

One outcome of our state's shortage of health care workers has been the need for more information about the current supply and demand of different professionals. For that reason, this registered nurse workforce profile was created to provide Minnesota policy makers, employers, educators, consumers, and others with an overview of current information.

Registered Nurse Workforce Profile

Findings

- The demand for RNs is strong — 20 percent increase in real wages (1990 to 2000), 44 percent growth in employment (1986 to 1999) and 2,900 current openings (Fall of 2000).
- The number of RN graduates from Minnesota schools may not be keeping pace with employers' demand for workers. In 1997, 1,925 RNs graduated from Minnesota schools.
- The number of current RN license holders not employed in nursing who are willing to promptly return to the RN workforce is very small (.8 percent).
- Minnesota RNs have a higher rate of part-time employment as compared to the rest of the nation (50 percent versus 25 percent).
- On average, RNs in Minnesota are three years older than those in the rest of the nation (45.3 versus 42.4). Those working in rural areas are, on average, older than those in urban areas.

Registered nurses (RNs) fill a variety of roles in health care settings, including patient advocate, health educator, direct care provider, and health care administrator. In 1999, registered nurse was the largest health care occupation in both the nation and the state with over 2.2 million jobs nationally and 44,500 jobs in Minnesota.¹ Nevertheless, an analysis of past, current and future trends in Minnesota suggests that the supply of available RNs may not adequately meet the current and future demands of employers and consumers.

The Demand for Registered Nurses

One of the strongest indicators of the demand for an occupation is wage growth. During the 1990s the median wage for an RN increased from \$14.87 in 1990 to \$23.42 in 2000 — a 20 percent increase in real wages.² In addition, RN employment in the state has grown by 44 percent over the last thirteen years (1986 to 1999) and is expected to increase to well over 47,000 jobs by 2008.

With regard to the current level of demand, employers reported that they were trying to fill an estimated 2,900 RN openings across the state in the fall of 2000. The majority of these openings (75 percent) were in the Twin Cities seven county region. Overall, two-thirds of RN openings remained unfilled for more than two months or were considered always open by employers. When compared to an earlier study, which found that one-third of all RN positions were unfilled for more than two months or considered always open, this new finding

reinforces the fact that employers are having a very difficult time hiring RNs.³

The Supply of Registered Nurses

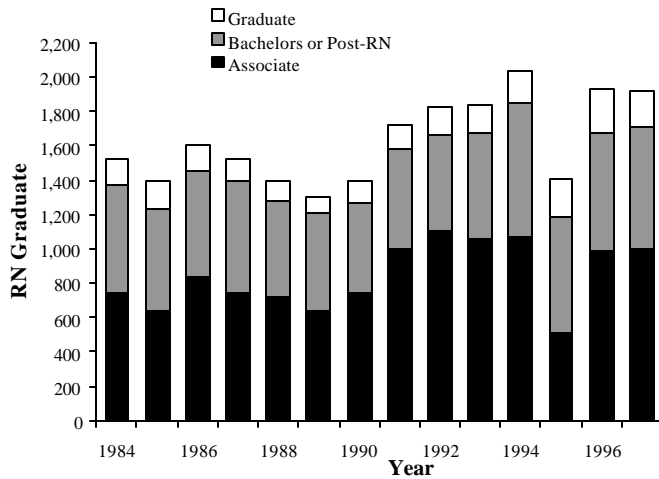
While demand for RNs continues to be strong, growth in the supply continues to be steady but slow. When estimating the supply of RNs, it is important to consider two types of information: the number of people graduating from post-secondary institutions and the composition of the current RN workforce.

Nursing Graduation Trends

Unlike other occupations, RNs have well-defined educational requirements. When examining graduation rates, however, it is important to remember that instate graduates do not account for all RNs in the workforce. Nevertheless, the number of graduates completing two- and four-year programs does provide one estimate of nursing program capacity and the current available supply of new workers. In Minnesota, there are currently 24 approved programs that offer RN training either at the associate, baccalaureate or post-baccalaureate level.

While the demand for RNs has gradually increased over time, the number of individuals completing RN programs has not. Between 1984 and 1997, the number of RN graduates with either an associate or bachelors degree, increased by 26 percent. Most of the increase was due to graduates completing associate and advanced degrees. See Figure 1. When considered alongside trends in the growth of RN employment and the estimates of the

**Figure 1: Registered Nurse Graduates
(Minnesota Institutions), 1984-1997**



Source: MN HESO and NCES.

current demand for RNs in the labor market, these data suggest that the state's post-secondary educational system may not be keeping pace with the demand for RNs. Fortunately Minnesota's RN graduation rate has remained constant throughout the 1990s. Nationally, nursing programs have seen a drop in enrollments and graduations in the last five years.⁴

Registered Nurse Employment

When examining the composition of the RN workforce, it is important to note the different ways to estimate the total number of RNs. One approach is to count the number of individuals who hold a license. There are about 60,000 licensed RNs in the state; however, some active license holders are not employed in Minnesota but choose to keep an active state license. In addition, there are some license holders who, due to retirement, unemployment, or employment in a non-health care position, choose to have an inactive license.

A second approach is to count how many licensed RNs work as an RN. Through a survey of employers, the Minnesota Department of Economic Security (MDES) estimates that there were approximately 44,500 RNs employed in the state in 1999. Since MDES bases its estimate on a list of job titles obtained from employers, they likely omit licensed RNs with non-nursing job titles who are in nursing or nursing-related positions, such as a resident assessment coordinator in a nursing home.⁵ The substantial gap in the number of RNs who are licensed versus those who are licensed and employed in RN positions, supports the fact that not all license holders are employed as RNs and many work in other, non-nursing positions.

The third estimate, based on a sample survey of licensed RNs from the Bureau of Health Professions, U.S. Department of Health and Human Services, provides an

estimate of the licensed RN workforce engaged in nursing activities. In 2000, the Bureau estimated that the total number of Minnesota RNs working in nursing was 47,000.⁶

Registered Nurse Workforce Composition and Distribution

Despite the fact that a precise estimate of current RN employment is not known, data collected through the Minnesota Health Services Personnel Survey⁷ provide a wealth of information on the current composition and geographic distribution of RNs in Minnesota.⁸ An examination of these data reveal a number of important factors about the supply of RNs, including the small number of inactive license holders willing to return to the workforce, the low rate of full-time employment, and significant aging trends in the workforce.

Overview

Of all relicensed RNs, 84 percent report actively using their state license and are employed in Minnesota. Another four percent actively used their state license, but are employed in another state. Most of these active license holders are employed in states bordering Minnesota. The remaining 12 percent are inactive license holders. Of these inactive license holders, 22 percent are retired, 22 percent are not currently working due to family reasons, and 22 percent are already employed and not seeking work as an RN. Only 311 inactive license holders (.8 percent of all license holders surveyed) wanted to promptly re-enter the RN workforce.

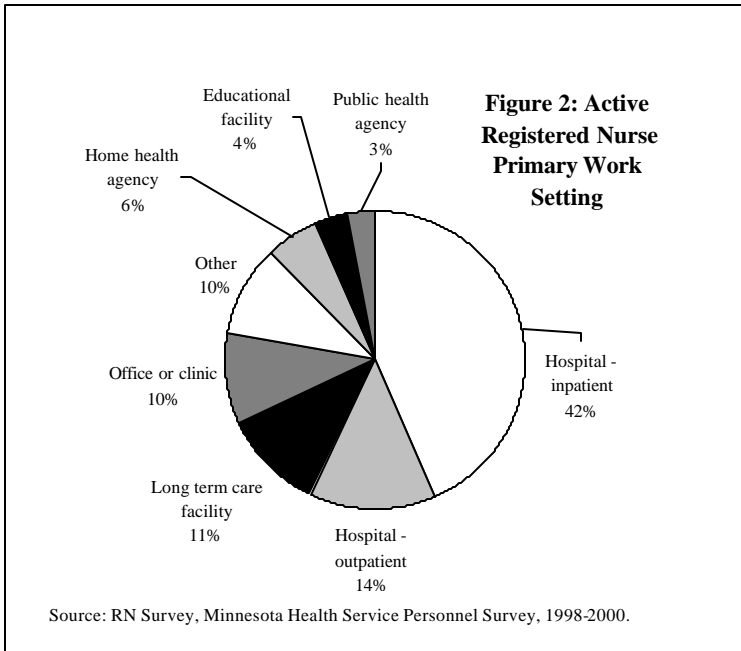
Educational Attainment

Most active RNs obtained an associate degree (38 percent) or a baccalaureate degree (34 percent), while 22 percent obtained a nursing diploma and six percent attained a masters or doctoral degree. Younger RNs (those ages 35 and younger) are more likely to have a bachelor's degree (55 percent) than older RNs. While a larger proportion of older RNs have advanced degrees, the majority (53 percent) obtained a nursing diploma.

About seven percent of the state's RNs reported that they are advanced practice nurses, with the largest category of RNs trained as nurse practitioner (36 percent). The remaining advanced practice RNs include certified nurse anesthetist (29 percent), certified clinical nurse specialist (26 percent), and certified nurse midwife (4 percent).

Employment

Seventy-five percent of all RNs work for employers in the Twin Cities region and three other urban counties (Olmsted, Saint Louis and Stearns). When compared to the distribution of the state's population (37 percent rural and 63 percent urban in 1999⁹), this finding points to a higher concentration of RNs in the state's urban centers.



Overall, most active RNs (56 percent) report being employed in hospitals and, of these, the majority are employed in inpatient settings (42 percent). See Figure 2. In addition, seven out of 10 RNs who work in hospital settings are employed by urban facilities. The remaining portion of RNs are employed in a wide variety of other settings, including nursing homes, offices and clinics, public health agencies, educational facilities and home health agencies. Nine percent of active RNs work for more than one employer.

Two-thirds of all active RNs report patient care as their primary professional activity. When patient care supervision is added to this category, the percent of RNs who either supervise or provide patient care increases to 75 percent. The remaining 25 percent report research or teaching (seven percent), other activities (six percent) administration (five percent), case management (five

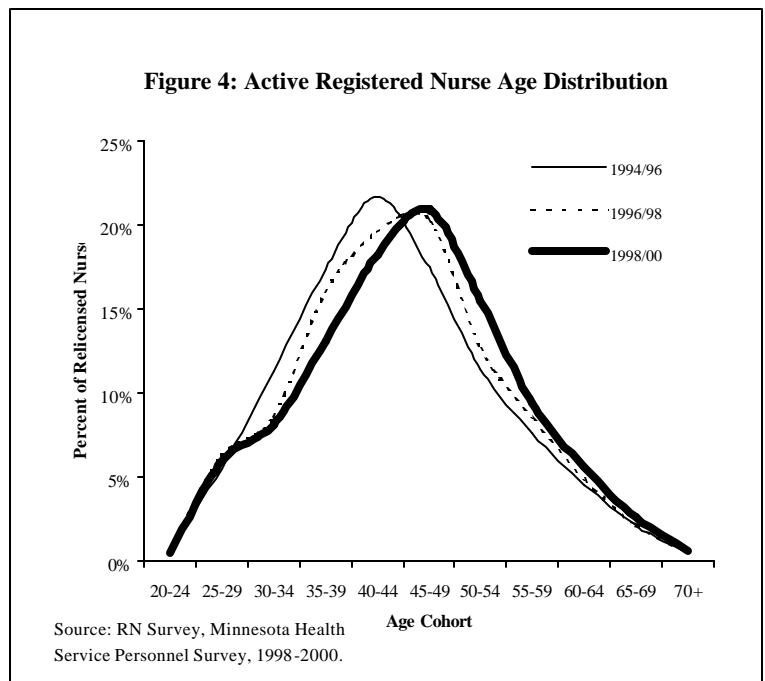
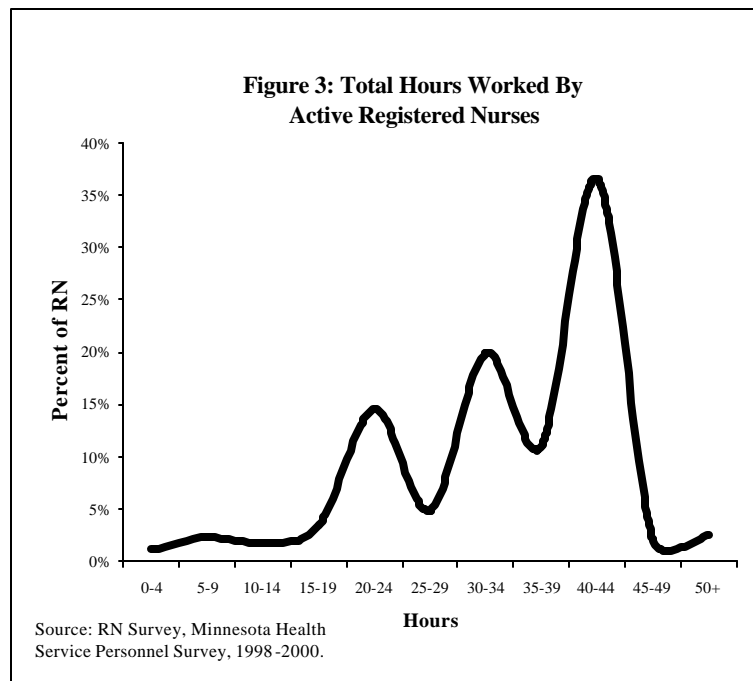
percent), or insurance review (two percent) as their primary professional activity.

On average, active RNs in Minnesota work 33 hours per week. A majority of RNs (59 percent) work less than 40 hours per week. One third of all active RNs work less than 30 hours per week. See Figure 3 below. Nurses whose primary work activities include administration, patient care supervision, research, case management, and insurance review usually work more than the average number of hours. Those in patient care and teaching tend to work below the average number of hours. On average, RNs work 25 hours each week in direct patient care. Almost 10 percent of RNs reported working no direct patient care hours.

Compared to the rest of the nation, Minnesota RNs tend to work fewer hours. In fact, 50 percent of RNs work part-time in Minnesota, compared to 25 percent nationally.¹⁰ This finding suggests that one potential way to address the shortage of RNs is to encourage more part-time workers to engage in full-time employment. However, factors such as current staffing practices by facilities and non-nursing employment by part-time workers may hinder such efforts.

Age

Nationally, the age structure of the active RN workforce has shifted during the past two decades — between 1983 and 1998 the average age of an RN increased by 4.5 years.¹¹ This aging of the workforce has also impacted Minnesota. See Figure 4. During the past six years, the average age of active Minnesota RNs increased by 1.5 years from 43.6 in 1996 to 45.3 in 2000. Compared to the rest of the nation, the aging of the RN workforce is more pronounced in Minnesota. On average, RNs are almost three years older in Minnesota than the rest of the nation (45.3 and 42.4 respectively in 2000).¹² While younger nurses, those ages 35 and younger, tend to work



in hospital inpatient settings, a higher proportion of RNs ages 55 and older work in educational facilities and nursing homes. In fact, 25 percent of RNs working in nursing homes are over 55 years of age.

RNs who work in urban areas of the state (the Twin Cities, St. Cloud, Duluth and Rochester) tend to be younger than their rural counterparts. Rural RNs are, on average, one and half years older than those working in urban areas (46.4 and 45 respectively). Regions with RNs older than the state average include the southwest, north central and northeast areas of the state. When the differences in RN age and facility type are examined by region of the state — between urban and rural areas of the state — an interesting pattern occurs. See Table 1.

Table 1: Average RN Age by Setting and Region

Facility Type (Primary practice site only)	Urban	Rural	
	Average Age	Average Age	
Hospital-inpatient	43.5	45.3	**
Hospital-outpatient	46.1	46.3	
Long-Term Care Facility	46.3	47.5	**
Office/Clinic	45.6	46.5	*
Home Health Agency	46.0	46.0	
Educational Facility	49.8	49.5	
Public Health Agency	47.4	46.0	*
Rehab Facility	44.0	45.3	
Institutional Setting	46.4	47.7	
Consultant	49.0	50.0	
Other	48.2	48.0	

*P-value <.05 ** P-value <.000
Source: RN Survey, Minnesota Health Service Personnel Survey, 1998-2000.

The rural and urban age differences between seven out of eleven employment settings are not significant. However, the age differences are statistically significant between urban and rural RNs by four employment settings. Of these, the most prominent age difference occurs in hospital-inpatient settings and nursing homes. In both employment settings the age of rural RNs is significantly higher. This finding suggests that the aging of the workforce will likely have a more significant impact on the supply of rural RNs, especially in hospitals and nursing homes, as more nurses in these facilities will reach retirement age first.

Summary and Conclusions

The findings in this profile denote a number of short- and long-term policy directions that could be followed to meet the current (and future) demand for RNs in the state. In the short-term, the high level of part-time employment for the state's RNs points to one possible resolution — encourage more part-time RNs to work full-time. While this solution seems straightforward it may actually require considerable effort for both employers and RNs to change well-established staffing patterns and employment practices. For example, some RNs may favor part-time employment because it allows them to

add additional shifts that pay bonuses. At the same time, some employers may have more part-time staff because it allows greater flexibility in meeting the demand for services. Clearly, more research on RN part-time employment is needed in order to determine if this potential solution is indeed viable. Employers could also encourage those skilled workers with inactive licenses, namely the six percent who are retired or working in non-nursing employment, to return to the RN workforce.

The aging of the RN workforce, the current demand for RNs, along with trends in RN graduation rates within the state and nation, strongly suggest that increasing the supply of RNs in the long-term will require an expansion in the capacity of the state's post-secondary institutions to produce new and retrain inactive RNs. At the same time, more financial incentives, such as scholarships and loan forgiveness, for students to pursue an RN degree and for recent RN graduates to remain in the state and work in areas or settings with the greatest need, such as rural areas and nursing homes, need to be created or enhanced.

For more information about this profile, please contact Michael Grover by phone at (651) 282-5642 or email at michael.grover@health.state.mn.us.

This information will be made available in alternative format — large print, Braille, or audiotape — upon request. Available on the Web at: www.health.state.mn.us/divs/chs/workforce.htm

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Notes

- Occupational Employment Estimates, BLS and MDES, 1999.
- The Consumer Price Index (CPI-U) is used as a proxy for inflation. 1990 and 2000 Annual Average, Consumer Price Index (U), BLS and 1990 and 1999 Salary Surveys, MDES.
- Authors calculations using data from the *Statewide Job Vacancy Survey*, MDES, February 2001 and *Occupations in Demand: Findings from the Targeted Industry Job Vacancy Survey*, Revised Estimates, MDES, August 2000.
- American Association of Colleges of Nursing, *1999-2000 Enrollment and Graduations in Baccalaureate and Graduate Programs in Nursing*, 2000.
- MDES staffing estimates are based on a survey of employers that uses job titles and definitions to classify workers into discrete occupational categories.
- According to the Bureau's 2000 estimate, the number of RNs employed in nursing was 86 percent of the total number of RNs (47,102 and 54,920 respectively). This estimate is six percent higher than the one produced by the MDES for 1999. It should be noted that both estimates are based on surveys and some statistical error is associated with these estimates. In addition, each survey uses a different method for gathering information — the Bureau surveys a sample of licensed RNs while MDES surveys a sample of the state's employers. Bureau of Health Professions, Division of Nursing, *The Registered Nurse Population, National Sample Survey of Registered Nurses, March 2000, Preliminary Findings*, 2001.
- The Office of Rural Health and Primary Care has surveyed eleven health care professions when they renew their licenses since the mid 1990s.
- Data for active RNs comes from the 1998 to 2000 relicensing period with an estimated survey response rate of 70.6 percent of the approximately 57,000 who were relicensed. While the data in this profile only reflect those RNs responding to the survey, and not the entire population of RNs in Minnesota, the data do provide an accurate picture of a number of general characteristics (including age, work hours, practice setting, and work activity) that are representative of the state's RN workforce.
- 1999 State Of Minnesota Population Estimates, Minnesota Planning.
- Part-time is measured here as less than 35 hours per week. "Registered Nurse," *Occupational Outlook Handbook, 2000-1*, Bureau of Labor Statistics, 2000.
- Peter Buerhaus, et al., "Implications of an Aging Registered Nurse Workforce," *Journal of the American Medical Association*, June 14, 2000, 2948-2954.
- The RN age estimate for the nation is based on a projection. *Ibid.*, 2953.