



North Dakota Legislative Council Budget Committee on Health Care

North Dakota Nursing Needs Study

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

Budget Committee on Health Care Testimony

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Chairman Krauter and members of the Committee, thank you for the opportunity to provide information regarding the current status of the nursing workforce and the use of technology by nursing education programs through results from the North Dakota Nursing Needs Study. I have provided you with a copy of my comments today and a fact sheet related to nursing demand data. Today, I am going to share with you information from the last three years of data collection about both the supply and demand of nurses as well as how technology is being utilized by our nursing education programs.

North Dakota Nursing Needs Study

First, some information about the North Dakota Nursing Needs Study. The Nursing Needs study was recommended, in 2001, by the North Dakota State Legislature to address potential shortages in nursing supply (NDCC Nurse Practices Act 43-12.1-08.2). 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, in 2002, the North Dakota Board of Nursing contracted with the Center for Rural Health at the School of Medicine and Health Sciences, University of North Dakota. The study is currently in its fourth year of data collection. The Board approved a ten-year timeline for the study last year, so data collection is projected to continue for six more years.

The first four years of the study was really designed to collect a comprehensive set of baseline data including information from all types of health care facilities including hospitals, long-term care, clinics, home health and public health; information from licensed nurses at all levels from a licensed practical nurse to a doctoral prepared nurse; from current students and faculty in nursing education programs and finally from high school students throughout the state. Data collected thus far includes nearly 5,000 separate pieces of information including surveys, interviews and focus groups. Results from the study have been published in 15 reports and in five fact sheets (which I have in front of me in this binder). The data collected from this study was also designed to be comparable when possible with existing national data sets and the instruments developed have been used in several other states. Data from the study has been presented at numerous local, state and national conferences. Nursing Needs study data is also one of two data sets (the other is North Carolina) that is being used to determine a set of national parameters for nursing shortage designations.

Nursing Supply

I would like to first describe nursing supply. Much has been written about whether the current and future supply of nurses in the United States is sufficient. The Board of Nursing representatives will be discussing the current status of nursing education. So, I will concentrate my comments to the current and future supply of nurses.

One way to look at supply is to count the number of nurses in the state. In North Dakota there are approximately 632 Advanced Practice Nurses (APNs), 8,468 Registered Nurses (RNs), and 3,365 Licensed Practical Nurses (LPNs).¹ Ninety-four percent of these nurses are female and they are primarily Caucasian.² However, knowing how many nurses there are is not very helpful for planning. For instance, where are the nurses located and what are their contributions to the workforce?

Another possible way to look at supply is how many nurses are available in relation to the number of citizens in a particular county. If you look nationwide, there is an average of about eight RNs per 1,000 people.³ When we look at North Dakota, twenty-eight, or a little over half of the counties in North Dakota have less than the national average of RNs as compared to 25 counties in 2004.⁴ When you look at LPN supply (although there isn't any national statistics to compare against), four counties have less than 2.5 LPNs per 1,000 people as compared to five counties in 2004.⁴ So there is a slight shift in the supply of RNs whereas the supply of LPNs appears to be pretty stable.

So what about the contributions of nurses to the work environment? One-quarter of nurses indicated that they work part-time which is a decrease from one-third in 2003.² Nurses indicated that they work part-time due to home and family responsibilities or enrollment in college. Twenty percent of RNs and 35 percent of LPNs are employed in two nursing jobs which is much higher than national rate of six percent for RNs, although this has decreased slightly over the last year.² This might reflect nurses picking up additional hours in areas with a shortage of nurses and fewer nurses working multiple jobs.

In addition, compared to 2003, the percentage of RNs reporting an increase in patient care load has decreased by 20 percent. In contrast, LPNs reporting an increase in patient care load has increased by 70 percent and 38 percent report an increase in non-patient-care duties.²

The nursing workforce is aging. How will this impact future supply? The average age of RNs is 45 years,² the same as the national average⁵ and LPN is 41 years², which is slightly younger than the national average of 43 years.⁶ Nurses on average plan to retire from direct patient care at age 62. About 1/3 of LPNs and RNs plan to retire within the next nine years.²

How will this loss be alleviated by increases in student enrollment in nursing education programs as discussed by the Board? Although there has been a five-year

increase in RN school enrollment nationwide, there are more students interested in nursing than can be accommodated by the number of nursing school faculty available. According to the American Association of Colleges of Nursing (AACN) RN programs turned away 32,617 qualified applicants in 2005.⁷

What about the North Dakota nursing faculty pipeline? Less than half of LPN students and about 1/3 of RN students thought that they might be interested in becoming a faculty member in the future.⁸ If you ask currently practicing nurses 16 percent of LPNs and 27 percent of RNs thought that they might be interested in a faculty position.² On top of this, is that of our current faculty (average age 51) nearly one-third plan to retire by 2008 and over half by 2013.⁹

So what about our current supply of nursing students? Where do they plan to work? Well, fifty-five percent of LPN, 48 percent of RN and 65 percent of APN students plan to work in North Dakota after graduating from their nursing education program.⁸ So we have roughly half of the students that are enrolled in our state's nursing education programs sticking around. Most of the students that are staying indicated that their families live in North Dakota as their reason. Why are students planning to leave North Dakota? Better pay and benefits and more job opportunities.

If you look at where in North Dakota these students plan to work, about one-half of the LPN and APN students and one-third of the RN students plan to work in rural areas sometime in the future. Students indicated that rural areas are a safe environment, their spouse/significant other has a job in a rural area, and that they will get to know patients in a broad nursing experience as reasons for working in a rural area.⁸ What about those students that aren't choosing to work in rural areas? Again, students indicated that better pay and benefits were available elsewhere or that they wanted to work in a big city.

So to sum up the supply side of the nursing equation, we are facing a substantial loss of nurses due to retirement in the next few years which will not be alleviated by the increase in enrollment in nursing education programs since we will only net about one-half of the graduates. We will also lose a substantial number of our nursing faculty. One missing piece of data is what the potential is to recruit high school students into the nursing field. We are currently surveying students from 25 high schools throughout the state (we have also invited one high school in Minnesota to see if these students plan to work in North Dakota) to see if students are planning to go into nursing, if they plan to attend college in North Dakota and then if they plan to work in North Dakota.

Use of Technology in Nursing Education Programs

One way to increase interest in working in rural areas is through placement of students in rural areas. Another way is to grow-your-own nurse. That is, to help individuals already living in your community to receive the necessary education to become a nurse. Many individuals in these communities have commitments that bar

them from going to one of the nursing education programs. Many of these programs have started to outreach their education programs using technology to nurses in rural areas. I am now going to turn my comments to the results from a study examining the use of technology by our nursing education programs that was completed last summer.¹⁰

We interviewed eight schools of nursing (Dickinson State University, University of North Dakota, University of Mary, North Dakota State College of Science, United Tribes Technical College, Tri-College University Nursing Consortium, Minot State University and MedCenter One College of Nursing) throughout the state about their use of technology. Sixty-three percent of these programs have expanded their reach by offering distance education through internet courses or video conferencing.

Interactive video conferencing involves the live broadcast of a lecture given in a classroom at the host program. Students at both the host and distance locations can ask questions and interact with each other and the faculty member. Those programs that use interactive video conferencing have encountered several limitations including that there are a limited number of classrooms available on campuses that are shared by multiple departments and students must live close to a video conferencing site.

One possible way around these limitations is to use video streaming where a lecture would be presented over the internet, allowing a user to view the presentation at home using their computer. Two programs have begun experimenting with this new method. Although, as with video conferencing it is heavily dependent on the capacity of the host computer system and to quote a faculty member regarding rural areas “some simply don’t have the wiring that is needed to make a good connection and the feeds drop while you are teaching”. These limitations could be alleviated by expanding wireless internet into rural areas. In fact- video streaming might be the technology of interest for live clinical “in-home” experiences in which student could make house calls to patients under the supervision of faculty through video streaming.

Another use of technology is through the use of a web-based course. Two nursing education programs currently offer continuing education RN degrees that can be obtained solely through online courses. 63 percent of programs offer some of their curriculum through online courses. One program has dropped their online courses due to negative student feedback in which students didn’t feel that they learned as much as they would have in a traditional face-to-face course. However, assessments done by other programs have indicated that there have been no differences in the grade point average (GPA) of students taking online courses and they have had a high level of student satisfaction. Seventy-five percent of programs did indicate that expanding their online courses were in their strategic plan. There are several limitations to this method though. These include that there is a steep learning curve in creating online courses, programs do not have funding for faculty to learn how to deliver these courses and it takes a consider amount of preparation time.

Although the use of technology has the potential to reach more students in disparate areas of North Dakota, the limitation for all of these technologies is the need to ensure that students receive a quality clinical education. So, there is a need to balance the technology and the face-to-face clinical experience that is required and this is an area where more research is needed.

Nursing Demand

I now would like to turn my comments to a discussion of the current statewide demand for nurses. Several reports conclude that a growing shortage of RNs is already having a negative impact on patient safety and health care quality as well as on the overall health care delivery system.^{11, 12} In hospitals with high patient-to-nurse ratios, a recent national study found surgical patients experience higher mortality and nurses are more likely to experience job “burnout” and dissatisfaction.¹³ Shortages, while a problem for the entire health care system, are likely to be the most severe for rural/frontier regions and medically needy population groups.

One measure of demand is the vacancy rate for nurses in healthcare facilities for a particular county. The vacancy rate is the number of vacant positions relative to the number of budgeted positions. Vacancy rates were derived from information supplied on facility surveys sent to hospitals, long term care facilities, home health care, clinics and public health care facilities. According to economists, a full workforce in most industries exists when vacancy rates do not exceed five to six percent. A shortage is considered to be present at a sustained vacancy rate above this level.¹⁴ Nationally, current nurse vacancy rates in hospitals average about 15 percent.¹⁵ The American Organization of Nursing Executives study reported the nation-wide vacancy rate for RNs in hospitals as 10.2 percent.¹⁶

In 2005, the statewide vacancy rate for RNs was 11 percent, which is an increase from nine percent in 2004 and five percent in 2003. Two counties in North Dakota have RN vacancy rates above 15 percent.¹⁷ 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.¹⁷ So if you look at vacancy rates, RNs have been at a shortage level statewide for two years, with no shortage of LPNs.

Another measure of demand is turnover. 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.¹⁶ Turnover rates reflect fluctuation in staffing at a facility. The American Organization of Nurse Executives report an average nationwide turnover rate of 21.3 percent for RNs in hospitals with a range of 10 percent to 30 percent.¹⁶

In 2005, the statewide RN turnover rate was 20 percent which is an increase from 18 percent in 2004 and 15 percent in 2003.¹⁷ This means one out of five nurses across the state has changed jobs within the last year. When divided by county, seven

counties have turnover rates 30 percent or greater. The statewide turnover rate for LPNs is 21 percent, which is an increase from 20 percent in 2004 and 17 percent in 2003. So a little over one in five LPNs also changed jobs last year. When divided by county, eight counties had LPN turnover rates 30 percent or greater in 2005.¹⁷ So, in addition to a persistent shortage of RNs, there is a great amount of movement of both LPNs and RNs throughout the state.

This shortage of nurses is reflected in the length of time facilities spend recruiting nurses for vacant nurse positions. Hospitals in semi-rural cities¹⁸ such as Jamestown and Williston spent an average of 26 weeks or half a year recruiting for vacant nurse positions last year. This was along with hospitals and long term care facilities in our rural cities who spent 20 and 18 weeks respectively recruiting for a vacant nurse position.¹⁷

Today, due to time constraints I would also like to briefly mention two areas of concern in regards to nurse demand. They are salary and nurse representation in decision making. These two issues are important indicators of job dissatisfaction which can be a trigger for nurses to search for employment elsewhere.

Last year, we saw a decrease in average salary reported by health care facilities for both LPNs and RNs which has widened the gap between North Dakota and national averages. RNs in 2005 were paid an average of \$19/hour as compared to the nearly \$27/hour national average and LPNs in 2005 were paid nearly \$14/hour as compared to the \$17/hour national average.^{17,19} When we asked nurses about their annual income, we found that nurses living in urban areas such as Fargo, Bismarck and Grand Forks had a decline in their income as compared to the year before, whereas nurses living in rural settings had a slight increase.²

Last year, we also collected some comparison data on nurse representation in decision making in health care facilities. Nurse representation includes inviting nurses to participate in faculty meetings or in a shared governance structure. This is an important factor in job satisfaction and nurse retention. We found that 36 percent of hospitals and 49 percent of long-term care facilities had nurse representation in 2005. The greatest percentage of facilities was urban and semi-rural long term care facilities and rural hospitals. Overall, this reflects an increase for long-term care facilities and a decrease for hospitals as compared to 2003.¹⁷ These numbers are in comparison to the national average for hospitals which is 76 percent.²⁰

So to sum up the demand side of the nursing equation, we have a persistent shortage of RNs, a great amount of fluctuation in staffing of LPNs and RNs along with decreases in salary and one key component of the workforce environment- nurse representation.

Conclusions

If you add together the supply and demand side, you end up with five primary findings.

1. We are going to lose a substantial number of nurses and nursing faculty due to retirement within the next few years. This loss will not be alleviated solely by recent increases in nursing education programs. Steps need to be taken to help enable nurses and faculty to work past their current anticipated retirement.
2. Although nursing education programs are starting to use technology to reach more students, connectivity remains a large problem along with funding for faculty education. In addition, a critical component is the balance between technology-driven instruction and quality clinical experiences.
3. We have had persistent and worsening RN vacancy rates suggesting an increasingly larger shortage. This is paired with the great amount of fluctuation in our facilities as suggested by the turnover rates. Retention efforts for nurses already working should be emphasized.
4. There is still a large gap in nurse salary and this gap is widening for nurses living in urban areas. Although, facilities exist in a time of budget constraints, nursing salary should be closely examined by each facility and potentially adjusted to better match state averages along with including increases for education and experience.
5. The workplace environment continues to be problematic. Our health care facilities, in particular our hospitals located in urban and larger rural areas still lag greatly behind national averages for including nurse representation at their organization. Long-term care facilities across the state on the other hand have increased representation over the last three years.

Taken together, these findings suggest that no one action will be sufficient to ensure an adequate nursing workforce. Rather, concrete steps are needed from a variety of stakeholders including academic programs, health care institutions, policymakers, nurses and others, in order to ensure an adequate nursing workforce in the future. Clearly, these findings merit serious consideration by employers, policymakers and educators as stakeholders collectively work to address challenges around recruitment into nursing, recruitment into specific practice settings, and retention of nurses in the work environment.

I would like to now describe two possible actions that the Center for Rural Health has been engaged in. Recently, the Center established a Health Professions Tracking Program infrastructure which can capture statewide data and has the ability to create and maintain a comprehensive inventory of our healthcare workforce. This program is based on a similar database that other states have. It can track and project supply and demand of multiple provider groups. In other states this program has been a valuable

resource in terms of both healthcare workforce and bioterrorism planning efforts. In our tracking program, physicians and dentists have been included in the database. However, funding will be needed to sustain the tracking program and to incorporate other important types of providers such as nurses, pharmacists, mental health providers, clinical lab techs and others. Funding needed for the current tracking program is \$50,000 and additional funding will be needed as professions are added, each depending on their size.

Another possible step that is being forwarded by the Center for Rural Health is the need for a series of State Health Workforce Summits which would involve multiple disciplines including physicians, mental health, dental, nursing and other health care providers. This is in response to the serious current and emerging health care workforce shortages. Eighty-one percent of all or parts of counties in North Dakota are designated as Health Professional Shortage areas. Moreover, North Dakota providers compete for clinicians in a highly competitive national market. The idea for a summit was developed during one of our rural health dialogues in which health care facilities commented that they could accommodate more students, but have been unable to coordinate with the various education programs. The Health Workforce Summits would bring together representatives from both the supply (educators) and the demand (employers) sides to discuss occupation specific strategies. For example, the first summit would focus on nurses, physicians and possibly mental health providers. The second summit would focus on clinical laboratory, radiology technicians and others. We know that we would initially target nurses and physicians as we have data about shortages of them through the Nursing Needs Study and our tracking program. However, there are a number of other professions that are likely moving towards a shortage based on anecdotal information. If we had a broader tracking program, we would be better able to target our efforts. Such summits are being conducted across the county which recognize that changes in just supply (e.g., produce more) or just demand (e.g. pay more) are not going to solve local and regional workforce shortages. Solutions will require both employer and academic program representatives at the table and also involves discussion of meaningful public policy options. The Center does not currently have funding for these summits. We estimate that each summit would cost approximately \$25,000.

Thank you for the opportunity to speak to you about the current status of nursing workforce. Does anyone have any questions?

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 - Urban counties: Those small metropolitan counties with fewer than one million residents (4 counties).
 - Semi-rural counties: Those non-metropolitan counties adjacent or not adjacent to a small metropolitan county with a town containing at least 2,500 residents (20 counties).
 - Rural counties: Those areas not adjacent to a small metropolitan area, which does not contain a town with at least 2,500 residents (29 counties).
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