

Educational Mobility Patterns Among  
Registered Nurses in North Carolina

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The North Carolina Center for Nursing

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North Carolina is expecting a severe shortage of nurses in the near future. Due mostly to the aging of the baby boom generation, the shortage will be generated by the dual pressures of a large segment of the population increasing their demand for health care services at the same time that the majority of the current nursing workforce will be retiring. These pressures on the nursing workforce have been addressed by several policy bodies,<sup>1</sup> resulting in recommendations that enrollments be increased in all nursing education programs. However, one of the critical components of our ability to educate more new nurses is having an adequate supply of faculty. And the aging of the nursing workforce also applies to nursing faculty.

Changes in nursing education over the past 30 years may be having unanticipated consequences on the number of nurses choosing faculty roles. For example, an increasingly large percentage of the entry-level nursing workforce now comes from Associate degree (ADN) programs. To reach a Master's degree from the ADN typically entails the acquisition of two additional degrees. For nurses beginning in Baccalaureate Nursing programs (BSN), only one additional degree beyond the entry level is required to reach the Master's level. But new nurses from BSN programs are a declining percentage of our entry-level education pipeline. Countering these trends is the appearance of RN-to-Master's education programs that allow RNs without a baccalaureate degree to enter a Master's degree program. These types of programs are still relatively rare, and some require dual enrollment in both a baccalaureate program as well as the Master's program. At this point in time, there are 5 RN-MSN programs in existence within North Carolina.

In order to understand how changes in the education of new nurses might be affecting the supply of Master's prepared RNs, we analyzed educational mobility patterns among RNs in NC to understand:

- 1) how entry-level start point may or may not affect the propensity to attain additional nursing education
- 2) how many RNs extend their education to the MSN and PhD level
- 3) how educational mobility patterns are changing over time

## Data sources:

Using the NC Board of Nursing RN licensure files from the past twenty years, two cohorts of new graduates were followed over time to determine the extent, nature, and timing of educational mobility beyond their entry-to-practice degree. Using the 1984 file (downloaded as of October 31<sup>st</sup> that year), every RN with an active license to practice at that time who had also graduated from their entry-level program in 1983 or 1984 was selected. A second study cohort was selected from the 1994 license file by tagging all RNs with an active license that year who had also graduated from their entry-level program in 1993 or 1994.

Each RN in the older cohort, which we will refer to as the 83/84 cohort, was followed over each year from 1984 through 2003, as long as they maintained an active North Carolina license. A total of 3,726 were identified as new graduates in 1983 or 1984. At the end of their first 10 years in practice, in 1993, 2,850 of that original group (76.5%) still maintained an active NC license. At the end of the 20 year study period, in 2003, 2,418 of the original group (64.9%) remained.

The new graduates in 1993 or 1994 were identified in the 1994 RN license file (referred to as the 93/94 cohort) and followed for the first 10 years of their careers, until 2003. At the beginning of the analysis period there were 5,654 new graduates with an active license to practice in North Carolina in 1994. At the end of their first 10 years in practice, in 2003, 4,211 of the original group (74.5%) still held an active license in the state.

These two groups, the 83/84 cohort and the 93/94 cohort, constitute our analysis groups. The type of entry-level program attended by each licensed RN is a permanent part of the license file. Information about additional degrees is collected at every renewal period, which occurs every two years. That field asks for the highest degree held at that point in time and is recorded with a predetermined category of answers: diploma, associate degree, baccalaureate in nursing, baccalaureate in another field, Master's in nursing, Master's in another field, and doctoral degree. By examining this field each year it is possible to construct a history of educational mobility for each RN in our starting cohorts.

The difficulty in any longitudinal analysis in which the aggregate outcomes are of interest is that characteristics that change over time, such as educational attainment, are affected by age (the passage of time), period (the historical timeframe), and cohort (the social environment in which players are immersed). The aging of individuals brings new worldviews and/or life cycle changes that can affect outcomes in the aggregate as age distributions change. Cohorts of individuals – groups who enter into historical events and social situations at the same point in time – also tend to possess differing worldviews and decision-making paradigms than those who enter at much earlier or later points in time. Historical effects, including economic shifts and major world events, may affect individuals at different ages or in different cohorts quite differently. These various effects of time stymie the efforts of researchers to appropriately forecast outcomes into the distant future, since you can generally measure two of these factors, but never all three simultaneously.

This study is an attempt to disentangle some of the complex effects of aging, cohort, and period effects on RN education mobility. By comparing two cohorts, one entering nursing in the early 1980s and another in the early 1990s, we will be able to identify the influence of educational entry point on subsequent educational mobility, the proportion of RNs who extend their education and the levels which they attain, general patterns of educational mobility, if any, and how those patterns may be changing.

### **Demographic Characteristics of Our Analysis Cohorts of New Graduates**

Table 1 describes the basic demographic characteristics of our analysis cohorts. These descriptive statistics are based on the final analysis group in each cohort – that is, only those RNs that remained in the sample group throughout the entire analysis period (20 years for the 83/84 cohort, 10 years for the 93/94 cohort).

As new graduates in 1983 or 1984, the cohort was quite young at entry into practice, with about half of the cohort members under the age of 25. The cohort is predominantly female (95.4%) and white (91.8%). Their initial nursing degrees reflect the expansion of ADN programs during the 1970s: nearly 60% of this cohort began practice with an ADN. About 30% began with a BSN, while nearly 11% began in a hospital diploma program.

**Table 1. Demographic Characteristics of our Analysis Cohorts**

	<b>83/84 Cohort</b>	<b>93/94 Cohort</b>
<i>Cohort N =</i>	<i>2,418</i>	<i>4,211</i>
<b><i>Age Percents</i></b>		
20-24	49.5	29.6
25-29	19.6	20.5
30-34	13.8	17.5
35-39	9.9	15.3
40-44	4.3	10.1
45-49	2.1	5.0
50-54	0.7	1.7
55 and older	0.1	0.4
Missing/Unknown	0.08	0
<b><i>Gender Percents</i></b>		
Male	4.6	7.1
Female	95.4	92.9
<b><i>Race Percents</i></b>		
White	91.8	90.2
African-American	7.4	7.1
American Indian	0.5	0.9
Hispanic	0.2	0.5
Asian	0.1	0.8
Other	0	0.3
Missing/Unknown	0	0.1
<b><i>Entry-Level Degree Percents</i></b>		
Hospital Diploma Program	10.6	7.1
Associate's Degree in Nursing	58.7	67.7
Bachelor's Degree in Nursing	30.7	25.3

The 93/94 cohort of new graduates obtaining their first license to practice in North Carolina looks different in many ways. As a group, they are older: less than 30% were under age 25 and 17% were age 40 or older when they graduated from their entry-level program. Although still a small percentage, there are proportionately more men in this newer cohort. The racial composition of the 93/94 cohort is very similar to the 83/84 group. Finally, there was a 10% increase in the proportion of new graduates coming out of ADN programs, and a concomitant decrease in representation from hospital diploma programs and

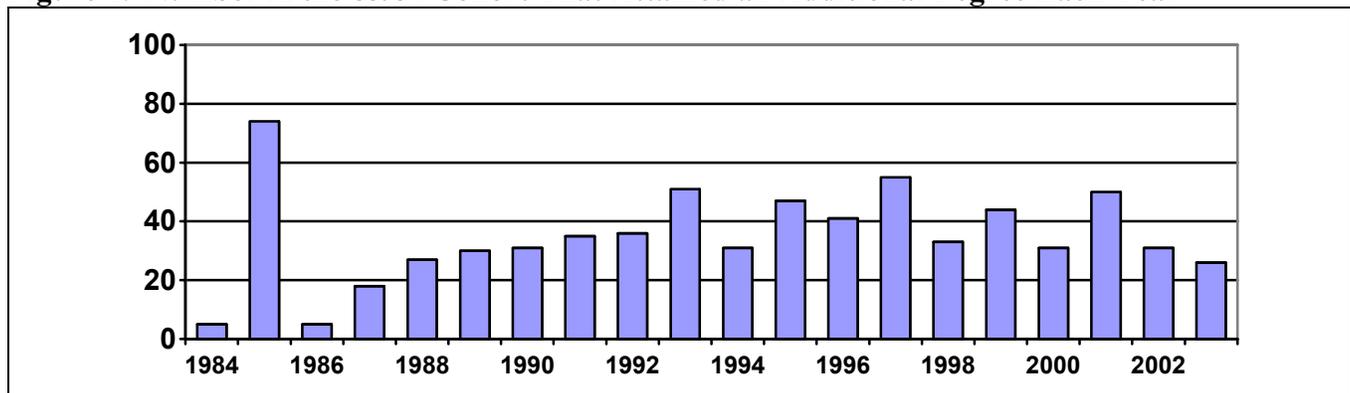
BSN programs (see Table 1). The following analyses will reveal whether these changing characteristics are also reflected in changing patterns of educational mobility.

### Educational Mobility Patterns in the 83/84 Cohort

Educational mobility was remarkably steady over the first 20 years of professional life for the cohort of new graduates in 83/84. There was an early spike in the number of persons receiving additional degrees about two years after graduation from their entry-level degree program, but after that point a similar number upgraded their education each and every year throughout the 20 years we followed them (see Figure 1 below).

By 2003, a total of 624 members (25.8%) of the final cohort (those maintaining an active license in North Carolina from 1984 - 2003) had advanced their education beyond the degree with which they entered into practice. Seventy-seven of those 624 (3.2% of the total cohort) had achieved two additional degrees. No members of the 83/84 cohort attained more than 2 degrees beyond entry-level during our 20 year analysis period.

**Figure 1. Number in the 83/84 Cohort That Attained an Additional Degree Each Year**



Note: A total of 390 (13.7% of the total 2850 in the cohort as of 1993) members of the 83/84 cohort attained 1 or more additional degrees beyond their entry-level degree in the first 10 years they were in practice. During the second ten years this cohort was followed, 361 (14.9% of the total 2418 in the cohort as of 2003) attained 1 or more additional degrees beyond the one held in 1993.

Table 2 shows how educational mobility patterns in the first 10 years of their career differed by the type of entry-level program attended by our 83/84 cohort members. Table 3 reports the same information for the second 10 years of our 20 year analysis period. Table 2 shows that approximately 18.8% of the 83/84 cohort of RNs who completed hospital diploma programs (which were not degree-granting programs in 1984) attained one or more additional degrees in the first 10 years of their career. A t-test of proportions reveals that these diploma RNs were slightly more likely to advance their education than RNs entering practice through a BSN program (11.9% of BSN graduates advanced their education during the first 10 years of their career). RNs starting out in ADN programs fell in the middle, with 13.7% advancing their

degree level, and were not statistically different from either the diploma group or the BSN group. The schematic diagram in Appendix A shows all of the different pathways and endpoints experienced by the RNs in our 83/84 cohort, as measured at the end of the 20 year analysis period.

**Table 2. Educational Mobility Over the First 10 Years: 83/84 Cohort**

<i>1993 Education</i>	<i>Entry-level Education</i>			<i>Totals</i>
	<i>Diploma</i>	<i>ADN</i>	<i>BSN</i>	
<i>Diploma</i>	247 81.3%			247 8.7%
<i>Associate</i>	10 3.3%	1436 86.3%		1446 50.7%
<i>BSN</i>	39 12.8%	109 6.6%	777 88.1%	925 32.5%
<i>BA/BS</i>	6 2.0%	93 5.6%	0 0%	99 3.5%
<i>MSN</i>	1 0.3%	7 0.4%	60 6.8%	68 2.4%
<i>MA/MS</i>	1 0.3%	19 1.1%	43 4.9%	63 2.2%
<i>Doctorate</i>	0 0%	0 0%	2 0.2%	2 0.01%
<i>Totals</i>	<b>304</b> 10.7%	<b>1,664</b> 58.4%	<b>882</b> 31.0%	<b>2,850</b>

However, when followed over the entire 20 years, this entry-point difference in educational mobility disappeared. Table 3 shows that educational mobility beyond the entry-level point was proportionately similar for all RNs after 20 years in practice, regardless of where they started. A t-test of proportions confirms this similarity. Among diploma graduates in 83/84, 25.1% (n=64) went on to obtain at least one more degree during the first 20 years of their RN career. Ultimately, 4.3% of them earned a Master's degree (3.5% a Masters in Nursing, 0.8% some other type of Masters). Of the 64 diploma graduates that advanced beyond their entry-level education, the great majority (81.2%) advanced by 1 additional degree, and 18.8% earned 2 degrees beyond the entry-level degree.

Of those nurses who began in ADN programs, 26.4% (n=375) went on to obtain at least one more degree over the first 20 years of their professional life. By the end of that period, 5.1% had attained a Master's degree (3.4% in nursing and 1.7% in another field). These proportions are not very different from those experienced by diploma program graduates. Similarly, of the 375 nurses who did move beyond entry-level, 83.5% advanced by 1 additional degree and 16.5% earned 2 degrees beyond the original ADN.

Among RNs entering the profession through a BSN program, 24.9% (n=185) advanced their education during the first 20 years of their professional career. This proportion is not substantially different from

either ADN graduates or diploma program graduates from this cohort of nurses. However, among those that began in BSN programs, one-quarter (24.9%) attained a Master's Degree or Doctorate (17.5% an MSN, 6.6% a Master's in another field, and about 1% earned a doctorate). All 6 of the nurses from the 83/84 cohort to earn a doctoral degree began in a BSN program.

**Table 3. Educational Mobility Over 20 Years: 83/84 Cohort**

<i>2003 Education</i>	<i>Entry-level Education</i>			<i>Totals</i>
	<i>Diploma</i>	<i>ADN</i>	<i>BSN</i>	
<i>Diploma</i>	191 74.9%			191 7.9%
<i>Associate</i>	8 3.1%	1045 73.6%		1053 43.5%
<i>BSN</i>	41 16.1%	208 14.6%	558 75.1%	807 33.4%
<i>BA/BS</i>	4 1.6%	95 6.7%	0 0.0%	99 4.1%
<i>MSN</i>	9 3.5%	48 3.4%	130 17.5%	187 7.7%
<i>MA/MS</i>	2 0.8%	24 1.7%	49 6.6%	75 3.1%
<i>Doctorate</i>	0 0.0%	0 0.0%	6 0.8%	6 0.3%
<i>Totals</i>	<b>255</b> 10.6%	<b>1,420</b> 58.7%	<b>743</b> 30.7%	<b>2,418</b>

The different likelihood of eventually attaining a Master's or Doctoral degree is unquestionably linked to entry-level starting points: nurses entering the profession through a BSN program require only one additional degree to reach the Master's level, while for Diploma program and ADN graduates, traditional articulation pathways require them to obtain a baccalaureate degree before being able to enter a Master's degree program. Any future introduction of Master's degree programs willing to accept students without that prerequisite baccalaureate may change this historical pattern, and thus increase the pool of RNs with Master's or higher education.

### **Age and Educational Mobility: 83/84 Cohort**

Other questions of interest in regard to educational mobility are whether age at entry to practice affects the propensity to move on, and whether the effect of age varies based on entry-level program type. We conducted both a descriptive analysis and a series of logistic models to address these questions. The results show the effects of age are conditioned by the type of entry-level program. For RNs graduating from a hospital diploma program or a baccalaureate nursing program, age at entry into practice was not a

significant predictor of future educational mobility. However, for those RNs that entered nursing from an associate degree program, younger graduates had a greater likelihood of advancing their education at some point in the future. For each additional year of age at graduation from the initial nursing education program, the likelihood of future advancement declined by about 2.5%.

### Gender and Educational Mobility: 83/84 Cohort

An analysis of the role of gender in educational mobility shows some interesting patterns. During the first 10 years of their career, male RNs in the 83/84 cohort were significantly more likely to make an educational advance than were female RNs during that same period (See Table 4 below). But when examined over 20 years, the gender differences disappear: at that point 28.2% of male RNs had advanced beyond their entry-level degree, compared to 25.7% of female RNs. These findings make it clear that men tend to achieve educational mobility early in their career, while an equal proportion of women seek educational mobility, but do so later in their career. These patterns no doubt have implications for the overall rewards gained from increased education since men attain those rewards earlier and earn them for a longer period of time than is true for women.

**Table 4. Educational Advancement by Gender for the 83/84 Entry Cohort in NC**

<b>% Advancing Beyond Entry-Level Degree:</b>	<b>In the first 10 years:</b>	<b>Over 20 years:</b>
Men	23.9%	28.2%
Women	13.6%	25.7%
Chi-Square p-value	0.0003	0.5601

### Race and Educational Mobility: 83/84 Cohort

Race is another characteristic that might be related to educational mobility. For this analysis all minority (non-white) races were grouped together. However, readers should be aware that African Americans make up the largest minority group in nursing. In the 83/84 cohort, 179 (90.9%) of 197 minority RNs were black. American Indians made up 5.6% of minority RNs in this cohort, while Hispanics (all races) accounted for 2%, and Asians 1.5%.

When examined over 20 years, from 1984 to 2003, white and minority RNs in our 83/84 cohort generally had the same proportions advance by at least one degree level. However, including the program type in which they started did reveal racial differences: among RNs who began in ADN programs, a greater proportion of minority RNs went on to advance their education (39.4%) compared to white RNs (25.4%). Among those that started in diploma programs or in BSN programs, there was no significant difference between whites and minorities in terms of educational advancement.

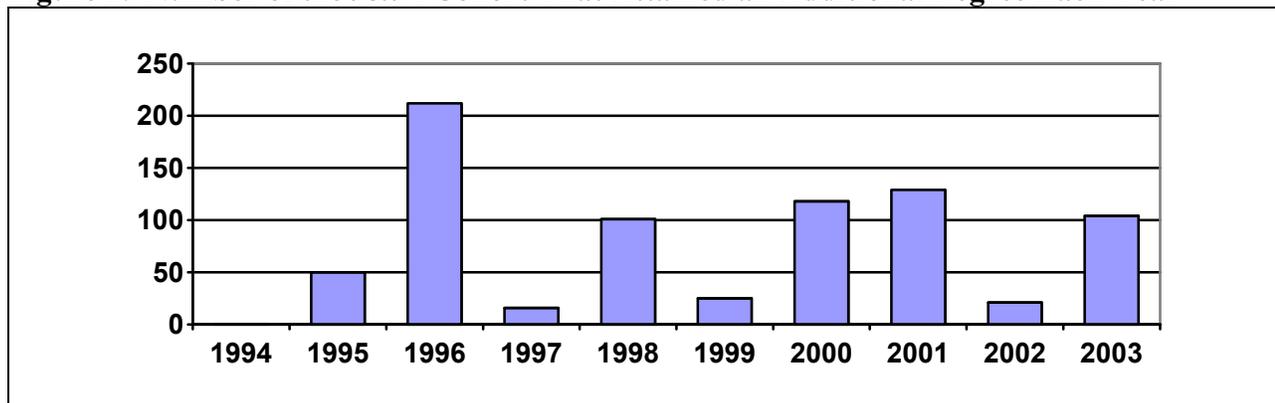
**Table 5. Mobility by Race and Entry-Level Program Type in the 83/84 Cohort**

% Advancing Beyond Entry-Level Degree:	In the first 10 years			Over 20 years		
	Diploma	ADN	BSN	Diploma	ADN	BSN
Whites	19.1%	13.4%	11.7%	25.0%	25.4%	25.6%
Minorities	9.1%	17.1%	13.7%	27.3%	39.4%	19.5%
Chi-Square p-value	0.4301	0.2585	0.546	0.8650	0.0024	0.2186

**Educational Mobility Patterns in the 93/94 Cohort**

Approximately 17% of the 93/94 cohort extended their education by at least 1 degree beyond their entry level during the first 10 years of their career, which is slightly higher than the 13% demonstrated by the 83/84 cohort. In addition, the sheer number of RNs extending their education in that time frame more than doubled, from a total count of 390 in the 83/84 cohort, to a total count of 734 in the 93/94 cohort. This increase is due, to some extent, to the fact that the 93/94 cohort is about 147% larger than the earlier group. Yet, if their rates of educational mobility were the same, we would expect to see only about 573 members of the 93/94 cohort attaining an additional degree by 2003, not the 734 that actually extended their education.

**Figure 2. Number of the 93/94 Cohort That Attained an Additional Degree Each Year**



Note: A total of 734 cohort members (17.4% of the total 4,211) attained 1 or more additional degrees beyond their entry-level degree during the first 10 years in practice.

Table 6 reports the number and percent of RNs from the 93/94 cohort who maintained or moved beyond their entry-level education. Repeating a pattern seen in the 83/84 cohort, RNs beginning in a hospital diploma program were significantly more likely (based on the results of a t-test of proportions with a p-value = 0.05) to extend their education (36.2%) in the first 10 years than those starting in an ADN program (15.4%) or a BSN program (17.7%). This difference in educational mobility during the first 10

years by type of entry program is much stronger in the 93/94 cohort than it was in the earlier 83/84 cohort. The changes that took place in nursing education between the early 1980s and the early 1990s, moving away from more vocational attitudes toward nursing education to a more scholastic emphasis on college and university degrees no doubt contributes to this pattern.

**Table 6. Educational Mobility in the First 10 Years: 93/94 Cohort**

<i>2003 Education</i>	<i>Entry-level Education</i>			<i>Totals</i>
	<i>Diploma</i>	<i>ADN</i>	<i>BSN</i>	
<i>Diploma</i>	190 63.8%			190 4.5%
<i>Associate</i>	42 14.1%	2411 84.6%		2453 58.3%
<i>BSN</i>	35 11.7%	243 8.5%	876 82.3%	1154 27.4%
<i>BA/BS</i>	22 7.4%	146 5.1%	0	168 4.0%
<i>MSN</i>	4 1.3%	25 0.9%	152 14.3%	181 4.3%
<i>MA/MS</i>	5 1.7%	21 0.7%	33 3.1%	59 1.4%
<i>Doctorate</i>	0	3 0.1%	3 0.3%	6 0.1%
<i>Totals</i>	<b>298</b> 7.1%	<b>2849</b> 67.7%	<b>1064</b> 25.3%	<b>4,211</b>

### Age and Educational Mobility: 93/94 Cohort

When looking at the cohort as a whole there was no significant effect of age on educational mobility. We conducted the same type of analysis for this cohort as for the earlier 83/84 cohort and found that the effects of age were, again, conditioned by the type of entry-level program. For RNs who graduated from a hospital diploma program or a baccalaureate nursing program, age was not a significant predictor of educational mobility over the first 10 years of their career. However, for RNs that entered nursing from an associate degree program, younger graduates had a greater likelihood of advancing their education during the 10 years we followed them. For each additional year of age at graduation from their ADN program, the likelihood of future advancement for these RNs declined by about 1.5%.

### Gender and Educational Mobility: 93/94 Cohort

The relationship between gender and educational mobility seen in the 83/84 cohort is just as strong in the 93/94 cohort. Men are significantly more likely than women to extend their education beyond the entry

level during the first 10 years of their career (see Table 7). Whether this difference will disappear during the second 10 years, as it did in the 83/84 cohort, cannot be measured until 2013.

**Table 7. Educational Advancement by Gender for the 93/94 Entry Cohort in NC**

<b>% Advancing Beyond Entry-Level Degree:</b>	<b>Within the first 10 years:</b>
Men	31.7%
Women	16.3%
Chi-Square p-value	< 0.0001

### **Race and Educational Mobility: 93/94 Cohort**

The same pattern between race and mobility that appeared in the 83/84 cohort is also seen in the 93/94 cohort of new graduates. See Table 8 for the details. Among RNs starting in ADN programs, a greater proportion of minority RNs (24.6%) attained an additional degree during their first 10 years in practice than was true of white RNs (14.6%). The strength of this pattern, and the fact that 68% of the 93/94 cohort started in ADN programs, results in a significant difference in educational mobility between whites (16.9%) and minorities (22.6%) for the entire cohort.

**Table 8. Mobility by Race and Entry-Level Program Type in the 93/94 Cohort**

<b>% Advancing Beyond Entry-Level Degree:</b>	<b>In the first 10 years:</b>		
<b>Entry Program Type:</b>	<b>Diploma</b>	<b>ADN</b>	<b>BSN</b>
Whites	36.0	14.6	17.7
Minorities	38.5	24.6	17.0
Chi-Square p-value	0.8053	< 0.0001	0.8291

### **Summary and Conclusions:**

The demographic profile of new RNs entering the profession in North Carolina has changed over time. Of the two groups that we studied, the more recent cohort is older, has a slightly higher percentage of men, and is predominantly coming out of ADN programs to begin their career. In terms of general educational mobility, a greater proportion of the 93/94 cohort extended their education beyond entry level (17.4%) during the first 10 years of practice than was true for the 83/84 cohort (13.7%), although the percentage differences are not very far apart.

In most respects, the patterns seen in the 83/84 cohort are also seen in the 93/94 cohort. Educational mobility seems to be strongest among RNs who began their education in hospital diploma programs, although they are the smallest portion of the new graduates in both 83/84 and 93/94. And, although they seem to extend their education early (within the first 10 years after graduation for entry-level), differences in educational mobility patterns by type of entry program disappeared for the 83/84 cohort when examined over a 20 year period.

Age at entry into practice, by itself, was not a significant covariate with later educational mobility in either cohort. But there was a consistent pattern among RNs beginning their education in ADN programs that showed a decreasing likelihood of educational mobility for older age groups. This finding did not appear for RNs who enter practice through hospital diploma or baccalaureate degree programs. The age/program type interaction is slight (the odds of advancing beyond entry level dropped by 2.5% for each additional year of age at graduation in the 83/84 cohort and 1.5% in the 93/94 cohort) but consistent over time. Its importance lies mainly in the fact that two-thirds of our new graduates now enter the profession through ADN programs.

**Table 9. Percentage of Cohort Members Achieving Master’s and Doctoral Preparation**

Mobility Type and Timeline	Entered with Hospital Diploma		Entered with Associate Degree		Entered with BSN		All RN Entry Degrees	
	83/84 Cohort	93/94 Cohort	83/84 Cohort	93/94 Cohort	83/84 Cohort	93/94 Cohort	83/84 Cohort	93/94 Cohort
<b>after 10 years</b>	<b><i>n=304</i></b>	<b><i>n=298</i></b>	<b><i>n=1664</i></b>	<b><i>n=2849</i></b>	<b><i>n=882</i></b>	<b><i>n=1064</i></b>	<b><i>n=2850</i></b>	<b><i>n=4211</i></b>
% MSN	0.3	1.3	0.4	0.9	6.8	14.3	2.4	4.3
% MA/MS	0.3	1.7	1.1	0.7	4.9	3.1	2.2	1.4
% Doctorate	0	0	0.0	0.1	0.2	0.3	0.1	0.1
<b>Total %</b>	<b>0.6</b>	<b>3.0</b>	<b>1.6</b>	<b>1.7</b>	<b>11.9</b>	<b>17.7</b>	<b>4.7</b>	<b>5.8</b>
<b>Total #</b>	<b>2</b>	<b>9</b>	<b>26</b>	<b>49</b>	<b>105</b>	<b>188</b>	<b>133</b>	<b>246</b>
<b>after 20 years</b>	<b><i>n=255</i></b>	na	<b><i>n=1420</i></b>	na	<b><i>n=743</i></b>	na	<b><i>n=2418</i></b>	na
% MSN	3.5		3.4		17.5		7.7	
% MA/MS	0.8		1.7		6.6		3.1	
% Doctorate	0		0		0.8		0.3	
<b>Total %</b>	<b>4.3</b>		<b>5.1</b>		<b>24.9</b>		<b>11.1</b>	
<b>Total #</b>	<b>11</b>		<b>72</b>		<b>185</b>		<b>268</b>	

Both race and gender showed statistically significant patterns of difference and those patterns appear to be consistent over time. Minority RNs starting in ADN programs are more likely than their white counterparts to extend their education. In the 83/84 cohort this pattern was revealed over 20 years, but not during the first 10. In the 93/94 cohort, this pattern was apparent during the first 10 years of practice. Gender also showed a consistent pattern: a larger proportion of male RNs extend their education during the first 10 years in practice than is true of female RNs. This was true in both the 83/84 and 93/94

cohorts. The gender differences disappeared in the 20 year analysis of the 83/84 cohort, however. That result suggests that men and women in nursing are equally likely to extend their education, but they follow different time frames.

Educational mobility, as used here, counts the number of times that an additional degree is obtained beyond that earned at the entry-level point. Naturally, the ultimate level of education attained by our study cases is shaped largely by where that entry point lies. The great majority of RNs that extended their education did so by only 1 level beyond their entry point. That pattern, plus the increasing dominance of ADN programs as the entry point for most RNs, has serious repercussions for future workforce planning efforts. The need for a large influx of new faculty members prepared at the Master's level or higher is a critical component of our ability to address the looming nursing shortage which will occur as a result of the aging of the baby boom generation.

Table 9 shows both the number and percent of our study cohort members that attained a level of education high enough to make them potentially eligible for faculty positions. In general, only about 5% of the two cohorts we studied were able to attain a Master's degree or higher in the first 10 years of practice. Not surprisingly, the great majority of RNs who were able to earn a Master's degree or higher in that time started their nursing education in BSN programs: 105 of the 133 RNs from the 83/84 cohort who had a Master's degree or higher at the end of ten years, and 133 of the 246 RNs from the 93/94 cohort.

This pattern of educational mobility, when linked with the declining proportion of new graduates from BSN programs, as well as our immediate need for new faculty members over the next 10 years, suggests a crisis in the making.

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<sup>i</sup> The North Carolina Institute of Medicine convened a Task Force on the Nursing Workforce in 2003 and 2004 which was co-sponsored by the NC Center for Nursing, the NC Area Health Education Centers, the NC Hospital Association, and the NC Nurses Association. Their report can be found at <http://www.nciom.org/projects/nursingworkforce/nursingreport.html> Also, the NC University System Board of Governors appointed a special subcommittee in 2004 to review the nursing shortage issue.

**Appendix A: Educational Pathways Over 20 Years for New Graduates in 1983-84**

