



Nursing Supply and Demand Study 2006

Greater Cincinnati **Health Council**

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we're involved.

2100 Sherman Avenue, Suite 100
Cincinnati, OH 45212-2775
Phone: (513) 531-0200

GREATER CINCINNATI HEALTH COUNCIL NURSING SUPPLY AND DEMAND STUDY 2006

The Purposes of the Supply and Demand Study were:

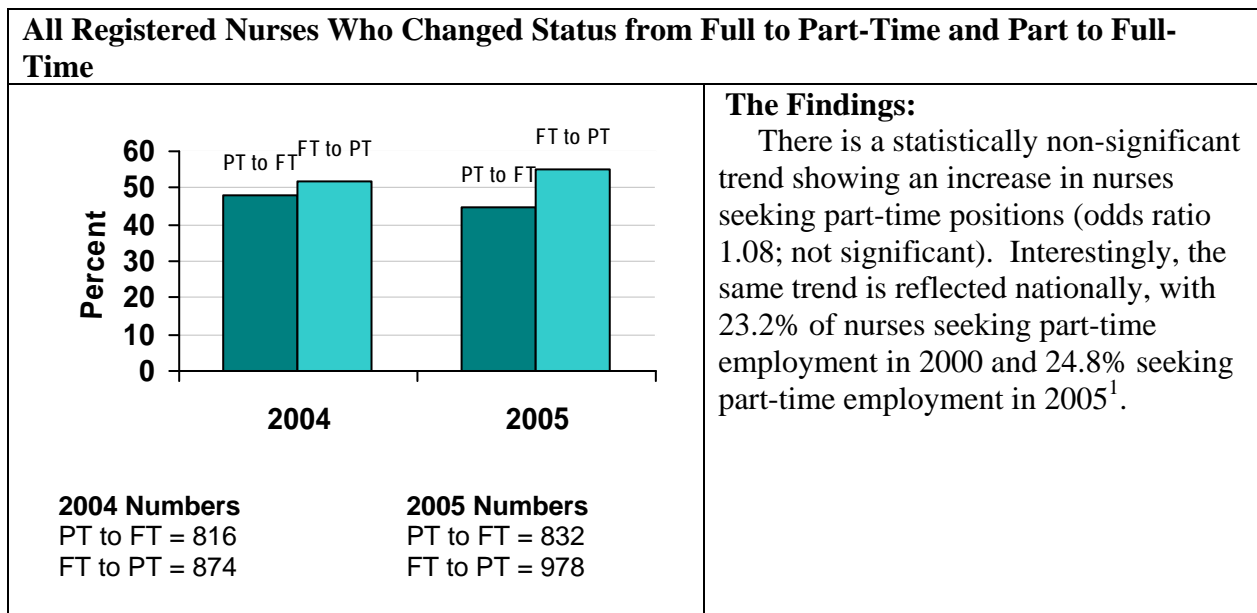
1. To provide a baseline to begin trending the regional nursing workforce supply and demand.
2. To gather regional data on nursing faculty, student admission and retention, current nursing workforce and workforce needs.
3. To project the future supply and demand of the nursing workforce, focusing on needs, challenges and a common vision.

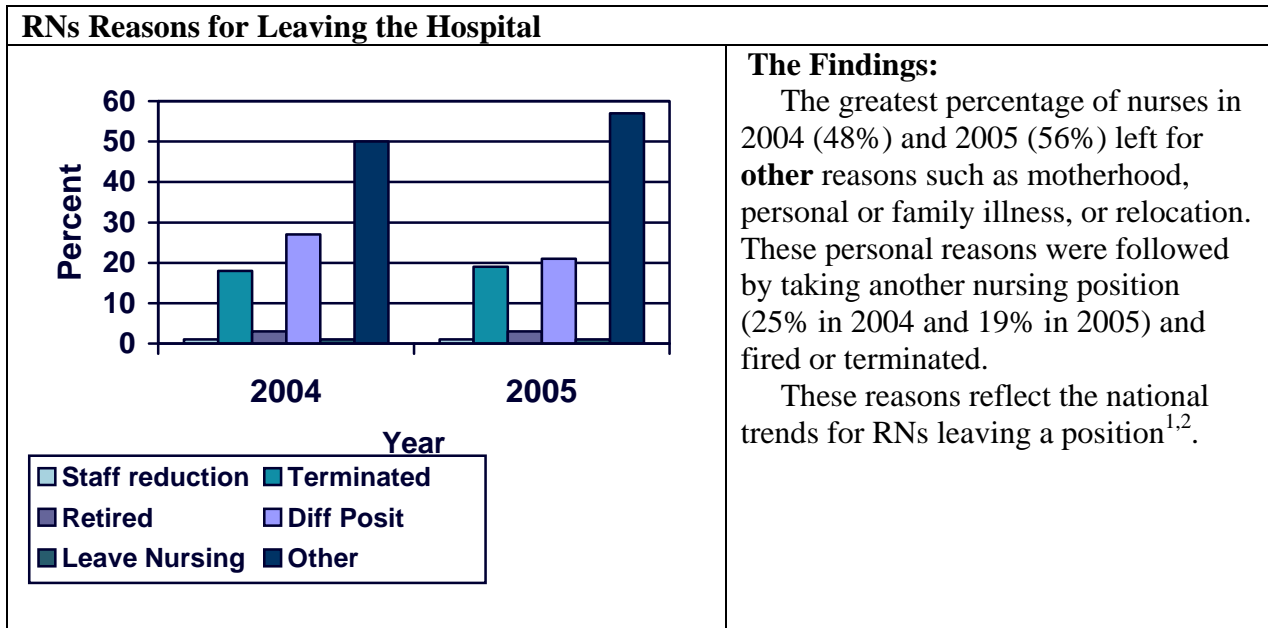
The survey was conducted between May 2006 and October 2006. Twenty hospital surveys were distributed and 11 were returned for a 55% response rate. Fifteen nursing school surveys were distributed and 11 were returned for a 73% response rate. Five schools offer Associate Degree (ADN) programs, three offer Baccalaureate (BSN) programs and three offer alternative entry programs resulting in a baccalaureate or masters degree in nursing.

Section One: Current Nursing Workforce

This study considered only hospital demand for nurses and did not include other community agency needs for registered nurses. The U.S. Department of Health and Human Services estimates that 83.2% of U.S. registered nurses (RNs) are employed in the hospital setting¹.

Registered Nurse (RN) Staff Turnover in the Past Two Years





All Registered Nurses Hired by Previous Area of Residence in 2004 & 2005

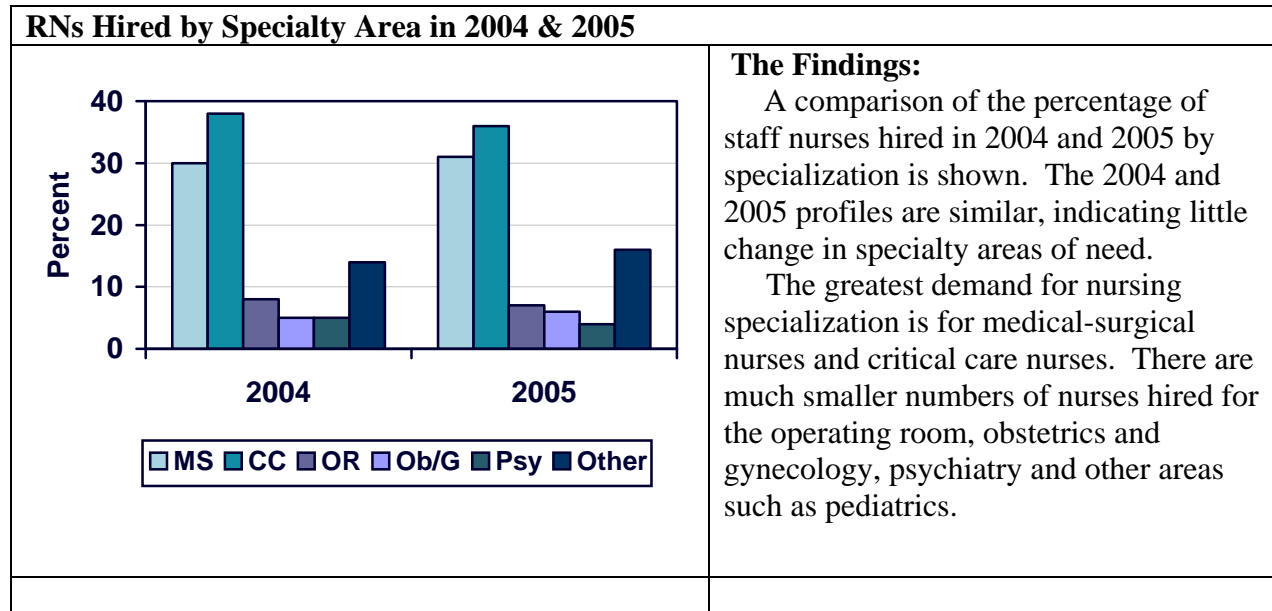
In 2004, 1,197 RNs were reported hired, of these, 96% were from the Cincinnati area and only 1% were hired from outside of the region. In 2005, 1,306 RNs were reported hired, 93% were from the Cincinnati area and 3% were hired from outside the region (see Table 1).

Approximately 65% of the nurses hired were experienced. Clearly the nursing supply is from the Cincinnati area, with only a small number of nurses coming from outside the region. These are most likely nurses who are moving into the area. A very small number of nurses are from foreign countries. Nationally, there are approximately 3.5% of nurses practicing in the U.S. who were educated outside the U.S.¹

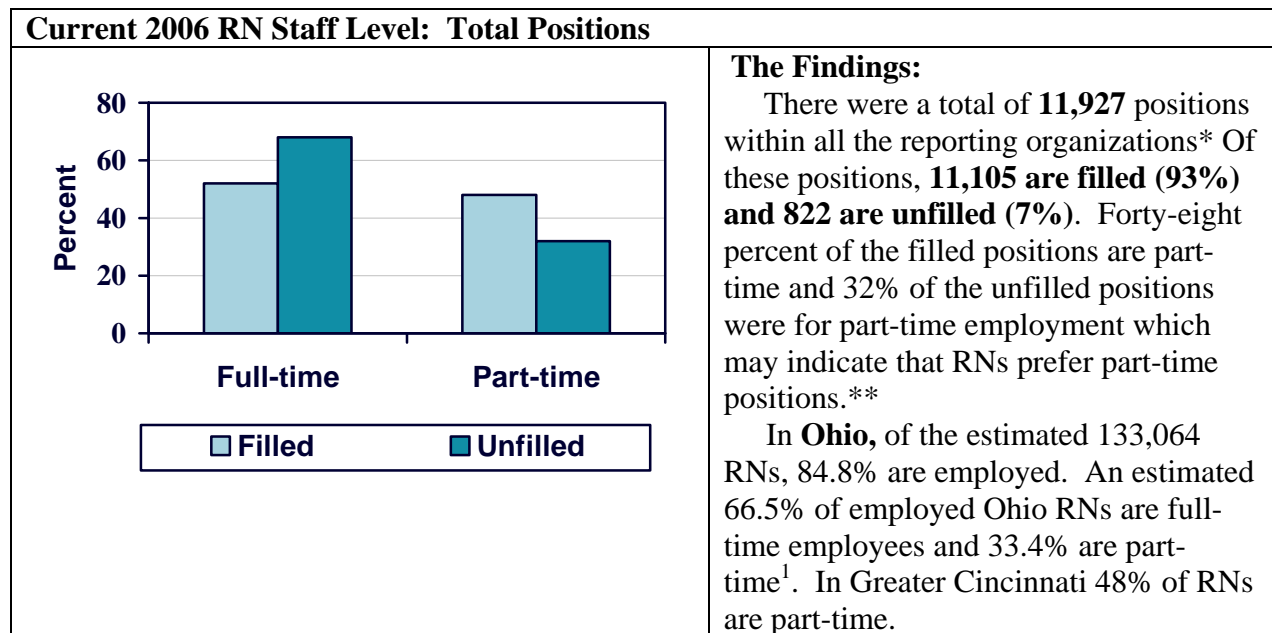
Number of registered nurses hired in 2004 and 2005 by experience and area of residence when hired.

| All RNs Hired/ Residence at Hire | 2004 (N=1,197) | | | 2005 (N=1,306) | | |
|-------------------------------------|---|---------------------------------------|--------------------------------------|---|---------------------------------------|--------------------------------------|
| | staff nurses who are new graduates | staff nurses with previous experience | nurses hired in management positions | staff nurses who are new graduates | staff nurses with previous experience | nurses hired in management positions |
| TOTAL (9 hospitals) | 414 (35%) | 755 (65%) | 28 | 480 (37%) | 808 (63%) | 18 |
| LOCAL (Cincinnati Area) | 246 | 457 | 21 | 295 | 491 | 13 |
| Non-Local: Regional Market | 1 | 16 | 1 | 2 | 17 | 1 |
| Non-Local: U.S., outside Region | 0 | 0 | 0 | 5 | 7 | 1 |
| Non-Local: Other Countries | 0 | 14 | 0 | 0 | 25 | 0 |
| Column Total (N) | 247 | 487 | 22 | 302 | 540 | 15 |
| Breakdown totals | Number of RNs reported by residence = 756 | | | Number of RNs reported by residence = 857 | | |

These results should be interpreted cautiously since not places of residence before hire were reported in regards to total hires. Only 63% in 2004 and 66% in 2005 of the nurses hired were reported by previous area of residence at time of hire. It is likely that this information is either not tracked or easily retrievable.



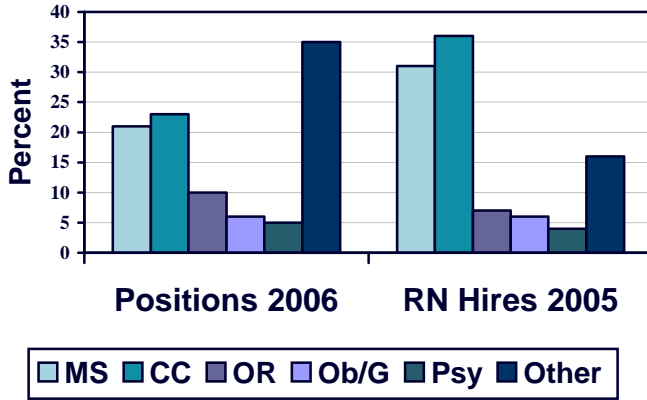
MS – Medical-Surgical; CC – Critical Care; Ob/G – Obstetrics & Gynecology; Psy - Psychiatric



*One organization did not report total positions.

**Nine organizations reported full or part-time positions

Current 2006 RN Staff Level: Percent of 2006 RN positions by specialization compared to 2005 RNs hired.



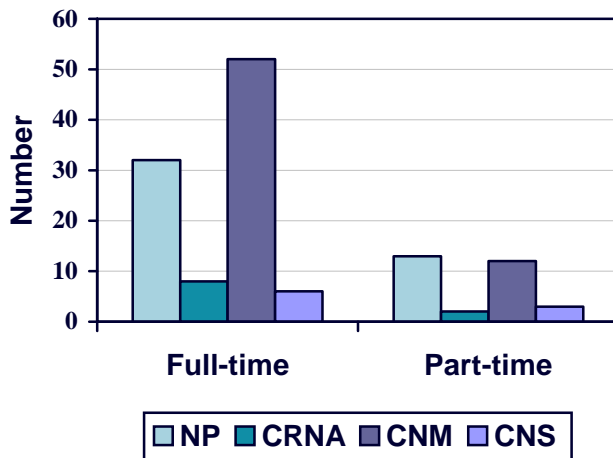
The Findings:

A greater proportion of nurses were hired in the medical/surgical and critical care areas. This may support the often cited difficulty of retaining staff in these two areas of nursing.

The “Other” category shows significantly fewer ‘Hires’ than ‘Positions’, indicating greater employee stability. These positions are more likely managers, administrators, staff development and clinical nurse specialists (CNS).

MS – Medical-Surgical; CC – Critical Care; Ob/G – Obstetrics & Gynecology; Psy - Psychiatric

Current 2006 RN Staff Level: Number of nursing staff with advanced practice certification*



The Findings:

There are 136 full & part-time positions for advanced practice nurses (1.4% of the total RNs). Three percent of the positions are unfilled and none of the positions are for part-time.

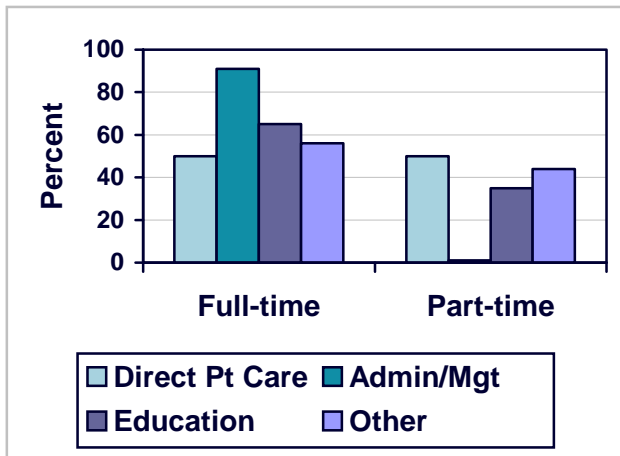
With increasing emphasis on the quality of care and patient safety, the small number of APNs (advanced practice nurses) is surprising. These nurses are a key element to implementing evidenced-based nursing practice, as well as providing consultation for less experienced RNs.

The demand for APNs is likely to increase in the next decade.

NP – Nurse Practitioner; CRNA – Certified Registered Nurse Anesthetist; CNM – Certified Nurse Midwives; CNS – Clinical Nurse Specialists

*Nine organizations reporting.

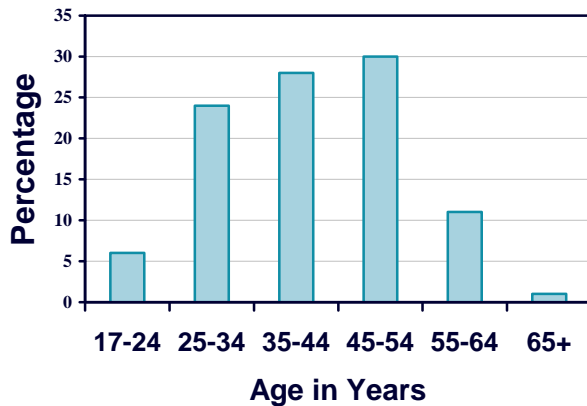
Current 2006 RN Staff Level: Full and part-time positions by role



The Findings:

RNs providing direct patient care are equally divided between full and part-time. A completely different pattern exists for nurses in administration and management where 91% are full-time. RNs in staff development positions are more likely to be full-time (65%). Nurses in other support positions are split fairly evenly with 56% full-time and 44% part-time. Overall, 52% of the currently filled positions are full-time.

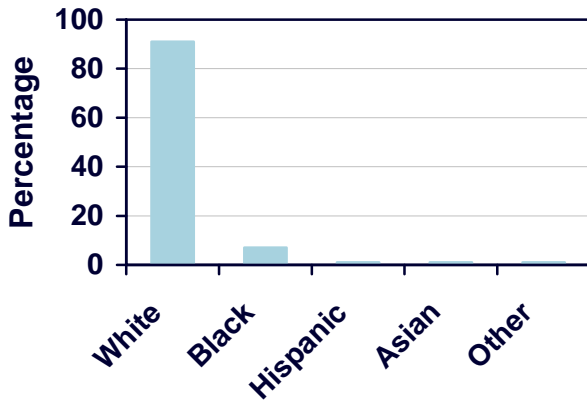
Current 2006 RN Staff Level: Age Distribution for Registered Nurses



The Findings:

The age distribution for RNs mirrors the national age distribution for RNs, with a mean national age of 46.8 years. A projected retirement age for RNs is 55 years and older. In 10 years, there is a potential for 4,789 or 42% of the current regional RN workforce to be retired. The actual number retiring may depend on incentives such as: increased wages, flexible schedules and physical accommodations for veteran RNs who may find direct patient care too demanding¹.

Current 2006 RN Staff Level: Race/Ethnicity

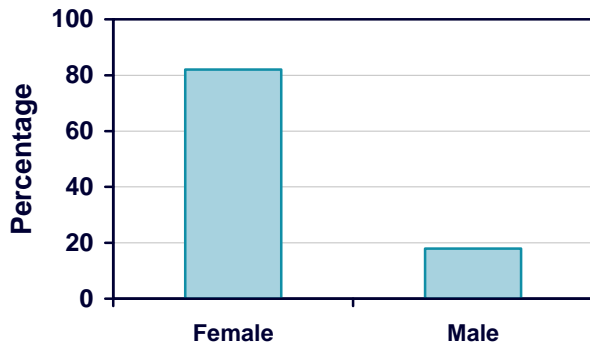


The Findings:

The reported distribution for race was 91% White, 6% Black and 1% each for Hispanic, Asian, and other.

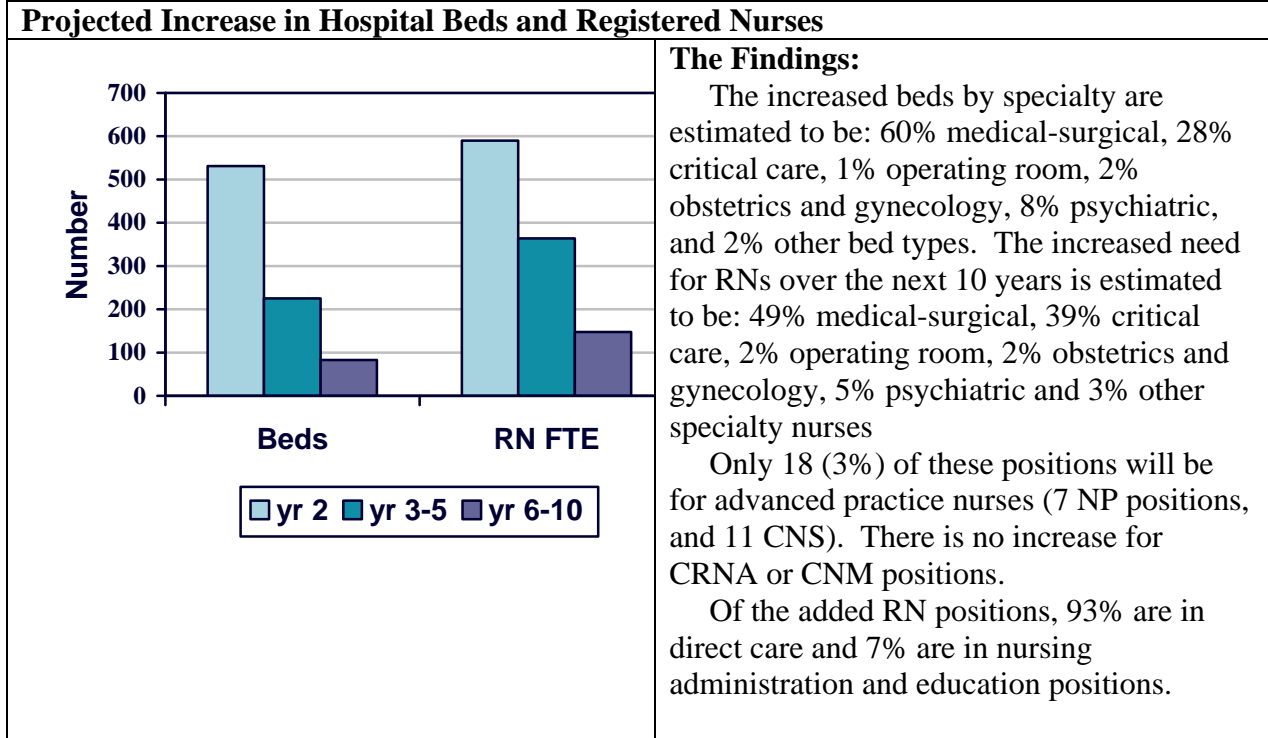
Nationally the race distribution is 88.4% White/Non-Hispanic; 4.6% Black/Non-Hispanic; 3.3% Asian/PI.

Current 2006 RN Staff Level: Gender



The Findings:

The regional distribution for gender was 82% Female and 18% Male. The number of reported male nurses is much higher in the region compared to 5.7% male RNs reported nationally.

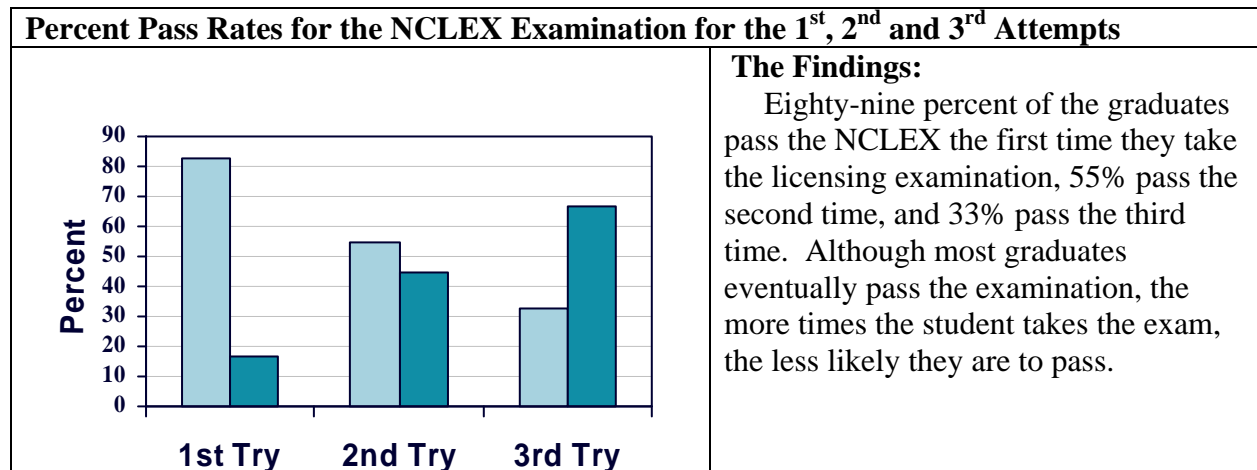
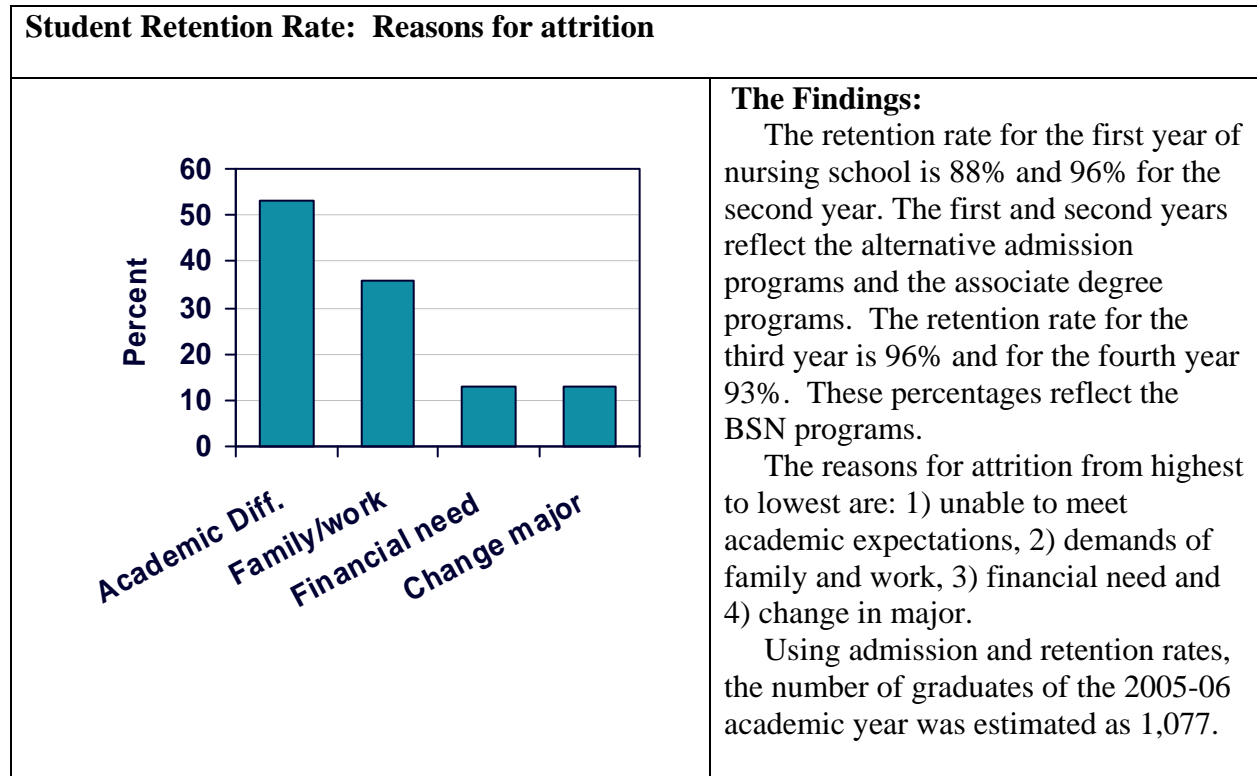


NP – Nurse Practitioner; CNS – Clinical Nurse Specialists; CRNA – Certified Registered Nurse Anesthetist; CNM – Clinical Nurse Midwives

Section Two: Nursing Students and Faculty

Schools of Nursing Program Admissions

The schools of nursing reported 1,163 students admitted in 2005 and 763 applicants were placed on a 'wait' list. The distribution of admissions by race is similar to that reported for hospital RN staff. Eleven percent of the admissions are male and 89% female. This is in comparison to the 18% of male regional staff nurses.



Placement of Graduates

Most graduates take positions in the Cincinnati MSA (Metropolitan Statistical Area) and 86% are hired by hospitals. Nationally, it is estimated that 83.2% of RNs in the U.S. are employed by hospitals. This percentage of hospital hires may change over the next 10 years as hospitals move to earlier discharges and more outpatient services. Only 10% of graduates take positions outside the Cincinnati MSA.

| Concerns Limiting Program Capacity: Rating and Ranking | |
|--|--|
| <p>Rating Concerns Major Concerns Staffing & clinical placements Moderate Concerns Financial & physical space</p> <p>Ranking Concerns (1=greatest; 4=least) 1: Staffing 2: Clinical Placement 3: Financial 4: Physical space</p> | <p>The Findings: Nursing faculty and clinical placements tied as the major concern for schools of nursing. Funding and classroom space were tied as secondary concerns. When ranked, the number of qualified faculty was the greatest concern, clinical placements was second, funding was third, and physical classroom space was fourth.</p> |

| Faculty Positions: Filled and Unfilled by Full & Part-Time Status | | | | | | | | | | | | | | | | | | | |
|---|---------------------------|---------------------------|---------------------------|--------------------------|----------------------------|----------|----------|-------------|--|--------------|--------------|--------------|--------------|------------|------------|------------|---|--|--|
| <table border="1"> <thead> <tr> <th>Positions</th> <th>Full-time N (Row %)</th> <th>Part-time N (Row %)</th> <th>Row total N (Col%)</th> </tr> </thead> <tbody> <tr> <td>Current unfilled positions</td> <td>22 (58%)</td> <td>16 (42%)</td> <td>38 (12%)</td> </tr> <tr> <td>Current positions filled (total faculty)</td> <td>165 (60%)</td> <td>109 (40%)</td> <td>274 (88%)</td> </tr> <tr> <td>Total</td> <td>187</td> <td>125</td> <td>312</td> </tr> </tbody> </table> | Positions | Full-time N (Row %) | Part-time N (Row %) | Row total N (Col%) | Current unfilled positions | 22 (58%) | 16 (42%) | 38 (12%) | Current positions filled (total faculty) | 165 (60%) | 109 (40%) | 274 (88%) | Total | 187 | 125 | 312 | <p>The Findings: There are 312 faculty positions available with a 12% vacancy rate. Sixty percent of the current faculty are full-time. The national faculty vacancy rate is approximately 7.9%. The Cincinnati region is significantly above the national percentage, indicating that the region is experiencing a shortage of master's and doctoral prepared nurses in nursing education. The finding supports the ranking of "staffing" as the greatest concern for nursing education.</p> | | |
| Positions | Full-time N (Row %) | Part-time N (Row %) | Row total N (Col%) | | | | | | | | | | | | | | | | |
| Current unfilled positions | 22 (58%) | 16 (42%) | 38 (12%) | | | | | | | | | | | | | | | | |
| Current positions filled (total faculty) | 165 (60%) | 109 (40%) | 274 (88%) | | | | | | | | | | | | | | | | |
| Total | 187 | 125 | 312 | | | | | | | | | | | | | | | | |

| Faculty Roles by Full & Part-time Status | | | |
|--|---------------------|---------------------|--------------------|
| Faculty Roles | Full-time N (Row %) | Part-time N (Row %) | Row total N (Col%) |
| “Classroom only” | 35 (36%) | 63 (64%) | 98 (27%) |
| “Clinical only” | 8 (7.5%) | 99 (92.5%) | 107 (30%) |
| Dual clinical & classroom role | 138 (90%) | 16 (10%) | 154 (43%) |

The Findings:

Ninety percent of faculty that are employed in the dual role are full-time and those employed in clinical or classroom are more often part-time. This is similar to the national norms³.

The roles and responsibilities of part-time and full-time faculty can be very different. The typical full-time, collegiate faculty role consists of teaching, service (community & college) and scholarly activities (writing & research) while part-time faculty typically have roles restricted to teaching either in the classroom or clinical area.

| Age Distribution for Faculty | | | | | | | | | | | | | | | |
|---|--------------|------------|-------|----|-------|-----|-------|-----|-------|-----|-------|-----|-----|----|---|
| <table border="1"> <caption>Age Distribution Data</caption> <thead> <tr> <th>Years in Age</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>22-25</td> <td>1%</td> </tr> <tr> <td>26-29</td> <td>13%</td> </tr> <tr> <td>30-39</td> <td>29%</td> </tr> <tr> <td>40-49</td> <td>43%</td> </tr> <tr> <td>50-59</td> <td>15%</td> </tr> <tr> <td>60+</td> <td>0%</td> </tr> </tbody> </table> | Years in Age | Percentage | 22-25 | 1% | 26-29 | 13% | 30-39 | 29% | 40-49 | 43% | 50-59 | 15% | 60+ | 0% | <p>The Findings:</p> <p>Nearly 58% of faculty are 50 years or older. Within 10 years, over 40% of current nursing faculty expect to retire, and within the next 15 years almost half of the current faculty expect to retire. Only 13% of faculty are younger than 40. This is not surprising, since nurses frequently seek advanced education later in their careers. The current shortage of nursing educators will worsen if there is no push to increase the supply.</p> <p>Even with an increased supply of master’s and doctoral prepared nurses, they will not be the experienced educators of the past, and will require mentors³. Data on master’s and doctoral programs was not obtained from this survey, however several schools are beginning nurse educator programs.</p> <p>The pattern of nursing faculty retirements is a national issue contributing to faculty shortages. It is estimated that 200 to 300 doctorally prepared faculty will retire annually through 2012³.</p> |
| Years in Age | Percentage | | | | | | | | | | | | | | |
| 22-25 | 1% | | | | | | | | | | | | | | |
| 26-29 | 13% | | | | | | | | | | | | | | |
| 30-39 | 29% | | | | | | | | | | | | | | |
| 40-49 | 43% | | | | | | | | | | | | | | |
| 50-59 | 15% | | | | | | | | | | | | | | |
| 60+ | 0% | | | | | | | | | | | | | | |

Race/ethnicity & Gender of Nursing Faculty

The race/ethnicity distributions for nursing faculty are similar to the distributions for RNs. However, only **2.8% of faculty members are male**, leaving few role models for the 11% of male nursing students. In the push for culturally competent care there is a strong need for a more diverse faculty to serve as role models for minority students and to ensure educational experiences reflecting the cultural diversity of our population.

Faculty Compensation

\$47,173:

The average starting salary for faculty (10 month contract) hired in past 2 years

\$31.50:

Average hourly rate of pay for part-time faculty

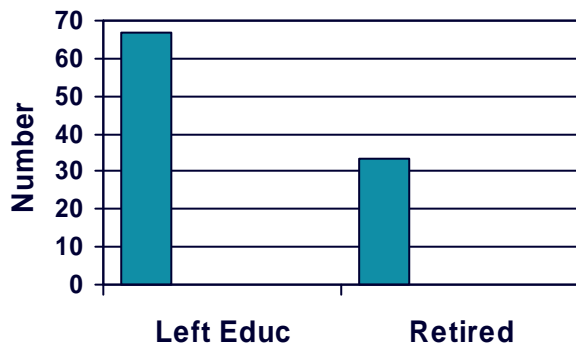
The Findings:

Beginning salaries ranged from \$42,000 to \$56,160. The \$56,160 salary was for 12 months. The remaining full-time salaries were for 10 months. For a 12 month contract, the corresponding 10 month salary is \$46,800. Using this figure, the average salary for a 10 month appointment is \$47,173.

Nationally, the average earnings of all RNs employed full-time in 2004 was \$57,784¹, the average salary of a master's prepared NP in 2005 was \$72,480. In contrast, the average salary in 2005 for a Master's prepared faculty across all ranks was \$55,712³.

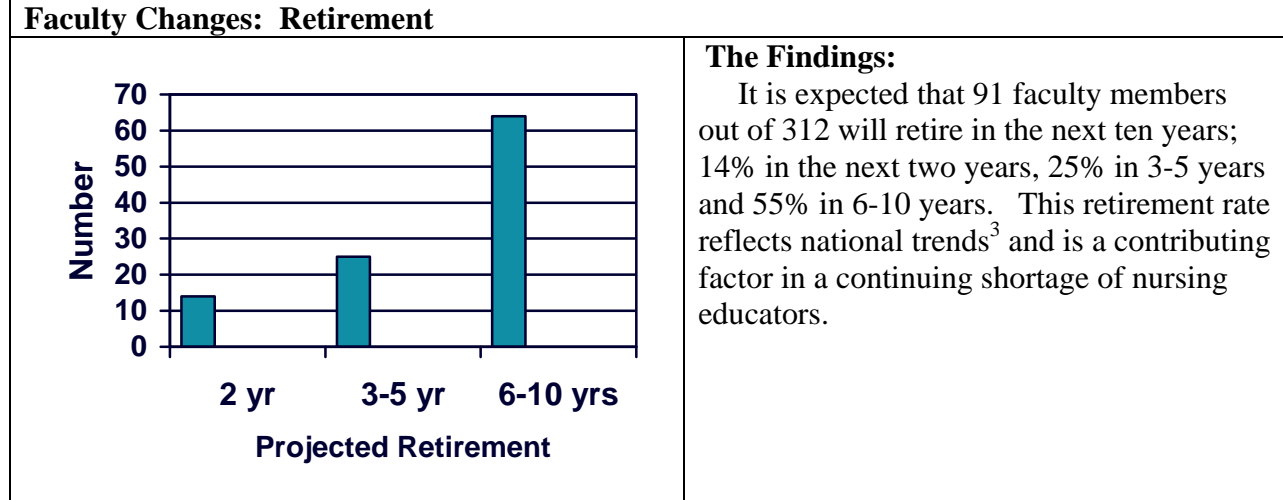
Salaries for faculty are significantly below the national norm when compared to nurses in practice.

Faculty Changes: Reasons for leaving education



The Findings:

In the last 2 years, 12% of faculty left their position. Only 33% of those who left were due to retirements. Other than retirement, reasons for leaving nursing education were not explored in the survey.



Estimates of RN Supply/Demand-Model One and Two

The following estimates of supply and demand were made using the following five assumptions. These assumptions were based on limited available data and may therefore result in underestimates of both demand and supply. Future surveys will help to refine these crude estimates. **It is also extremely important to note** that organizational growth is not stagnant and in fact between the collection of this data and the final report, many organizations have announced increases in services requiring added RN staff which has not been captured in this study.

1. The percent of RNs leaving for the listed reasons will remain constant.
2. Retirements are constant at 1.2% per year (this estimate is based on the number of nurses who are now 55 years or older). This estimate could increase, resulting in the need for more RNs.
3. Annual percentage of RNs leaving an organization remains constant, and an estimated 50% of these nurses will stay in the employment pool, seeking positions at other organizations, or returning to nursing at a later time. Since 65% of new hires are experienced nurses, and come from this region, 50% is a reasonable assumption, resulting in 7% rate for RNs leaving. A second model using 8% leaving nursing, is also presented.
4. Staffing intensity and demand for hospital days are constant.
5. The number of graduates will remain constant as a result of a limited pool of available faculty.

Model One: using an assumption of 7% leaving the RN employment pool and 1.2% annual retirement of nurses 55 and older.

| | Additional Positions | Retirement (1.2% Annually) | Leaving profession (7% Annually) | Supply of graduates (1077 Annually) | Supply - Demand | Supply / Demand | % Shortage |
|-----------------|-----------------------------|-----------------------------------|---|--|------------------------|------------------------|-------------------|
| 2 yrs | 590 | 297 | 1,732 | 2,154 | -465 | 82% | 18% |
| 3-5 yrs | 364 | 460 | 2,679 | 3,231 | -272 | 92% | 8% |
| 6-10 yrs | 148 | 778 | 4,539 | 5,385 | -80 | 98% | 2% |
| Totals | 1,102 | 1,535 | 8,950 | 10,770 | -817 | 93% | 7% |
| | Demand | Demand | Demand | Supply | | | |

It is estimated that in 10 years there will be a demand of 1,102 new positions, 1,535 positions to replace retiring nurses, and an additional 8,950 nurses to replace those leaving the profession. On the supply side there will be an additional 10,770 new nurses entering the workforce. For the current time, supply and demand is fairly balanced, but as more nurses approach the age of 45, it becomes harder to remain in the workforce and at present, work accommodations have not developed quickly enough to include all of these nurses. If retirements of staff nurses accelerate and a sufficient supply of qualified faculty are not available, these projections of supply and demand may become critical.

Model Two: using an assumption of 8% annually leaving the RN employment pool and 1.25% annual retirement of nurses 55 and older.

| | Additional Positions | Retirement (1.25% Annually) | Leaving profession (7% Annually) | Supply of graduates (1077 Annually) | Supply - Demand | Supply / Demand | % Shortage |
|-----------------|-----------------------------|------------------------------------|---|--|------------------------|------------------------|-------------------|
| 2 yrs | 590 | 309 | 1979 | 2154 | -724 | 75% | 25% |
| 3-5 yrs | 364 | 478 | 3062 | 3231 | -673 | 83% | 17% |
| 6-10 yrs | 148 | 811 | 5188 | 5385 | -762 | 88% | 12% |
| Totals | 1102 | 1598 | 10229 | 10,770 | -2159 | 83% | 17% |
| | Demand | Demand | Demand | Supply | | | |

Using Model Two, to project supply and demand, it becomes evident that the region has the potential for a nursing shortage. Making a very modest increase in both the retirement rate and those leaving the profession, the shortages increased significantly. These factors however are controllable through effective retention efforts. It is important to remember that there are other factors that could not be considered using the data from this survey, and planners need to stay vigilant.

Supply/Demand Study Summary

In 2002 a national survey it was projected that there would not be a shortage of RNs in Ohio through 2020². In a more recent national study using 2004-2005 data, those projections were revised to predict an 8% shortage in 2005, a 12% shortage in 2010, a 20% shortage in 2015 and a 30% shortage in 2020¹. Comparing both Model One and Model Two to the national projections, Model Two seems to be closer to the national estimates for Ohio. However, it should be noted that the Greater Cincinnati Region is supplied with a generous number of basic nursing programs, serving a population that is not as mobile as other areas. This lack of mobility could change however as more men enter the profession and as salaries increase in response to demand.

The future supply of nurses may be limited by: the number of faculty available to schools of nursing, low salaries in comparison to clinical practice positions, historically few advanced practice nurses attracted to nursing education and an inadequate number of clinical placements.

Although the Cincinnati region may not face RN shortages as severe as other areas of the country, hospitals may face competition for graduates of this region.

Study Participants

The Greater Cincinnati Health Council would like to thank Dr. Linda. S. Davis, PhD, RN, University of Cincinnati, for the analysis of the survey data and the following organizations for their participation:

Hospitals:

Cincinnati Children's Hospital Medical Center, Dearborn County Hospital, Margaret Mary Community Hospital, St. Elizabeth Medical Center, Clinton Memorial Hospital, Shriners Hospitals for Children, Highland District Hospital, Mercy Health Partners, Health Alliance, TriHealth, and Veterans Affairs Medical Center.

Schools of Nursing:

Beckfield College, The Christ College of Nursing and Health Sciences, Cincinnati State Technical and Community College, Good Samaritan College of Nursing and Health Sciences, College of Mount Saint Joseph School of Nursing, Northern Kentucky University School of Nursing and Health, University of Cincinnati Raymond Walters College, University of Cincinnati, Xavier University Department of Nursing.

References

1. U.S. Department of Health and Human Services, HRSA (2005). Preliminary findings 2004 National Sample survey of Registered Nurses. Retrieved October 1, 2006 from <ftp://ftp.hrsa.gov/bhpr/nursing/rnpopulation/theregisterednursepopulation.pdf>
2. U.S. Department of Health and Human Services, HRSA (2005). Projected supply, demand and shortages of registered nurses: 2000-2020. Retrieved October 1, 2006 from http://www.ahca.org/research/rnsupply_demand.pdf
3. AACN (2006). Nursing faculty shortage fact sheet. Retrieved November 3, 2006 from <http://www.aacn.nche.edu/Media/shortageresource.htm>.