



Center *for*  
Rural Health

University of North Dakota  
School of Medicine & Health Sciences

# Three Year Comparison of Nurses in North Dakota Health Care Facilities: Results and Implications

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Funding for this project was provided  
by the North Dakota Board of Nursing.

*Connecting resources and knowledge to strengthen  
the health of people in rural communities.*

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## **EXECUTIVE SUMMARY**

### **Background**

The “Projected Supply, Demand and Shortages of Registered Nurses 2000-2020” (HRSA, 2002) report cited a six percent nationwide shortage of registered nurses in 2000 with this shortage increasing to 29 percent by 2020. North Dakota is currently experiencing a shortage of Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) with an increased shortage projected through the next 10 years (Moulton & Wakefield, 2003). Potential reasons for this shortage include a nationwide decline in the number of nursing graduates, aging of the nursing workforce, decline in relative salaries, an aging population, health care financing issues and an uneven distribution of demand according to employment setting.

The Nursing Needs Study was recommended by the North Dakota Century Code Nurse Practices Act 43-12.1-08.2 in which the North Dakota Board of Nursing was directed to address issues of supply and demand including recruitment, retention and utilization of nurses. The North Dakota Board of Nursing then contracted with the Center for Rural Health at the University of North Dakota School of Medicine and Health Sciences to conduct the Nursing Needs Study.

### **Results**

This report includes the results from the facility survey, which was sent to all hospitals, long-term care facilities, regional public health facilities, clinics and home health facilities in North Dakota. A total of 200 facilities, representing 96 percent of counties in North Dakota, returned the facility survey. This survey was developed to provide a comprehensive picture of the nature of nursing employment and potential shortages throughout the state and to enable comparisons to be drawn between health care facilities, rural and urban areas and North Dakota and national data.

- **Recruitment**

Hospitals and long-term care facilities in rural areas are having the greatest difficulty recruiting nurses. This difficulty is greatest for recruiting Advanced Practice Nurses (ie., Nurse Practitioners, Certified Nurse Anesthetists).

- **Representation**

Since 2003, there has been a decrease in the percentage of hospitals with nursing representation (a formal structure in place for nurses to participate in decision-making, including shared governance, nursing councils or nursing representation at facility meetings).; whereas there has been an increase in long-term care facilities having a formal nurse representation structure.

- **Salary**

The starting salary for LPNs increased in the last year, whereas RN salary has decreased. Average salary has decreased for both LPNs and RNs.

- **Vacancy Rates**

The statewide vacancy rate for LPNs has remained constant for the last three years; whereas the RN vacancy rate has increased steadily. Vacancy rates are an indication of a shortage of nurses.

- **Turnover Rates**

Turnover rates have increased over the last three years for LPNs and RNs. Turnover rate is reflection of staffing fluctuation at the facility level.

- **RN Replacement Costs**

The greatest percentage of facilities indicated a cost of \$1,000-\$9,999 to replace an RN within their facility. Costs included advertising, interviewing, education, training and preceptorships.

- **Technology**

Most facilities have high-speed internet and many have access to Interactive Video Network (IVN) or webcast.

## **NORTH DAKOTA NURSING NEEDS STUDY INTRODUCTION**

Health personnel shortages can negatively impact health care quality, through reduced health care access, increased stress on providers, and the use of under-qualified personnel. Also, shortages can contribute to higher costs by raising compensation levels to attract and retain personnel and by increasing the use of overtime pay and expensive temporary personnel. Workforce shortages, while a problem for the entire health care system, are likely to be most severe for rural/frontier regions and medically needy population groups such as the elderly. North Dakota has 41 designated medically underserved areas (MUA) and 81 percent of North Dakota counties are designated as partial or whole county health professional shortage areas (HPSA). North Dakota also has the highest proportion of residents age 85 and older, the age group with the greatest need for healthcare services. In North Dakota, this population is predicted to double by 2020.

Nurses are an integral part of the health care system providing nursing services to patients requiring assistance in recovering or maintaining their physical or mental health (North Dakota Healthcare Association, 2002). In the United States, nurses comprise the largest group of health care providers. They practice in settings ranging from public health to long-term care. The ability to provide accessible, high quality care depends on the availability of a nursing workforce with the requisite skills and knowledge. Over the past few years, research studies have identified clear relationships between nurse staffing and patient outcomes. For example, lower nurse staffing in hospitals has been linked to longer hospital stays for patients, as well as a number of complications such as pneumonia. Directly challenging the health care system's ability to provide quality patient care is a growing national and international disparity in nursing workforce supply and demand. North Dakota is not immune to this trend.

The Nursing Needs study was recommended, by the North Dakota State Legislature (NDCC Nurse Practices Act 43-12.1-08.2) in 2001 to address potential shortages in nursing supply. Specifically, the North Dakota Board of Nursing was directed to address issues of supply and demand for nurses, including issues of recruitment, retention and utilization of nurses. To respond to this request, the North Dakota Board of Nursing contracted with the Center for Rural Health at the University of North Dakota School of Medicine and Health Sciences.

This study, initiated in 2002, is designed to collect and analyze data in order to obtain an accurate and complete picture of nurses in rural and urban areas of North Dakota. This study is also constructed to compare state data with existing national data as well as to inform institutional and public policy. The study currently in its third year is approved to continue until 2012 by the Board of Nursing. This study will continue to provide valuable information about the nursing workforce through a ten-year period of time. More information about the study is available on our website at <http://medicine.nodak.edu/crh>.

In this report, results from the current health care facility survey are presented. This data was collected from October-December 2004. These results are also compared with health care facility survey results from 2003 and 2004 reports in order to present the beginning of a trend analysis.

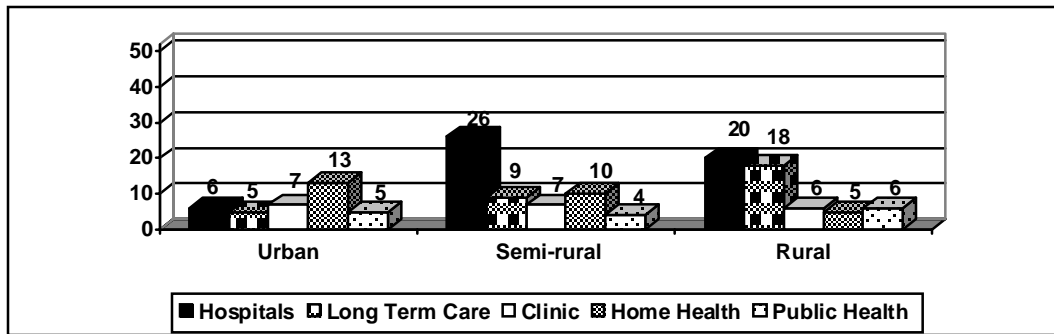
## SURVEY RESULTS

Surveys were sent to all North Dakota hospitals, long-term care facilities, regional public health facilities, home health facilities, and clinics. In the case of multiple services under the same name or administration (i.e., hospital/clinic and nursing home), only one survey was sent to the administrator and they were asked to collapse their information by county. Of the 200 facility level responses, 44 represented urban facilities; 80 represented semi-rural facilities; and 76 of the responses came from rural facilities. Ninety-six percent of counties in North Dakota were represented in the survey responses. Data was analyzed by rurality using the Urban Influence Codes<sup>1</sup> and level of nurses<sup>2</sup>.

### RECRUITMENT ISSUES

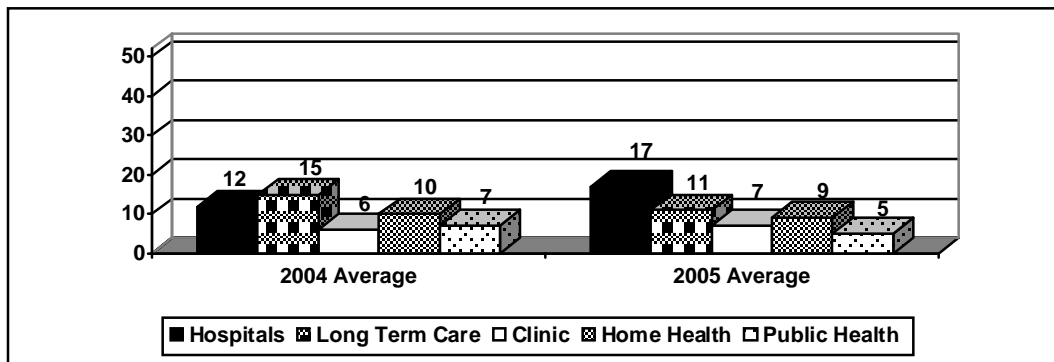
- Facilities were asked how long (number of weeks) on average, it takes to fill a vacant nurse position. Hospitals and long-term care facilities in semi-rural and rural areas cited the greatest average number of weeks to fill a nursing position (See Figure 1). Urban home health facilities also have some difficulty filling a vacant nurse position.

**Figure 1: Average Number of Weeks to Fill Nurse Vacancies**



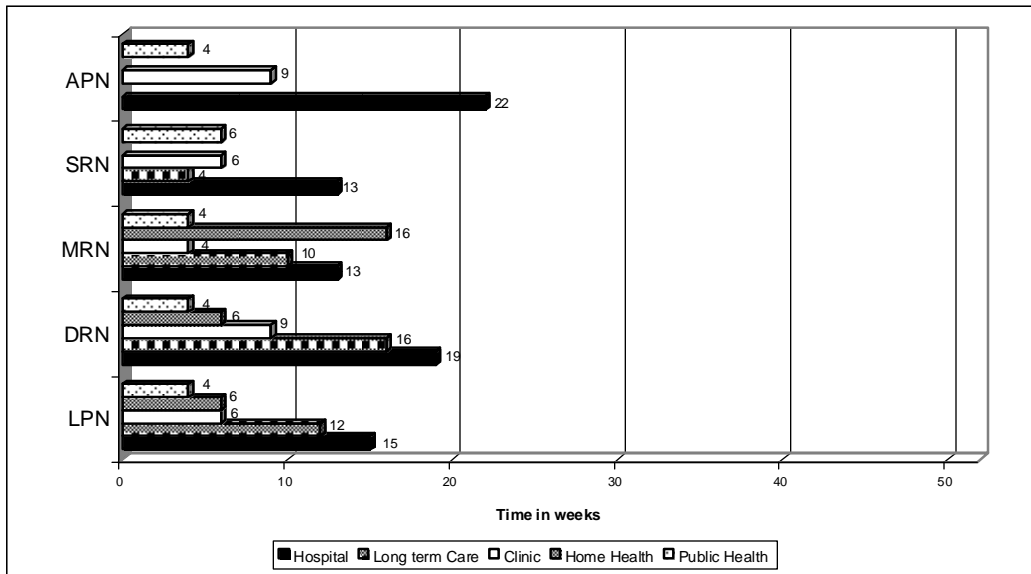
- As compared to 2004 data, hospitals showed an increase in the number of weeks to recruit a nurse, whereas long-term care facilities had a decrease (see Figure 2).

**Figure 2: Comparison of Average Number of Weeks to Fill Nurse Vacancies 2004 - 2005**



- When divided by level of nurses, advanced practice nurses (APNs) in hospital settings required the greatest average number of weeks to recruit (22 weeks) (see Figure 3).

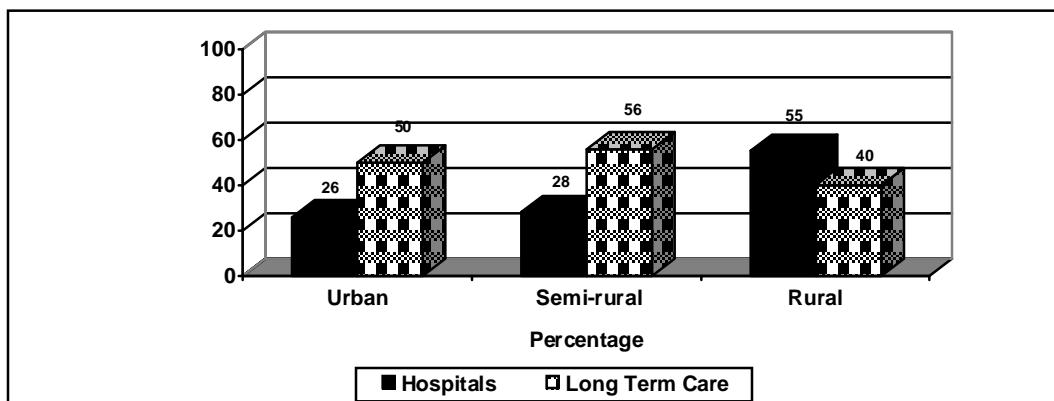
**Figure 3: Average Number of Weeks to Fill Vacancies By Nurse Level**



## NURSE REPRESENTATION

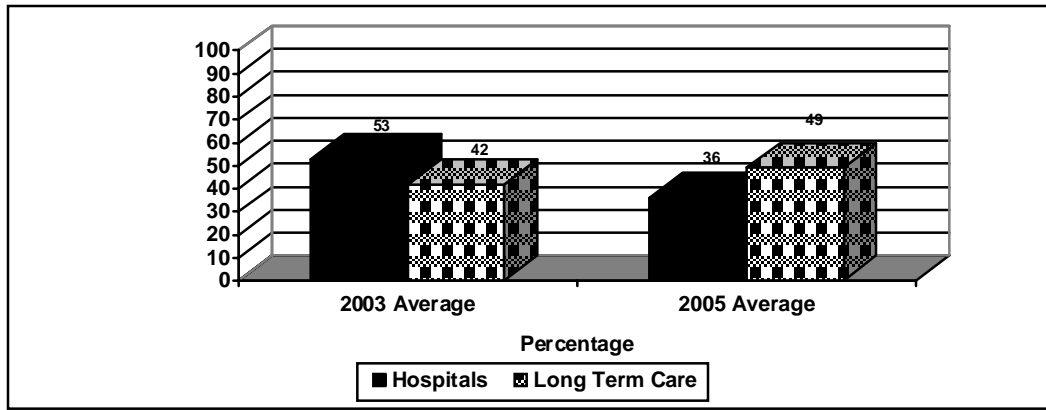
- Facilities were asked to indicate if they had a formal structure in place for nurses to participate in decision-making, including shared governance, nursing councils or nursing representation at facility meetings. Representation of nurses is an important factor in job satisfaction and nurse retention. Semi-rural long-term care facilities most frequently had nurse representation (56%) followed by rural hospital facilities (55%) and urban long-term care facilities (50%) (see Figure 4).

**Figure 4: Formal Nursing Staff Representation in Decision-making**



- When compared to 2003 data, hospitals had a decrease in the percentage of facilities with nurse representation and long-term care facilities had an increase (see Figure 5).

**Figure 5: Comparison of Nursing Staff Representation in Decision-making 2003 and 2005**



## SALARY ISSUES

- Facilities were asked to list the starting and average hourly wage for each nurse category in each setting. Starting wages indicate the average hourly wage paid to nurses when they were first hired as new graduates. Average wages reflects the average hourly wage paid for all nurses. Equitable wage is an important issue in nurse recruitment and retention. The highest starting wage was for APNs working in urban clinics (\$31.22/hour) and the lowest starting wage was for associate degree licensed practical nurses (LPNs) working in rural clinics (\$9.99/hour) (see Table 1).

**Table 1 - Starting Hourly Wage for Each Nurse Category**

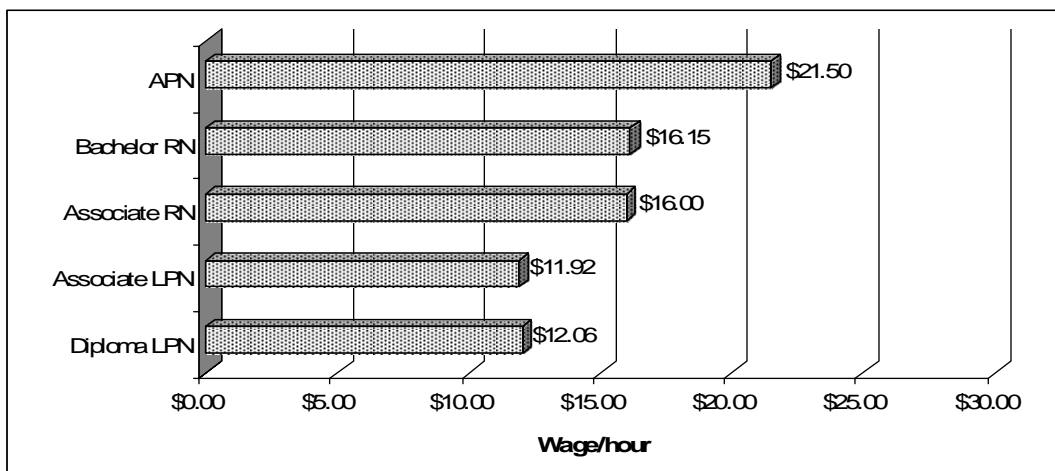
		Diploma LPN	Associate LPN	Associate RN	Bachelor RN	APN
HOSPITAL	URBAN	\$12.46 (3)	\$12.71 (3)	\$17.81 (1)	\$15.63 (2)	---
	SEMI-RURAL	\$11.59(14)	\$11.81(17)	\$16.30(12)	\$17.20(15)	---
	RURAL	\$11.56(15)	\$11.74(13)	\$15.36 (8)	\$15.63(12)	---
LONG-TERM CARE	URBAN	\$12.94(11)	\$13.32(10)	\$18.50 (3)	\$17.93 (9)	\$20.00 (1)
	SEMI-RURAL	\$12.07(19)	\$12.20(21)	\$16.49(11)	\$15.73(16)	\$13.00 (1)
	RURAL	\$12.36(14)	\$12.52(15)	\$15.34(11)	\$15.57(10)	\$12.00 (1)
CLINIC	URBAN	\$12.74 (8)	\$11.48 (6)	\$16.33 (4)	\$17.53(12)	\$31.22 (6)
	SEMI-RURAL	\$11.22(21)	\$11.27(18)	\$14.54(10)	\$14.91(13)	\$25.25 (6)
	RURAL	\$10.96(16)	\$9.99 (15)	\$13.85 (8)	\$13.85(10)	\$24.64 (5)
HOME HEALTH	URBAN	\$12.54 (2)	\$12.74 (3)	\$18.24 (1)	\$18.58 (5)	---
	SEMI-RURAL	\$11.22 (6)	\$11.54 (4)	\$16.43 (8)	\$16.49(14)	---
	RURAL	\$11.45 (6)	\$11.70 (6)	\$16.38 (5)	\$15.45 (8)	---
PUBLIC HEALTH	URBAN	\$13.76 (2)	---	---	\$17.38 (5)	\$24.86 (1)
	SEMI-RURAL	\$11.90 (1)	---	\$15.95 (1)	\$14.83 (6)	\$21.00 (1)
	RURAL	---	---	\$12.50 (1)	\$12.41(12)	---

(Numbers within parenthesis indicate the number of facilities answering this question.)



- When starting wages are collapsed over all health care facilities, APNs have the greatest starting wage at \$21.50/hour. Bachelor degree registered nurses (RNs) make 15 cents/hour more than associate degree RNs and diploma LPNs make 14 cents/hour more than associate degree LPNs (see Figure 7).

**Figure 7: Starting Hourly Wage by Nursing Degree**



- The highest average hourly wage was for APNs working in urban clinics (\$38.10/hour) and the lowest was for diploma LPNs working in semi-rural public health facilities (\$11.76/hour) (see Table 2).

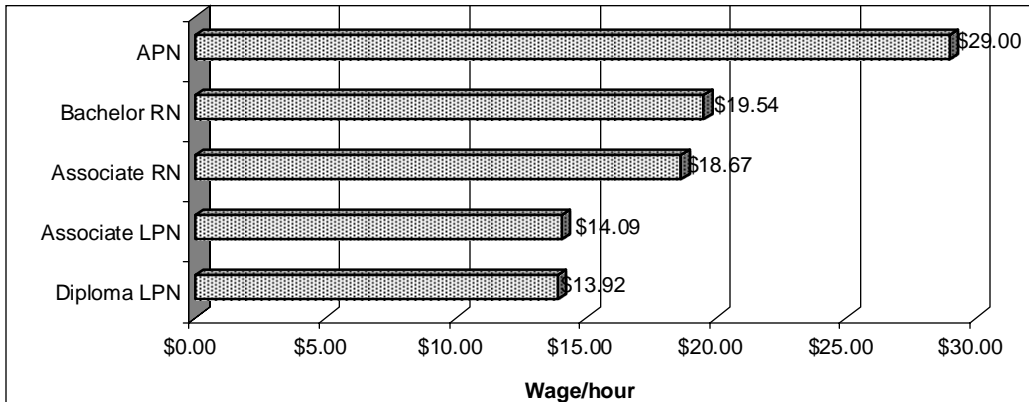
**Table 2- Average Hourly Wage for Each Nurse Category**

		Diploma LPN	Associate LPN	Associate RN	Bachelor RN	APN
HOSPITAL	URBAN	\$15.05 (4)	\$15.05 (4)	\$22.08 (1)	\$24.71 (2)	\$29.81 (2)
	SEMI-RURAL	\$13.29 (12)	\$14.03 (13)	\$20.01 (10)	\$20.75 (13)	\$30.61 (1)
	RURAL	\$14.46 (13)	\$14.11 (8)	\$17.45 (6)	\$20.26 (12)	---
LONG-TERM CARE	URBAN	\$14.79 (7)	\$15.06 (8)	\$21.41 (3)	\$20.17 (8)	\$34.62 (1)
	SEMI-RURAL	\$13.47 (13)	\$14.09 (15)	\$17.38 (11)	\$17.95 (13)	\$13.00 (1)
	RURAL	\$14.56 (7)	\$14.82 (10)	\$17.99 (6)	\$20.54 (10)	---
CLINIC	URBAN	\$15.50 (9)	\$13.66 (10)	\$19.54 (4)	\$20.64 (14)	\$38.10 (6)
	SEMI-RURAL	\$12.69 (12)	\$13.24 (16)	\$16.92 (7)	\$18.51 (14)	\$29.38 (6)
	RURAL	\$13.18 (9)	\$13.75 (13)	\$15.75 (8)	\$16.82 (9)	\$30.64 (8)
HOME HEALTH	URBAN	\$15.09 (2)	\$14.78 (3)	\$22.70 (1)	\$21.49 (4)	---
	SEMI-RURAL	\$13.42 (5)	\$13.59 (3)	\$20.82 (7)	\$20.91 (12)	---
	RURAL	\$12.50 (3)	\$13.21 (4)	\$19.90 (4)	\$19.66 (9)	---
PUBLIC HEALTH	URBAN	\$15.14 (2)	---	---	\$21.03 (4)	\$29.83 (1)
	SEMI-RURAL	\$11.76 (2)	\$13.76 (2)	\$14.98 (2)	\$15.78 (7)	\$25.00 (1)
	RURAL	---	---	\$14.50 (1)	\$13.90 (14)	---

(Numbers within parenthesis indicate the number of facilities answering this question.)

- When average wages are collapsed over all health care facilities, APNs had the highest average wage at \$29.00/hour. Bachelor degree RNs make 87 cents/hour more than associate degree RNs and associate degree LPNs make 17 cents/hour more than diploma LPNs (see Figure 8).

**Figure 8: Average Hourly Wage for Each Nursing Category**



- Starting salary for LPNs increased between 2004 and 2005, whereas RN starting salaries decreased between 2004 and 2005 by an average of 5 percent (see Table 3). This may reflect differences in the job market for LPNs vs. RNs.

**Table 3: Starting Hourly Wage for Each Nurse Category from 2004 and 2005**

	2004 LPN	2005 LPN		2004 RN	2005 RN
HOSPITAL	\$11.27	\$11.98		\$18.35	\$16.84
LONG-TERM CARE	\$12.16	\$12.57		\$16.77	\$16.59
CLINIC	\$10.90	\$11.28		\$15.72	\$15.17
HOME HEALTH	\$11.62	\$11.90		\$18.43	\$16.93
PUBLIC HEALTH	\$11.31	\$12.83		\$14.78	\$14.61
Starting Hourly Wage	\$11.45	\$12.11		\$16.81	\$16.03



- When comparing average hourly wage, hospital, long-term care and clinic LPNs along with home health RNs saw an increase in average hourly wage. All other categories saw a decrease in average hourly wage between 2004 and 2005 (see Table 4).

**Table 4: Average Hourly Wage for Each Nurse Category from 2004 and 2005**

	2004 LPN	2005 LPN		2004 RN	2005 RN
HOSPITAL	\$13.30	\$14.33		\$21.84	\$20.88
LONG-TERM CARE	\$14.01	\$14.47		\$19.33	\$19.24
CLINIC	\$12.63	\$13.67		\$18.51	\$18.03
HOME HEALTH	\$16.59	\$13.77		\$15.00	\$20.91
PUBLIC HEALTH	\$15.17	\$13.55		\$27.04	\$16.04
Average Hourly Wage	\$14.34	\$13.96		\$20.34	\$19.02

## VACANCY RATES

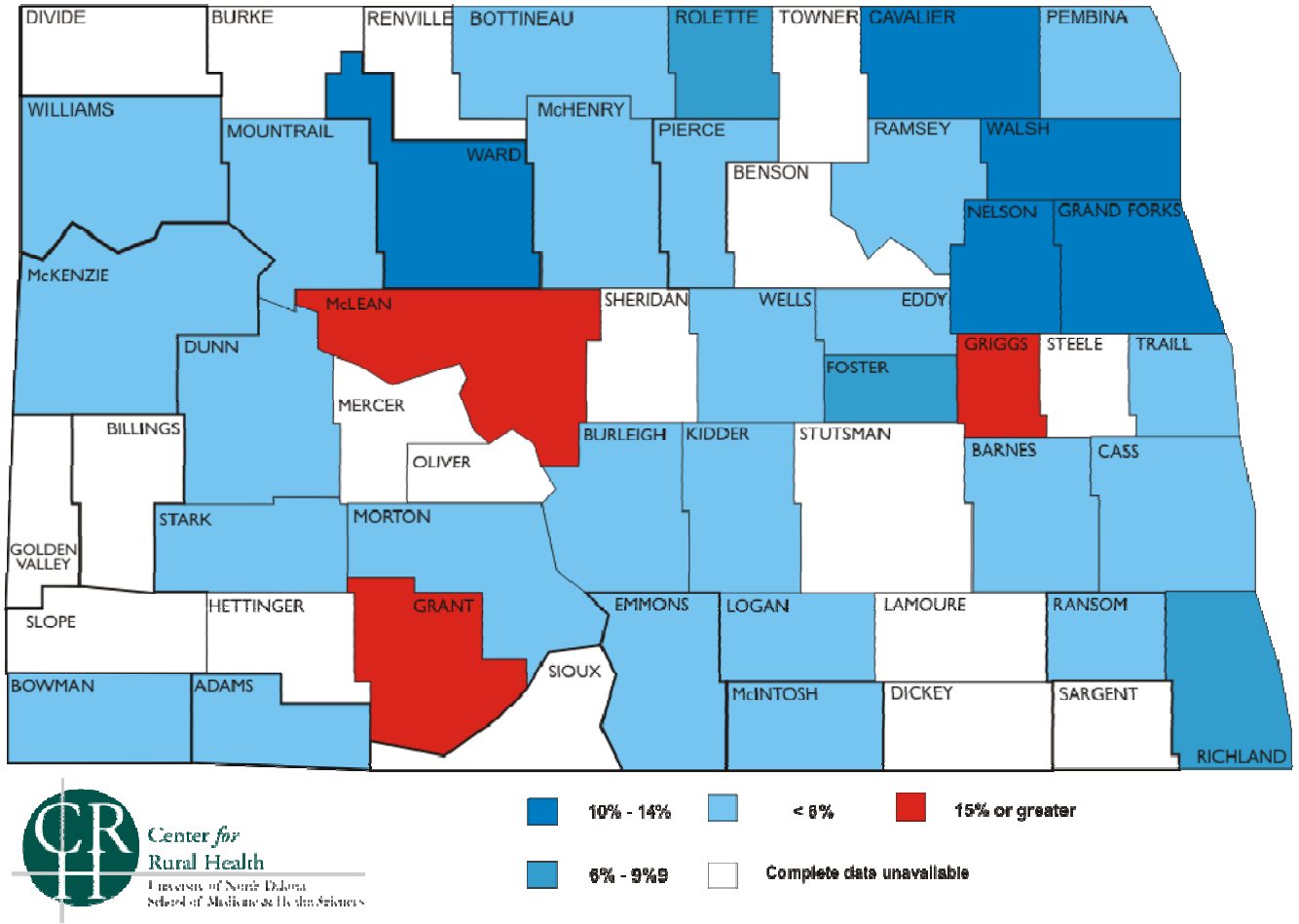
- Facilities were asked to indicate the total number of full-time equivalent (FTE) nurse resignations (left voluntarily) and terminations (fired, laid off) for 2003 (January 1, 2003-December 31, 2003) for each setting and category of nurse. Vacancy rates for each facility type, and each nurse category, are defined as the average number of vacant FTE (full-time equivalent) positions divided by the average number of budgeted positions for the same year (HSM, 2003).

According to economists, a full workforce in most industries exists when vacancy rates do not exceed five to six percent (Prescott, 2000). A shortage is considered to be present at a sustained vacancy rate above this level. Nationally, nurse vacancy rates in hospitals average about 15 percent (AHA, 2002). The AONE study (HSM Group, 2002) reported the average nation-wide vacancy rate for RNs in hospitals as 10 percent.



- The statewide vacancy rate for LPNs is five percent, which is consistent with 2003 and 2004 vacancy rates of five percent. When divided by county, three counties had LPN vacancy rates above 15 percent (see Figure 9).

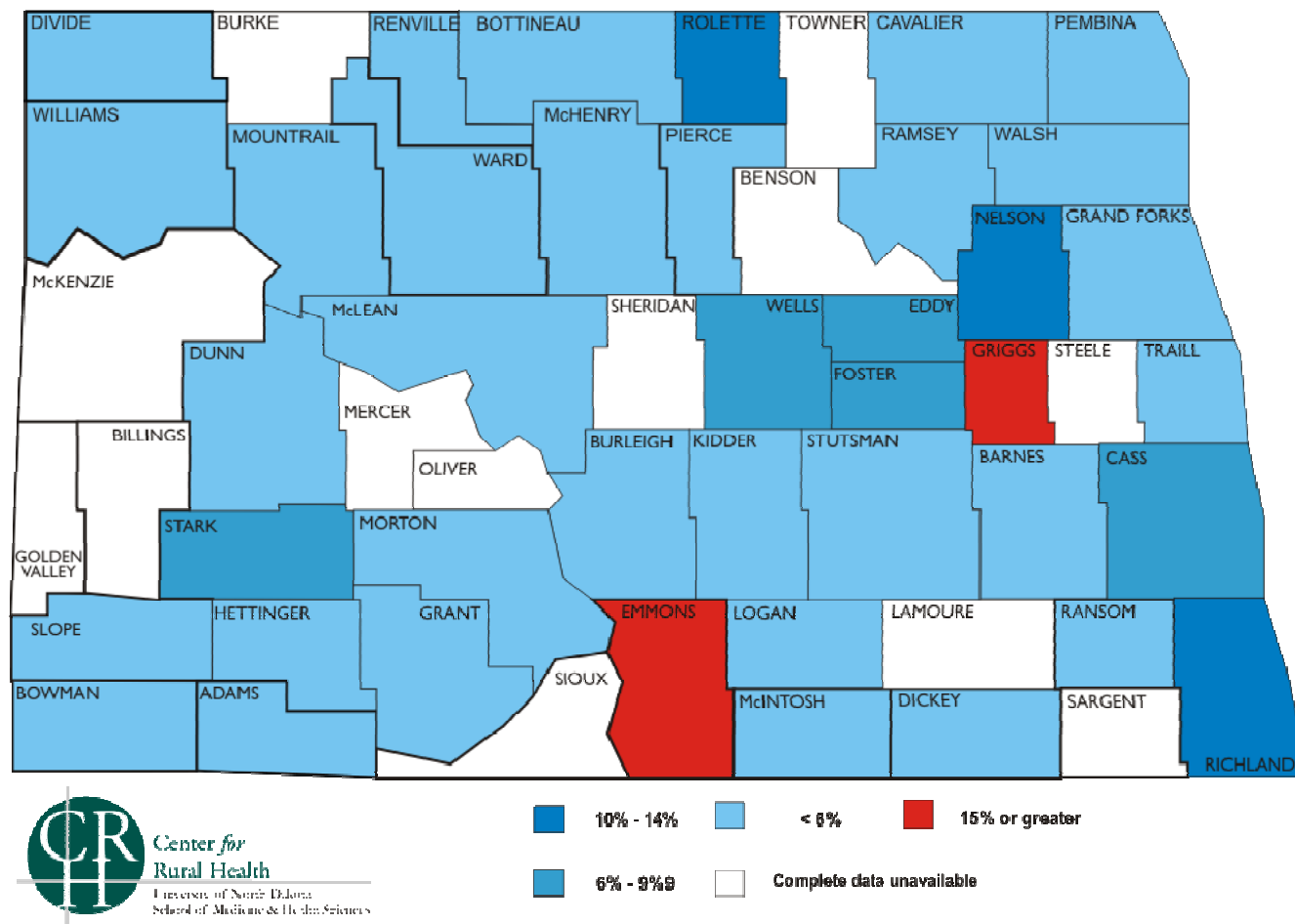
**Figure 9: North Dakota LPN Health Care Facility Vacancy Rates**



Note. Vacancy rates include all responding health care facilities within each county (hospital, long-term care, clinic, home health and public health). Source: North Dakota Nursing Needs Study: Facility Survey Results (2005).

- The statewide vacancy rate for RNs was 11 percent, which is an increase from five percent in 2003 and nine percent in 2004. Two counties had RN vacancy rates above 15 percent (see Figure 10).

**Figure 10: North Dakota RN Health Care Facility Vacancy Rates**



Note. Vacancy rates include all responding health care facilities within each county (hospital, long-term care, clinic, home health and public health). Source: North Dakota Nursing Needs Study: Facility Survey Results (2005).

## TURNOVER RATES

- Turnover rate is defined as the number of resignations or terminations divided by the average number of direct and indirect care full-time equivalent (FTE) positions for the same year (HSM, 2002). The American Organization of Nurse Executives (HSM, 2002) report an average nationwide turnover rate of 21 percent for RNs in hospitals with a range of 10 to 30 percent. Turnover rates reflect fluctuation in staffing at a facility













