growing more rapidly than teaching and research-focused preparation programs. Over time, this may contribute to the crippling faculty shortage by not educating enough faculty to replace those retiring or to fill expansion needs. To improve recruiting efforts, pre-licensure program faculty salaries must be more competitive with those earned in advanced practice, and faculty workloads cannot continue to increase.

3) *Nursing education must remain a priority for colleges, universities, and legislators – even in tough economic times*. The budgets of our colleges and universities are understandably tight at present, but the looming nursing shortage in Florida requires that budget cuts be made with a scalpel, not a hatchet. In the long run, this investment will benefit our state by reducing the projected shortage of nurses, assuring access to care delivery, and improving patient outcomes.

4) *Nursing education capacity must be increased strategically*. During the past year, 27 new nursing programs have responded to our survey. Additional new online-only programs have opened to the state's residents for post-licensure education. While the increased number of new student seats is welcome, it is important to recognize that nursing programs compete for faculty and clinical space. The current trend in nursing education is toward more programs with fewer seats per program – a "decentralization of nursing education" – which may complicate efforts for more effective use of clinical, fiscal, and human resources.

5) *Improve collaboration with other state entities that collect information from schools of nursing*. Presently, three state entities survey the state's nursing schools every year - the Board of Nursing, the Office of Program Policy Analysis and Government Accountability, and the Center. These surveys have overlapping questions, and schools report that having to answer multiple surveys is burdensome. In the past, the Center coordinated data collection and all three entities worked together to create and deploy one survey to all nursing schools. The Center then distributed appropriate data to each entity, allowing all to complete their separate missions and provide accurate information to stakeholders. A return to collaboration among all three agencies would enable us to use scarce resources more effectively and decrease the workload for survey respondents.

Florida Nursing Education and Nurse Faculty Supply and Demand: 2010 Survey Results

Background

Florida's nursing education system rapidly increased production of new graduate nurses from 2007 – 2009, with an increase of 16.5 percent in the number of LPN graduates and 27 percent in the number of RN graduates.[1] However, continued expansion at this rapid pace may be unsustainable. Resource limitations, including shortage of clinical space, lack of funding to hire faculty, and lack of qualified faculty, restrict the number of new programs that can be developed in the state of Florida and hampers existing program expansion. Interest in nursing as a profession remains high, as measured by the number of applicants to nursing programs, but the ability of programs to respond to this interest is waning.

National Perspective
Nationally, enrollment in BSN and graduate nursing programs continues to increase.[2] From 2009 to 2010, national enrollment in entry-level BSN programs increased by 6.1 percent and enrollment in RN-BSN programs increased by 20.6 percent. Nursing school enrollment increases have demonstrated sustained growth, as this was the third year of enrollment increases in entry-level BSN programs and the eighth year of enrollment increases in RN-BSN programs. Furthermore, enrollment also increased in MSN programs (9.8%), DNP programs (25.6%), and PhD programs (4.5%). Unfortunately, the great interest in nursing programs cannot be accommodated by the nation's nursing schools. Preliminary results from the American Association of Colleges of Nursing (AACN) show a 21 percent increase from 2009 to 2010 in the number of qualified applicants to nursing programs who were turned away.

Both in Florida and nationwide, the ability of nursing schools to fund faculty positions, recruit faculty for vacant positions, and place students in appropriate clinical experiences directly impacts the number of students that can be admitted to our nursing programs – and therefore the number of new graduate nurses that can be produced. The AACN 2010 Faculty Vacancy Survey reported a 9.5 percent faculty vacancy rate for nursing schools in the southern U.S. for Academic Year (AY) 2010-2011.[3] Over half (55.5%) of these vacant positions required an earned Doctorate, and one-third (37%) required a Master's degree but preferred a Doctorate degree. Schools reported the major reasons they could not hire additional full-time faculty were insufficient funds, inability to recruit because of competition from other jobs, and unavailability of qualified applicants. The most critical faculty recruitment and retention issues were a limited pool of doctorally prepared faculty and noncompetitive salaries. Last year's national 4.5 percent enrollment increase in nursing research-focused doctoral programs may be too small of an increase to fill the current and future vacant faculty positions.

In addition to resource limitations, national evidence indicates that faculty workloads continue to increase in associate degree RN (ADN) and Baccalaureate (BSN) programs. The National League for Nursing Accrediting Commission reported that both of these program types increased the number of students served by each full-time faculty member during Academic Year (AY) 2008-2009 by about half a student.[4] Increasing workloads have the potential to discourage nurses from pursuing a career in nursing education, which would further exacerbate the nation's shortage of nurse faculty. On the other hand, faculty workloads of licensed practical nursing

(LPN), diploma RN programs, and Master's programs have decreased by about a full student nationally.

Florida Perspective
Since 2007, the Florida Center for Nursing (Center) has collected and analyzed data from nursing programs to identify trends and pinpoint potential problems in nursing education. Results from the 2007 through 2009 surveys showed that Florida echoes the national situation: a supply pipeline "bottleneck" has been created by limited clinical sites for interactive learning experiences, limited resources to fund faculty positions, and wide-ranging difficulty in recruiting faculty for vacant positions. As the Center reported in January 2010, nursing programs rejected 10,005 qualified applications to RN programs and 3,626 qualified applications to LPN programs in AY 2008-2009.[1] The Center's report also found that schools predicted faculty retirements to increase yearly through 2012, paired with a very small increase in the number of students enrolled in graduate degree programs that prepare future faculty (Master's track in Nursing Education; Ph.D. in Nursing), which suggest that programs would continue to face difficulty in recruiting faculty.

In October 2010, the Center released updated forecasts of nurse supply, demand, and shortage through the year 2025.[5] The Center projected that the RN shortage in Florida could reach 50,321 full-time equivalents (FTEs) by 2025, after the full implementation of healthcare reform, if no new efforts to resolve the shortage are implemented. This report also includes simulated forecasts to show the impact of two strategies for increasing the nurse supply. If the rate of attrition from the nurse supply is decreased by 2 percentage points and the number of new nursing graduates is increased by 5 percent per year over the next six years, the nursing shortage could be eliminated by 2022. Clearly, nursing education plays a large role in resolving the projected nursing shortage.

The supply pipeline bottleneck Florida is currently experiencing is set against the backdrop of a severe state and national recession, with Florida's unemployment rate currently at 12%.[6] A high unemployment rate also depresses demand for new graduate nurses. Furthermore, economic constraints may continue to squeeze nursing programs as colleges and universities cut budgets in line with state educational funding reductions. This report provides an update on the impact to student enrollment and faculty recruitment during the third year of economic recession affecting nursing programs.

Data Source

Data for this report are from the 2010 Florida Center for Nursing Survey of Nursing Education Programs. This survey is conducted yearly by the Center, and is distributed to all nursing programs in the state of Florida. The Dean or Nursing Program Director of each school was emailed a link and password to the survey, and all surveys were completed online. A total of 208 schools in Florida were asked to complete the survey. Deans and Program Directors completed the survey in October 2010, providing data on the faculty and student populations as of September 30th and providing data on program capacity from AY 2009-2010.

Separate surveys are completed for each National Council Licensure Examination (NCLEX) code when schools have multiple codes corresponding to multiple programs (RN vs. LPN) or

multiple campuses. Questions relating to Master's and Doctoral graduate degree programs are completed on the same survey used for a school's pre-licensure program, as are questions for RN-BSN programs.

In the three previous years of the survey, the Center has achieved a near 100 percent response rate from nursing schools even though completion was voluntary. This was due, in part, to a collaborative partnership with the Florida Board of Nursing (BON), the Office of Program Policy Analysis and Government Accountability (OPPAGA), and the Center in an effort to minimize the program dean/director work effort involved in responding to surveys from multiple state entities. For the 2010 survey, neither the BON nor OPPAGA participated in the joint survey, resulting in Florida's nursing schools being asked to complete multiple instruments within the same time period. In an effort to increase our response rate and obtain a few crucial data points, we emailed a short 6-item follow-up survey to the schools who did not respond to our initial request. Twenty-one schools did not respond to multiple requests to complete the Center's Survey of Nursing Education Programs.

A total of 186 schools responded to the survey, and the overall response rate was 89.4 percent. The response rate varied slightly by program type, and was 86.8 percent within LPN programs, 89.5 percent within ADN programs, and 100 percent within BSN programs. Survey respondents reported a total number of 26,033 students enrolled in nursing programs as of 9/30/2010. This number is an undercount of the actual number of enrolled nursing students, because we did not have a 100 percent response rate from schools.

Because of the lower response rate, these data are not a census of all of the nursing programs in the state. Hence, the reported numbers of faculty and students are all lower than in our previous reports. **The reader is advised to be cautious in interpreting comparisons with previous years' surveys because of the lower response rate for the 2010 survey.** Percentages are used to compare data with previous years' results when possible.

The Center felt that it was imperative to report the most accurate data available on the number of graduates from nursing education programs, as this number is used in reports for the future planning of schools, hiring of new graduates, strategic planning by workforce and nurses associations, forecasting numbers of nurses, and legislative information. Unfortunately, the number of graduates reported to us was incomplete due to survey non-response. We therefore used the number of graduates as reported by the Office of Program Policy Analysis and Government Accountability.[7]

Results

Programs, Curriculum Options, and Accreditation

Table 1 details the programs and curriculum options available in Florida's nursing schools as of October 2010, based on survey responses. In addition to programs surveyed last year, our survey was sent to 6 new LPN programs, 18 new ADN programs, two new pre-licensure BSN programs, and one new MSN program. All of these new programs responded to either our initial or follow-up survey. Fifteen of the new programs reported not having any students enrolled as of

September 30, 2010. Most of these schools were very recently approved and had not admitted their first classes as of October 2010.

Table 1. Programs and Curriculum Options Reported by Respondents in 2010

	Number of Responses
Pre-licensure Programs	
LPN Programs	**92**
- *No students yet*	*5*
- Generic/Traditional Curriculum	84
- Bridge Curriculum	4
ADN Programs	**68**
- *No students yet*	*8*
- Generic/Traditional Curriculum	54
- Bridge Curriculum	33
Pre-licensure BSN Programs	**26**
- *No students yet*	*2*
- Generic/Traditional Curriculum	23
- 2nd Degree Curriculum	11
Post-licensure and Certificate Programs	
RN-BSN Program (Post-licensure)	**21**
MSN Programs	**15**
- NP, Midwifery, or Anesthetist Curriculums	13
- Nurse Educator Curriculum	9
- Leadership/Management Curriculum	5
- Clinical Nurse Specialist Curriculum	4
- Clinical Nurse Leader Curriculum	4
- Nurse Anesthetist Curriculum	5
- Nurse Midwife Curriculum	1
Doctoral Programs	**10**
- Ph.D. Curriculum	8
- DNP Curriculum	8
Certificate Programs	**22**
- Nurse Educator	8
- Nurse Practitioner	3
- CNS/MSN to NP	6

Note: The number of curriculum counts exceeds the number of program counts because many programs offer multiple curriculum options.

LPN programs are the most numerous, with 92 distinct programs reported. Only four of these programs reported a bridge curriculum that moves students with some health sciences training (e.g., a certified nursing assistant) through the program more rapidly. In contrast, almost half of the 68 ADN programs offer a bridge curriculum that moves LPNs or paramedics through the RN program more quickly.

Of the 26 pre-licensure BSN programs, 11 offer a second-degree curriculum – often called an accelerated program – for students with a baccalaureate degree in another discipline. The two new pre-licensure BSN programs have not yet enrolled their first classes.

RN-BSN programs, which move associate degree RNs to the baccalaureate, are most numerous among post-licensure programs (BSN and higher). Community colleges offering the ADN are increasingly offering this post-licensure mobility curriculum as well. Many of the state's universities offer graduate degrees in nursing. Fifteen have a master's degree in nursing (MSN) program and ten offer doctoral programs. Five schools reported they have a nurse anesthetist curriculum, and one school offers a nurse midwife curriculum.

In addition to degree-granting programs, 22 schools reported having certificate programs. Eight schools offer a Nurse Educator certificate program, three offer an NP certificate program, and six have programs that help move nurses with a master's degree in another track to that of Nurse Practitioner.

Table 2. Accreditation Status in 2010 by Program Type

Accreditation Status	LPN N (%)	ADN N (%)	BSN N (%)
No students yet enrolled	*5*	*8*	*2*
Not accredited	79 (90.8%)	30 (50.0%)	0%
Accredited by NLNAC and/or CCNE	8 (9.2%)	30 (50.0%)	24 (100%)
Accreditation Type			
NLNAC accredited	7 (8.1%)	27 (45.0%)	4 (16.7%)
CCNE accredited	1 (1.2%)	2 (3.3%)	20 (83.3%)
NLNAC & CCNE accredited	0 (0%)	1 (1.7%)	0 (0.0%)

Table 2 shows the National League for Nursing Accrediting Commission (NLNAC) or Commission on Collegiate Nursing Education (CCNE) accreditation status of programs in 2010. Schools that have not yet admitted students cannot have achieved accreditation. LPN programs were the least likely to be accredited (9.2%). Half of ADN programs and all of the BSN programs reported being accredited. Since 2008, the percentage of ADN programs that are accredited has decreased, most likely due to the influx of new programs that have not yet attempted accreditation. Since accredited programs must maintain very high standards, increasing the number of LPN and RN programs in Florida with accreditation would be desirable.

Program Capacity Information

Table 3 displays measures of program capacity – the ability of nursing programs to admit new students – for pre-licensure programs in operation last year. The gray rows in the table show the number and proportion of *qualified* applicants that were turned away from programs during AY 2009-2010 due to capacity issues. Florida nursing programs declined 13,609 qualified applicants to RN programs and 6,830 to LPN programs for a total of 20,439 qualified nursing school applicants denied admission to nursing programs last academic year. At present it is not possible

to distinguish the number of *people* denied admission to nursing schools from the number of *applications* declined. A single prospective student may be denied admission (or accepted) by more than one school.

Note that the number of new enrollees is substantially smaller than the number of students admitted for many curricula. BSN programs admitted more students than they have seats, anticipating that a portion of accepted students will choose not to enroll. The gap between admitted and enrolled new students is likely to increase when admission to nursing schools is very competitive and prospective students apply to multiple schools but ultimately select only one to attend.

Table 3. Program Capacity Measures for Pre-licensure Programs, AY 2009-2010

	Generic **LPN** Curriculum	Bridge **LPN** Curriculum	Generic **ADN** Curriculum	Bridge **ADN** Curriculum	Generic **BSN** Curriculum	2nd Degree **BSN** Curriculum
# of QUALIFIED applicants	12,844	298	14,522	1,511	5,829	1,563
# of student SEATS	6,740	128	5,919	1,109	2,277	674
# of students ADMITTED	6,187	125	5,595	984	2,410	827
# of rejected applications	6,657	173	8,927	527	3,419	736
% of rejected applications	51.8%	58.1%	61.5%	34.9%	58.7%	47.1%
# of NEW enrollees	5,652	124	5,368	976	2,199	631
# of SEATS left VACANT	1,088	4	551	133	78	43

The percentage of qualified applicants denied admission to nursing programs remained steady from 2007 through 2009, but jumped 12.3 percentage points from 2009 to 2010 (Table 4). Slightly over one-half (51.8%) of qualified applicants were turned away by LPN programs in 2010, a 16 percentage point increase from 2009. Fifty-nine percent of qualified applicants to ADN programs and 56.2 percent of qualified BSN applicants (generic and 2nd degree combined) were denied admission. It is clear that interest in nursing programs remains high, but programs cannot accommodate all potential students. The occurrence of student seats left vacant was most prominent in generic LPN programs (16%), followed by bridge ADN at 12%, and generic ADN at (9%).

Table 4. Trend in Percentage of Qualified Applicants Declined by Pre-licensure Programs, 2007-2010

	2007	**2008**	**2009**	**2010**
LPN Programs	26.8%	30.8%	35.6%	51.8%
ADN Programs	42.3%	49.7%	48.1%	59.0%
BSN Programs	60.5%	49.3%	46.0%	56.2%
Total	**42.4%**	**44.5%**	**43.6%**	**55.9%**

Figure 1 shows the number of graduates from pre-licensure nursing programs during AY 2009-2010. A total of 7,890 new graduate RNs and 3,805 new graduate LPNs were produced in AY 2009-2010 (Figure 1). Almost three-fourths (5,701 or 72%) of new graduate RNs were from ADN programs. The majority of new graduates were educated in generic/traditional curriculum programs, while almost 1,500 were bridge or 2nd degree students.
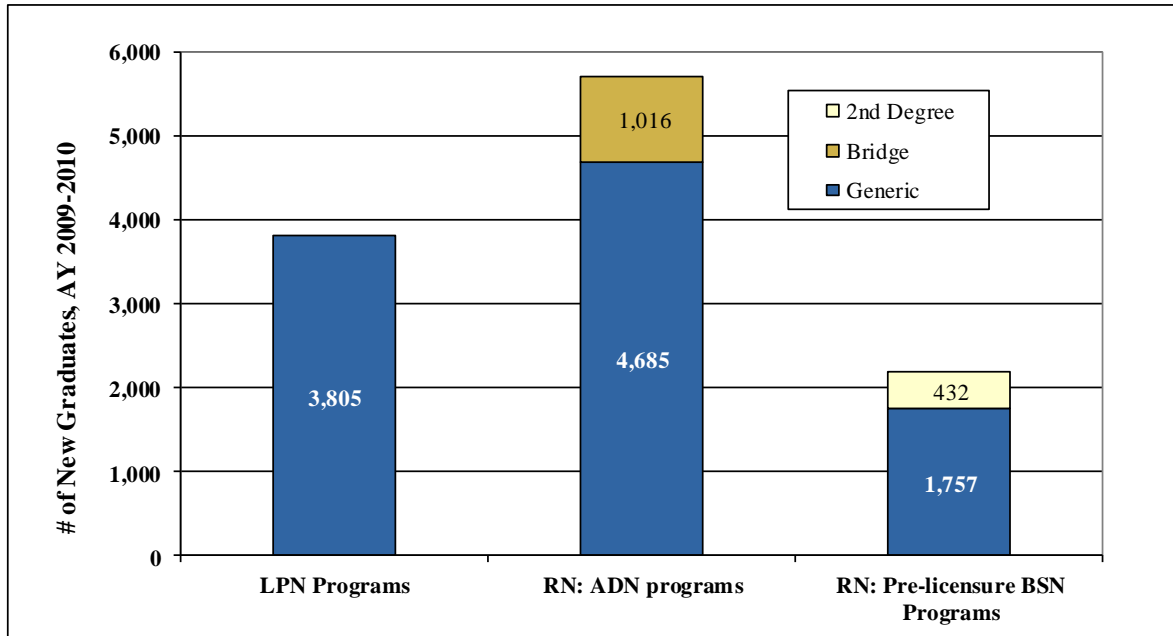
Figure 1. Number of Graduates from Pre-licensure Programs, AY 2009-2010
Note: Graduate data are from OPPAGA.[7]

Although the number of graduates from LPN nursing programs increased from 2007-2009, LPN graduates declined six percent from AY 2008-2009 to AY 2009-2010 (Figure 2). From AY 2008-2009 to AY 2009-2010, the number of graduates from ADN and BSN programs increased slightly (1.1% and 7.8%, respectively). A relatively stable number of graduates over this time period is to be expected, as the first cohorts of students enrolled in new nursing programs have not yet graduated. Hence, next year we should expect an increase in the number of graduates from the state's newly licensed nursing programs.
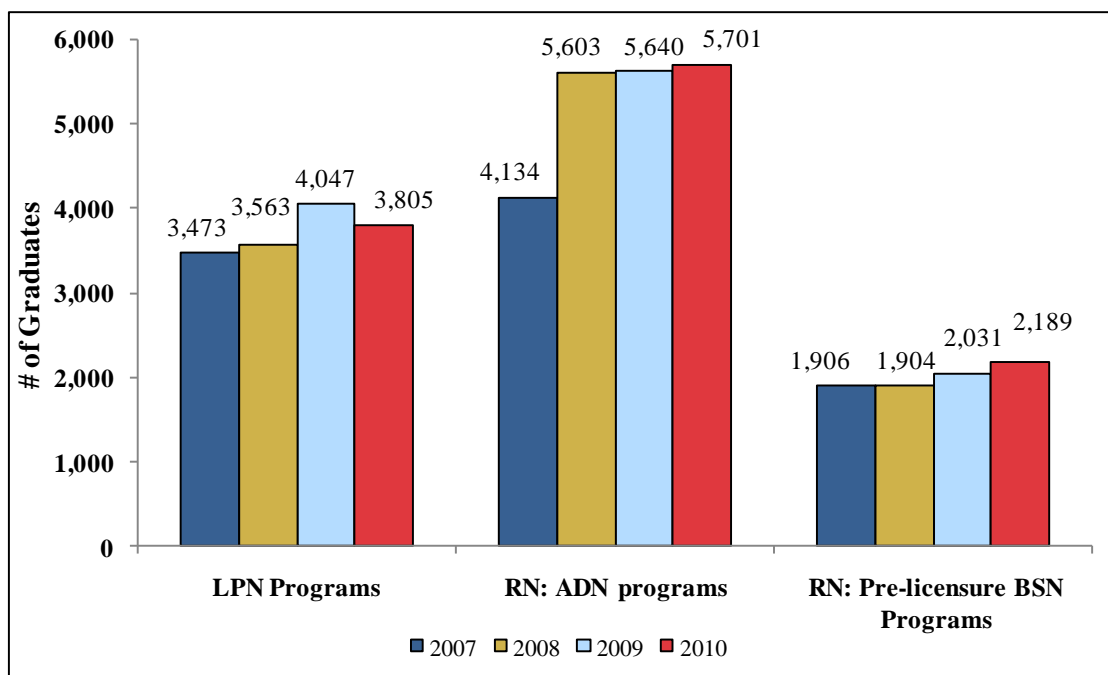

Figure 2. New Graduate Nurses, 2007-2010

It is also important to note that new graduate nurses do not translate directly into new nurses within the Florida workforce. After graduation, nurses must pass the National Council Licensure Exam and take nursing jobs in Florida to become members of our nurse workforce.

When asked about the barriers to admitting more students, pre-licensure program Deans and Directors reported that "limited clinical sites" and "lack of funds to hire faculty" were the most problematic issues (Figure 3). Seventy-five percent of BSN programs reported barriers with limited clinical sites and lack of funds to hire faculty, while 55 percent reported a lack of qualified faculty applicants and lack of campus resources. This is a huge change from AY 2008-2009, when 48 percent of BSN programs reported problems with limited clinical sites and 64 percent reported problems with lack of funds to hire faculty. Limited clinical sites were reported as a barrier to expansion by 50 percent of LPN programs and 42 percent of ADN programs. About 30 percent of LPN and ADN programs also reported problems with lack of faculty funding and campus resources.
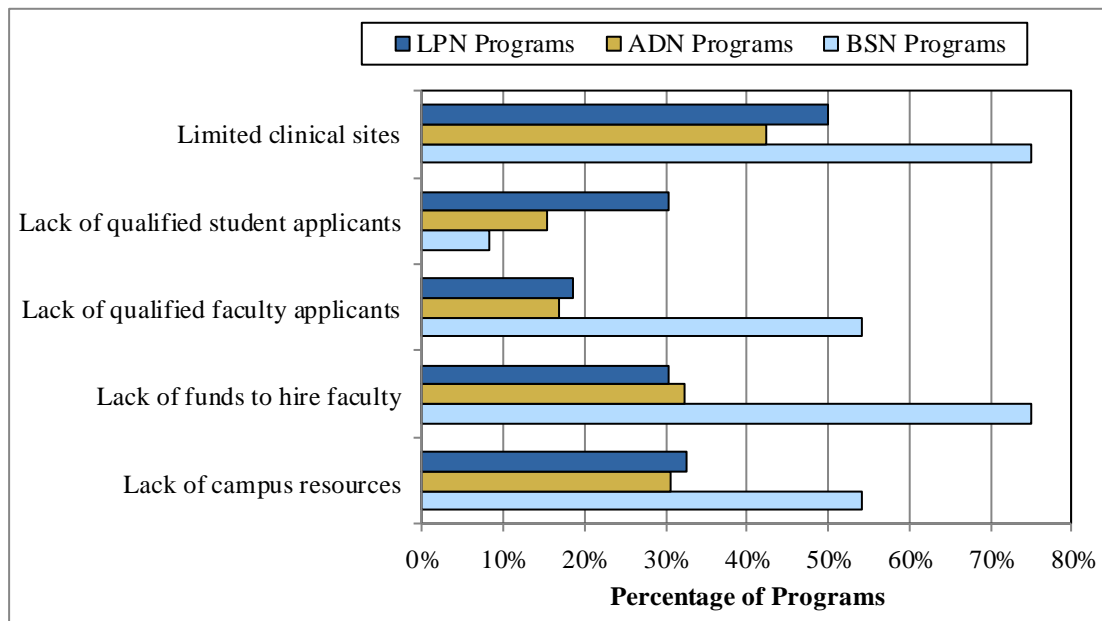

Figure 3. Factors Limiting Pre-Licensure Student Admissions in AY 2009-2010

Program capacity measures and graduates for post-licensure programs in AY 2009-2010 are shown in Table 5. Far fewer qualified applications are declined by post-licensure programs, but it is worth noting that the proportion turned away from NP programs (37.1%) has increased in the past year, while the proportion turned away from PhD programs (22.6%) has remained about the same. This suggests increasing and sustained interest in these programs. Unfortunately, given the current faculty shortage, the number of qualified applicants to MSN Educator tracks and PhD programs are small (245 applicants and 106 applicants, respectively).

Table 5. Program Capacity Measures for Post-licensure Programs, AY 2009-2010

	RN-BSN	MSN: NP	MSN: Educator	MSN: Management	MSN: CNS	MSN: CNL	Doc: Ph.D.	Doc: DNP
# QUALIFIED applicants	3,498	1,678	245	82	25	47	106	216
# students ADMITTED	3,304	1,055	224	78	25	45	82	194
# rejected applications	194	623	21	4	0	2	24	22
% rejected applications	5.5%	37.1%	8.6%	4.9%	0.0%	4.3%	22.6%	10.2%
# NEW enrollees	2,707	941	199	69	22	38	73	160
# students GRADUATED	1,286	758	86	28	11	9	21	73

Notes: MSN curriculum options include students entering with a Bachelors degree as well as RN-MSN students entering without a Bachelors degree. The number of RN-MSN students is very small.

Since the October 2009 survey, the number of post-licensure graduates has increased by 28.7 percent for MSN programs and 56.7 percent for doctoral programs (Figure 4). Although the numeric increases for these program types are small – 199 master's graduates and 34 doctoral graduates – the increases demonstrate significant expansion, particularly during AY 2009 - 2010. RN-BSN programs who responded to our survey graduated 33 fewer students in AY 2009-2010 than in AY 2008-2009, but this is likely an undercount of the RN-BSN graduates as not all RN-BSN programs responded to the survey.
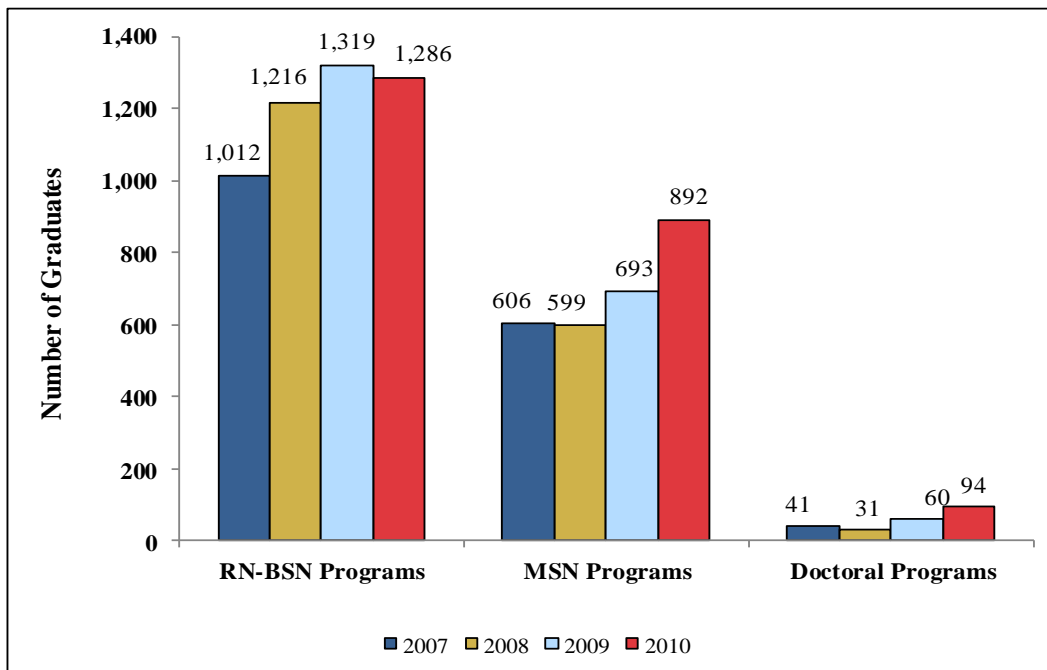

Figure 4. Post-Licensure Nurse Graduates, 2007-2010

Factors limiting post-graduate student admissions were similar to those reported by pre-licensure programs (Figure 5). Limited clinical sites were the most pressing issue for MSN programs, and lack of qualified student applicants was the most problematic issue for doctoral programs. Both

MSN and doctoral programs reported that lack of funds to hire faculty and lack of qualified faculty applicants were also barriers to program expansion. In contrast to pre-licensure programs, a lack of qualified student applicants was a significant barrier to post-licensure programs, indicating there is a pressing need to both increase interest and have people apply to these post-licensure programs.
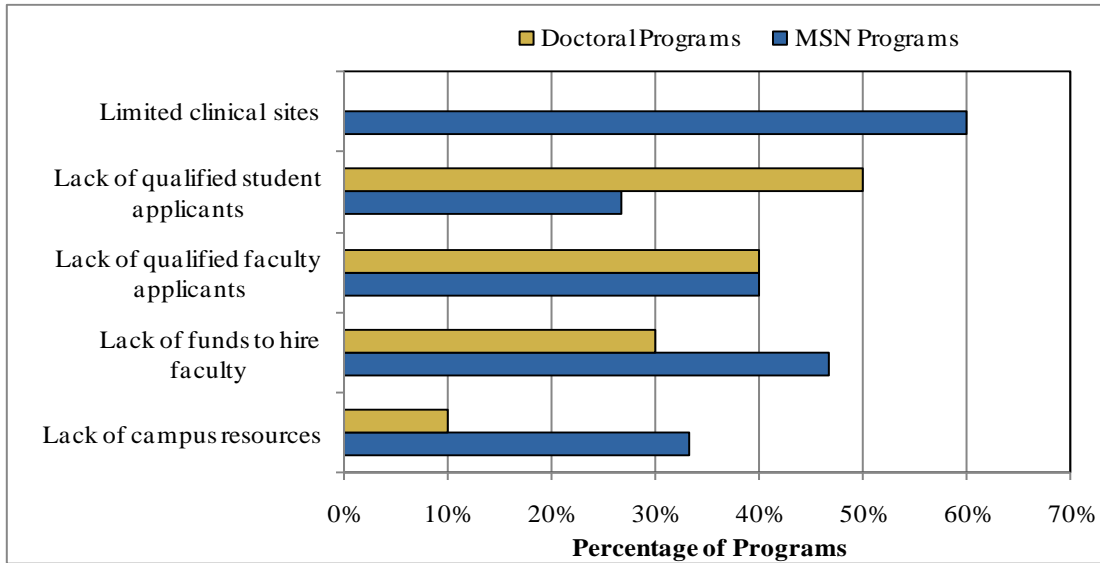

Figure 5. Factors Limiting Post-Licensure Student Admissions in AY 2009-2010

Responding LPN programs reported almost 5,000 currently enrolled students (Table 6). RN programs reported 8,390 ADN students and 4,951 pre-licensure BSN students. MSN programs reported almost 2,500 enrolled students, 75 percent of whom were enrolled in nurse practitioner programs. Only 14 percent of MSN students were enrolled in the nurse educator track, and 35 percent of doctoral students were enrolled in PhD programs. Increasing enrollment in nurse education programs and PhD programs is critical for alleviating the long-term nursing shortage as it builds a pipeline to replace nurse educators and professors who will soon be retiring.

Table 6. Enrollment of Students by Curriculum Track, 2010

Curriculum Track	Enrollment on 9/30/2010	Curriculum Track	Enrollment on 9/30/2010
Generic/Traditional LPN	4,763	**RN-BSN**	3,605
Bridge LPN	94	MSN: NP track	1,884
Total LPN	4,857	MSN: Educator track	352
Generic/Traditional ADN	7,474	MSN: Management track	142
Bridge ADN	916	MSN: CNS track	35
Total ADN	8,390	MSN: CNL track	84
Generic/Traditional BSN	4,266	**Total MSN**	2,497
2nd Degree BSN	685	Doctoral: Ph.D.	218
Total Pre-licensure BSN	4,951	Doctoral: DNP	401
		Total Doctoral	619

Notes: MSN curriculum options include students entering with a bachelors degree as well as RN-MSN students entering without a bachelors degree. The number of RN-MSN students is very small.

Since 2007, master's degree programs increased enrollment by four percent, and this growth was largely driven by increased enrollment in NP, management, and Clinical Nurse Specialist curriculum tracks (Figure 6). PhD enrollment has decreased by 2.2 percent, however DNP enrollment has greatly increased by 226 percent, an increase of 278 enrolled students. Unfortunately, given the shortage of nurses prepared to assume faculty roles, both MSN Educator and PhD student enrollment decreased from AY 2009. There are several post-graduate nursing programs around the country which have an online only curriculum, and therefore are producing other graduate nurses who reside in Florida. However, they did not participate in our survey, so we do not have a count of currently enrolled students or recent graduates for these programs.
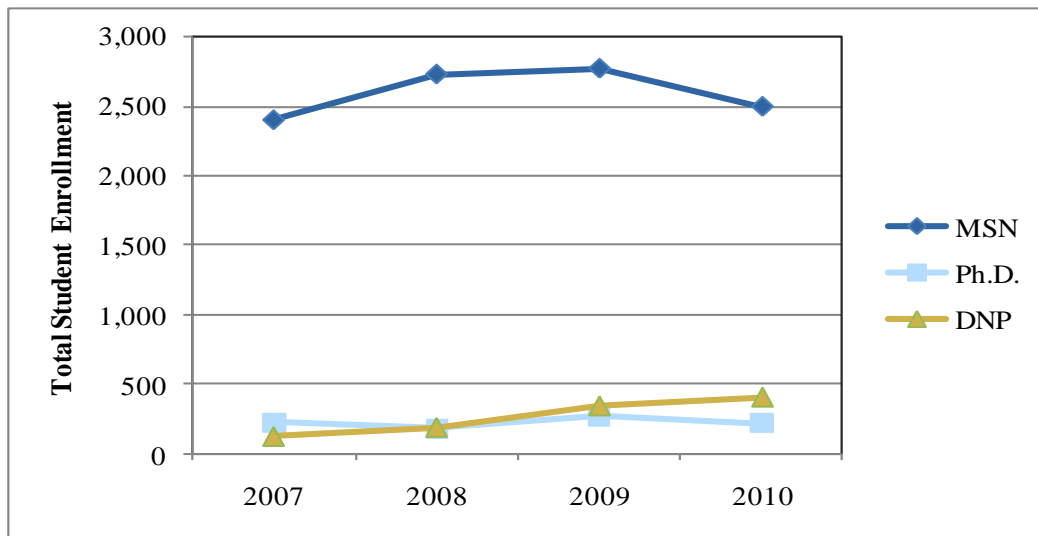

Figure 6. Trends in Total Enrollment for Post-licensure Programs

A diverse nurse workforce is needed to provide culturally competent care to the residents of Florida. Culturally competent care is respectful of the health beliefs, cultural and linguistic needs of diverse patients.[8] In 2010, 22 percent of Florida's residents were Hispanic and 16.5 percent were black.[9] As with most populations, about half of Floridians are women. In contrast, the nursing profession in Florida is dominated by women, as 90.2 percent of RNs and 85.2 percent of ARNPs are women.[10] Race and ethnicity of Florida's nurses varies by license category: 29 percent of LPNs are black and 8 percent are Hispanic, whereas 12 percent of RNs are black and 8 percent are Hispanic.[10,11] Though the proportion of minority nurses is increasing, driven by the increasing diversity of Florida's population, the current nursing workforce does not mirror the state's population in race/ethnicity or gender.
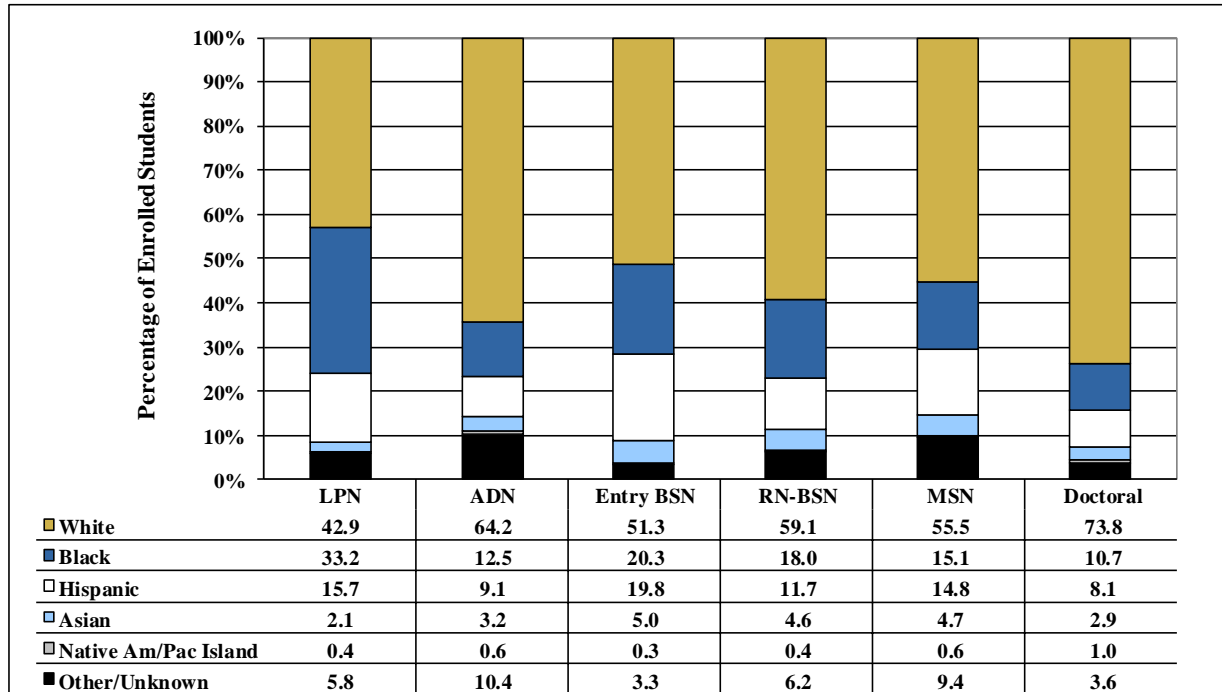
	LPN	ADN	Entry BSN	RN-BSN	MSN	Doctoral
☐ White	42.9	64.2	51.3	59.1	55.5	73.8
☐ Black	33.2	12.5	20.3	18.0	15.1	10.7
☐ Hispanic	15.7	9.1	19.8	11.7	14.8	8.1
☐ Asian	2.1	3.2	5.0	4.6	4.7	2.9
☐ Native Am/Pac Island	0.4	0.6	0.3	0.4	0.6	1.0
☐ Other/Unknown	5.8	10.4	3.3	6.2	9.4	3.6

Figure 7. Race and Ethnicity of Nursing Students, 9/30/10, By Program

The diversity of the nursing student population is more reflective of Florida's diverse population. Almost 50 percent of LPN students are Black or Hispanic, as are almost 40 percent of BSN students and 30 percent of MSN students (Figure 7). As the student population continues to diversify in terms of race/ethnicity, the proportion of minorities will gradually increase within the entire licensed nurse population. Currently, about 87 percent of RN students are women (Figure 8), suggesting that we should not expect the proportion of men in nursing to change significantly in the short term. The racial/ethnic and gender profiles of nursing students have remained consistent over the past four academic years.
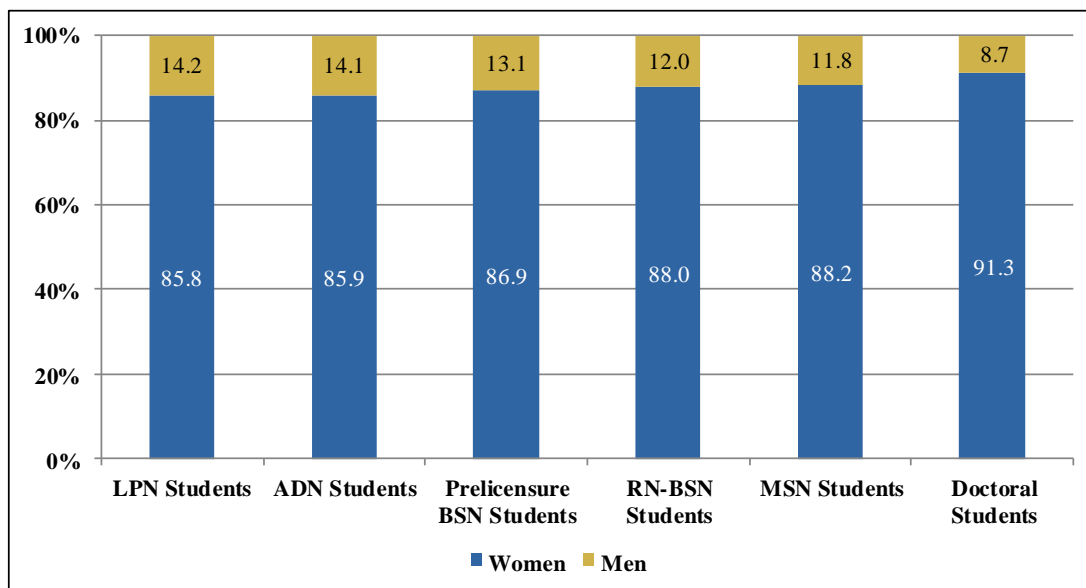

Figure 8. Gender of Nursing Students, 9/30/2010, By Program

Faculty Information

To gauge the current level of demand for nurse faculty, deans and directors were asked to report the number of filled and vacant faculty positions as of September 30, 2010. Table 7 shows these numbers by program type and full vs. part-time positions. A total of 1,287 full-time and 975 part-time faculty positions were reportedly filled on that date, while 124 full-time and 52 part-time positions were vacant. Many schools do not budget positions for part-time instructors, instead hiring as needed. Schools had the option of reporting "Not Applicable" for budgeted and vacant part-time positions, although all were asked to enter the number of filled part-time positions. Thus, reported part-time vacancies do not accurately reflect current need for part-time employees.

Table 7. Filled and Vacant Faculty Positions as of 9/30/2010, by Program Type

Program Type	Filled Faculty Positions		Vacant Faculty Positions	
	full-time	part-time	full-time	part-time
LPN	332	188	28	17
ADN	473	461	36	31
BSN and higher	482	326	60	4
Total	1,287	975	124	52

Faculty vacancy rates have increased at all levels of nursing education (Figure 9). LPN faculty vacancy rates increased almost 3 percentage points. Full-time faculty vacancy rates[i] are especially high in baccalaureate programs (12.4% in 2010), illustrating substantial unmet demand for faculty applicants. Vacancy rates in LPN programs increased 2.9 percentage points, and are now 8.4 percent. Vacancy rates could be increasing because new faculty positions are created as the number of students increases, faculty retire, and economic recovery creates new employment opportunities.

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[i] Full-time position vacancy rates are calculated as: ($\sum$ FT positions vacant / $\sum$ FT positions budgeted) *100.
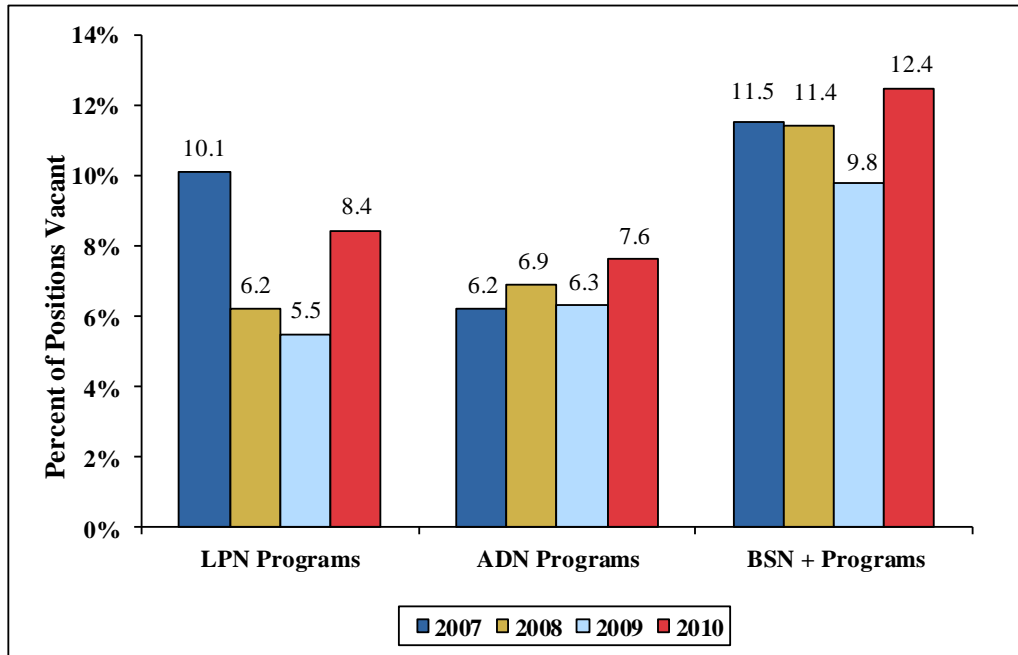
Figure 9. Full-Time Faculty Vacancy Rates as of September 30th by Program Type

In addition to actual vacancies, program directors were asked to report the number of full-time positions they would add to meet the needs of their current student population if funding were available. Actual vacant positions measure economic demand for nurse faculty – the number of faculty members schools are willing to employ given the salaries they must pay those employees. In contrast, our question about hypothetical positions measures perceived *need* for nurse faculty – the desired number of faculty members without respect for available funding. The economic reality is that many nursing programs cannot afford to staff at levels they consider desirable or appropriate. Figure 10 shows what vacancy rates would look like if those needed positions were budgeted and vacant on September 30th of each survey year.
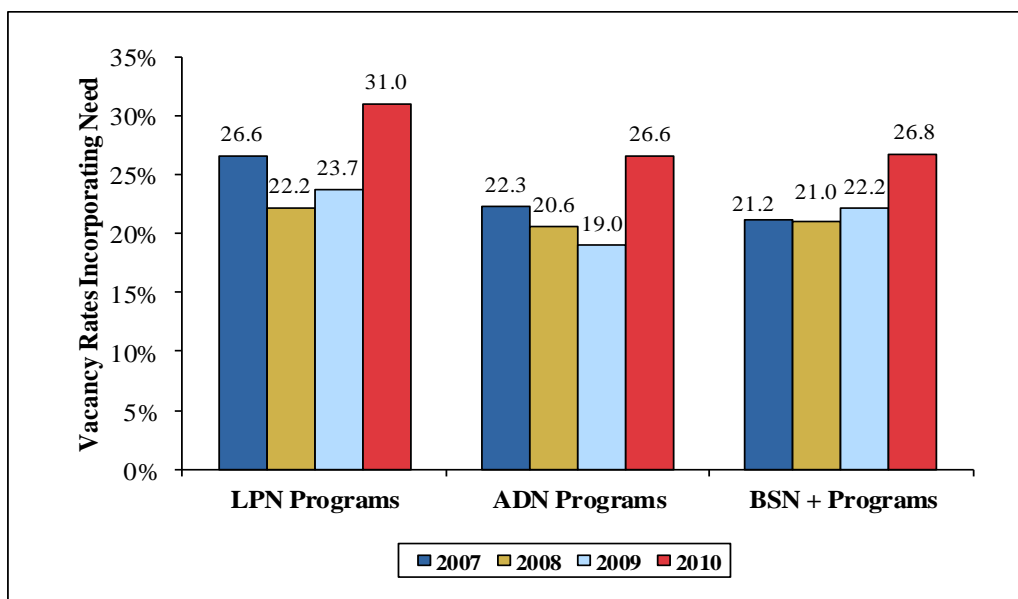

Figure 10. Vacancy Rates Incorporating Perceived Need for New Positions

Deans and directors reported that 75 additional LPN faculty, 90 additional ADN faculty, and 69 additional BSN faculty positions were needed but not budgeted as of September 30, 2010. Vacancy rates including perceived need ranged from 4.6 percent to 7.6 percent higher than reported in 2009; and are double or triple the actual vacancy rates.

With pressure to expand enrollment coupled with tremendous fiscal constraints, the number of students served by each full-time faculty member increased from 2009 to 2010 by 1.6 students in LPN programs and almost one student in BSN programs (Figure 11)[ii]. The ratio of students to full-time faculty member has remained steady in ADN programs over the past two years, but is higher than the ratios for both LPN and BSN programs. An increase in faculty vacancy rates and/or student enrollment may be a factor for this increasing student to faculty ratio. Given the combination of a faculty shortage, increased enrollment, and financial constraints, it appears that the student to faculty member ratio may continue to increase in future years.
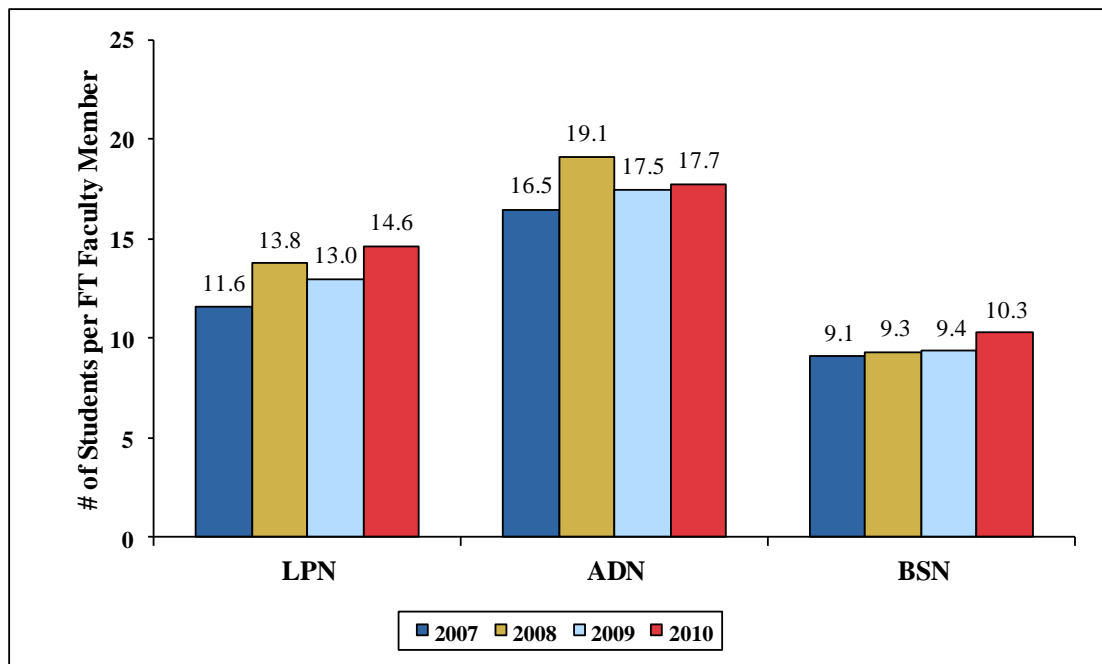

Figure 11. Number of Enrolled Students Per Full-Time Filled Faculty Position

Nursing programs reported hiring a total of 219 new full-time and 291 new part-time faculty during the single AY 2009-2010 (Table 8). Results from the Center's 2009 survey projected two-year growth of 304 full-time and 360 part-time faculty positions.[1] Even with a lower than 100 percent response rate, nursing schools have hired almost as many faculty in AY 2009-2010 as they anticipated. These new faculty are in both new schools and expanding programs.

[ii] These ratios are not intended to measure overall program quality or adequacy of faculty staffing for classroom or clinical instruction. They represent only the mathematical relationship between the number of enrolled students and full-time faculty members.

Table 8. New Faculty Hired in Academic Year 2009-2010, by Program Type

Program Type	Number of New Faculty Hired		Average Weeks to Fill Faculty Vacancies	
	full-time	part-time	full-time	part-time
LPN	98	66	7.0	3.6
ADN	74	133	6.2	4.9
BSN and higher	47	92	18.3	7.4
Totals	219	291	**8.6**	**5.0**

Length of time to fill vacant positions is a measure of the difficulty experienced in recruiting and hiring. It took an average of almost nine weeks to fill vacant full-time faculty positions in AY 2009-2010 (Table 8). BSN programs reported the longest fill time at 18.3 weeks, and both BSN and LPN programs reported an increase in the length of time taken to fill full-time positions compared with last year. The average weeks to fill full-time LPN faculty vacancies increased by almost 4 weeks, and increased by almost two weeks for BSN faculty vacancies compared to AY 2008-2009.

We asked program directors to tell us how many full-time faculty members separated from their programs for any reason during the last academic year. A total of 184 full-time faculty members separated from nursing programs during AY 2009-2010 (Table 9). Both the number of turnovers and overall median turnover rate (10%) are similar to results for AY 2008-2009. This academic year, the median turnover had increased within LPN and BSN programs, and had decreased within ADN programs. When compared with other nursing employment settings, turnover in nursing education is low. For example, our 2009 Employer Survey found that the median turnover rate for RNs was 14.3 percent in hospitals, 30.6 percent in skilled nursing facilities, and 18.2 percent in home health agencies.[12]

Table 9. Full-time Faculty Separations and Turnover Rates for AY 2009-2010

Program Type	Number of Separations	Turnover Rate in Quantiles		
		25th percentile	50th percentile (median)	75th percentile
LPN	76	0.0	11.1	33.3
ADN	52	0.0	5.9	15.8
BSN and higher	56	7.3	11.4	18.9
Totals	184	**0.0**	**10.4**	**25.0**

Note: A school's turnover rate was computed as: (# of AY 2009-2010 separations / # of filled positions as of 9/30/2010)*100

Table 10 describes the education distribution of faculty members employed as of September 30, 2010. BSN and higher programs employed proportionately more full-time faculty educated at the doctoral level (about 60% of all faculty), while the vast majority of ADN full-time faculty were educated at the master's level (80.8%). LPN programs employed a mix of education levels: almost 33 percent had a master's in nursing, and 41 percent had a bachelor's degree in nursing. Across all program types, most part-time and adjunct faculty have bachelor's or master's degrees.

Table 10. Full and Part-time Faculty Education Distributions, by Program Type

	LPN Programs %	ADN Programs %	BSN + Programs %
Full-time Faculty	**%**	**%**	**%**
Doctorate in Nursing	0.6	9.7	45.1
Non-nursing Doctorate	2.9	5.2	15.4
Masters in Nursing	32.6	78.3	38.1
Non-nursing Masters	10.8	2.5	1.4
Bachelors in Nursing	40.7	4.3	0.0
Non-nursing Bachelors	1.5	0.0	0.0
Diploma or AS in Nursing	11.0	0.0	0.0
Part-time/Adjunct Faculty	**%**	**%**	**%**
Doctorate in Nursing	1.0	3.9	8.9
Non-nursing Doctorate	1.0	1.7	5.5
Masters in Nursing	21.6	46.3	75.2
Non-nursing Masters	8.0	2.8	2.8
Bachelors in Nursing	54.8	44.6	7.7
Non-nursing Bachelors	3.0	0.0	0.0
Diploma or AS in Nursing	10.6	0.6	0.0

A major concern regarding the faculty supply is the age of the faculty population. As Figure 12 shows, a large proportion of faculty members are nearing retirement age. One-third of BSN and about 37 percent of ADN full-time faculty members are under the age of 50, while 16 percent of ADN and LPN faculty and almost 22 percent of BSN full-time faculty members are over the age of 60. The average age of full-time faculty members was 52.7 in BSN programs and 51.5 in both ADN and LPN programs.[iii] This average has held relatively steady over the past three survey cycles. Nurse educators are older than the average nurse - the average age of all RNs in Florida is 48.6 years, and the average age of all LPNs is 46.7 years.[10,11]

We asked program directors to tell us how many faculty members had retired during AY 2009-2010. A total of 27 retirements were reported last academic year. Given the age distribution of current faculty members, we can expect the number of retirements to steadily increase over the next several years.

[iii] Program directors reported faculty age by counting the number of faculty members in each age category shown in Figure 13. The two categories of "under age 30" and "age 31-40" were combined. The average was computed from grouped data by 1) multiplying the age category midpoint by the number of faculty members in that category, 2) summing this figure across all age categories, and 3) dividing by the total number of faculty members.
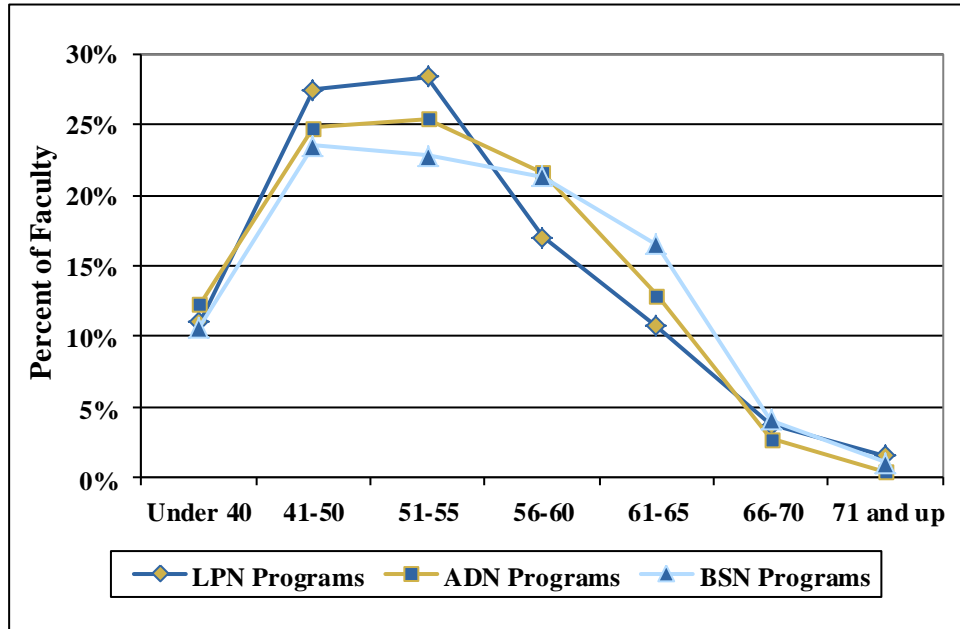
Figure 12. Age Distributions of Full-Time Faculty, by Program Type

Finally, Table 11 shows the number of new faculty positions program directors expect to budget over the next two academic years. A total of 488 positions are projected to be created over the next two academic years, and about 42 percent of this growth is concentrated in LPN programs. If these projections are realized, LPN programs would grow their faculties by about 39 percent over the next two academic years. ADN and BSN programs expected more modest growth. Faculty growth is at least partly dependent on economic recovery and funding for the schools.

Table 11. New Faculty Positions Expected Over Next Two Academic Years

	LPN Programs	ADN Programs	BSN Programs
New Full-time Positions Expected	105	76	48
New Part-time Positions Expected	98	107	54
Total New Faculty Members Needed	**203**	**183**	**102**
% Growth Over Current Positions	39.0%	19.6%	12.6%

Note: Respondents may not be certain that their requests for additional budget lines for faculty will be approved by their college or university.

Conclusions and Recommendations

The number of pre-licensure nursing programs in Florida continues to expand. The Center sent our survey to 27 new nursing programs; and received responses from all. New RN-BSN programs have opened in state colleges, in addition to new online RN-BSN and graduate programs. Interestingly, ADN programs comprise 57 percent of new nursing programs approved since July 2009, [7] which could further skew the distribution of entry-level RNs towards the ADN level. Given this recent growth, nursing programs' capacity to grow may be very close to reaching a bottleneck imposed by limited fiscal, human, and clinical resources.

Last year, new graduate RNs increased by 2.9 percent, a rate lower than the Center's forecast statement that an increase of new graduate RNs by five percent per year over the next six years, coupled with a two percent reduction in the rate of attrition, would alleviate the projected nursing shortage by 2022.[5] The Center's forecast report also indicated that RN supply and demand would remain near equilibrium through 2014. However, during academic year 2010-2011 we should see an increase in the number of new graduate nurses, as the first cohort of students in new programs finishes the end of their education. The anticipated growth in the number of nursing graduates suggests caution when planning for future increases in the number of nursing programs. Given the mounting barriers to expansion reported by program Deans and Directors, it is unlikely that continued growth of this pace is sustainable.

In contrast to RNs, the number of LPN graduates decreased by six percent last year. Although the Center currently calculated that LPN supply and demand are close to equilibrium, we anticipate this situation is only temporary and demand for LPNs will continue to increase as the economy improves, older nurses retire or work fewer hours, the aging population requires more care, and health care reform is implemented.[5] Forty percent of new nursing programs approved in Florida since 2009 are LPN programs,[7] and these future graduates will help to alleviate the coming nursing shortage particularly in skilled nursing facilities and home health agencies.

Of continued concern for sustainable growth in nursing education are the rising faculty vacancy rates and expected number of new faculty needed. Responding schools reported they currently had 124 full-time and 52 part-time vacant faculty positions. Faculty vacancy rates have increased among all types of nursing programs, and in ADN and BSN and higher programs the vacancy rates are now higher than those reported in 2007. When perceived need for new positions is taken into account, faculty vacancy rates range from 27 percent to 31 percent. Schools also reported a large number of new faculty positions expected over the next two years, 203 for LPN programs, 183 for ADN programs, and 102 for BSN programs. The large number of nursing faculty needed in the future suggests that we will need more nurses with graduate degrees in nursing education.

Unfortunately, the increase in faculty vacancy rates coincides with mediocre growth in graduate degree tracks preparing nurses for faculty positions. Overall enrollment in master's-level programs increased by four percent since 2007, while enrollment in PhD programs has remained steady and DNP program enrollment has more than tripled. MSN programs graduated almost 200 more students in AY 2009-2010 compared to AY 2008-2009, and almost all of this growth was in NP programs. DNP programs graduated 46 more students than last year. The growth in graduates focusing on direct-care nursing is promising given the need for more primary and bedside care, but may not help with a growing shortage of nurse faculty. As the economy improves and programs seek additional faculty members for continued expansion and to replace faculty who retire, the shortage of nurse faculty will come into sharper focus.

The most consistently cited barrier to program expansion (for four years in a row) is limited clinical capacity for interactive student learning experiences. The expansion of new nursing programs in Florida last year will further limit the state's clinical education capacity. There is currently one computerized clinical placement system in use in southeast Florida, which purports to maximize use of space in healthcare facilities for clinical education. Further evaluation of computerized placement systems is necessary to assess if continued expansion of this technology

is justifiable. Increased use of simulation technology to supplement clinical education will be ever more necessary as clinical capacity needs increase.

The Center puts forward the following research and policy recommendations to better understand and address the capacity limitations within our education system:

1) *Solutions to the specific problem of clinical capacity must be evaluated*. The Center is conducting a project funded by The Blue Foundation for a Healthy Florida and the Robert Wood Johnson Foundation/Northwest Health Foundation Partners Investing in Nursing's Future grant program to recommend actions for increased use of simulation in Florida nursing education. State law allows up to 25 percent of clinical education to be conducted via simulation in non-accredited programs and does not limit the use in nationally accredited programs. Yet pre-licensure clinical programs report an average of 5.1 percent of clinical education conducted via simulation.[13] Results from the Center's recent survey of simulation resources in Florida indicate that 68 percent of responding nursing schools have a medium to high-fidelity simulator. Thirty percent of schools have a simulation coordinator, and 50 percent have a dedicated simulation laboratory. Clinical education within healthcare settings such as hospitals will always be limited, but advancing technology in simulation creates limitless opportunities for safe, effective clinical learning experiences.

2) *Faculty positions must be made more attractive to nurses considering pursuit of an advanced degree in nursing*. Survey results from the past four years show that advanced practice degree programs are growing more rapidly than teaching and research-focused preparation programs. Over time, this may contribute to the crippling faculty shortage by not educating enough faculty to replace those retiring or to fill expansion needs. To improve recruiting efforts, pre-licensure program faculty salaries must be more competitive with those earned in advanced practice settings and faculty workloads cannot continue to increase. The number of new faculty members needed in the next two years is a stark indicator of the need to increase the number of nurse educators. Additional faculty will be needed as new nursing programs are approved and as existing programs expand to accommodate demand.

3) *Nursing education must remain a priority for colleges, universities, and legislators – even in tough economic times*. The budgets of our colleges and universities are understandably tight at present, but the looming nursing shortage in Florida requires that budget cuts be made with a scalpel, not a hatchet. Nursing education programs cannot afford to cut faculty positions given the need for increased numbers of RNs, nor can they reduce classroom or lab space used on the campuses of colleges and universities. In the long run, this investment will benefit our state by reducing the projected shortage of nurses, assuring access to care delivery, and improving patient outcomes.

4) *Nursing education capacity must be increased strategically*. During the past year, 27 new nursing programs have responded to our survey. Other new online-only programs have opened to the state's residents. While the increased number of new student seats is welcome, it is important to recognize that nursing programs compete for faculty and clinical space. The current trend in nursing education is toward more programs with fewer seats per program – a "decentralization of nursing education" – which may complicate efforts for more effective use of clinical, fiscal, and human resources. Continued collection of data will allow

evaluation of this trend's impact on the quality and quantity of new graduate nurses as well as the difficulty programs face in securing new faculty and clinical space.

5) *Improve collaboration with other state entities that collect information from schools of nursing.* Presently, three state entities survey the state's nursing schools every year - the Board of Nursing, the Office of Program Policy Analysis and Government Accountability, and the Center. These surveys have overlapping questions, and schools report that having to answer multiple surveys is burdensome. In the past, the Center coordinated data collection and all three entities worked together to create and deploy one survey to all nursing schools. The Center then distributed appropriate results to each entity, allowing all to complete their separate missions and provide accurate information to stakeholders. A return to collaboration among all three agencies would enable us to use scarce resources more effectively and decrease the workload for survey respondents.

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