

Iowa

Department of Public Health

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**Center for Health Workforce Planning
Bureau of Health Care Access
White Paper on Registered Nurse Supply and Demand: A Call to Action
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This paper addresses the need to expand the pool of registered nurses (RN) in the nation and in Iowa. It identifies the driving forces behind the existing and emerging shortage, documents the positive impact of nursing care on patient outcomes, and recommends best practices to assure the right number of nurses in the right settings at the right time. It is designed for use by stakeholders to support health policy and legislation in Iowa.

Nursing Supply and Demand: A National Perspective

In 2000, the national supply of full-time equivalent (FTE) registered nurses was estimated at 1.89 million while demand was estimated at 2 million, a shortage of 110,000 or 6 percent. The shortage is expected to grow relatively slowly until 2010 when it will have reached 12 percent. At that point, demand will begin to exceed supply at an accelerated rate, and by 2015, will have almost quadrupled to 20 percent. If not addressed, and if current trends continue, the shortage is projected to grow to 29 percent by 2020.

The projected shortage in 2020 results from a projected 40 percent increase in demand between 2000 and 2020 compared to a projected 6 percent growth in supply. Factors driving the growth in demand include an 18 percent increase in population, a larger proportion of elderly persons, and medical advances that increase the need for nurses. In contrast, the projected growth in supply is expected to reach a peak of only 10 percent by 2011 and then decline as the number of nurses leaving the profession exceeds the number who enter. (*National Center for Health Workforce Analysis, 2002*)

Between 1983 and 1998, the number of RNs in the workforce under the age of 30 fell by 41 percent. That compares to only a 1 percent decline in the number under age 30 in the rest of the U.S. workforce. The number of new nurses is also declining dramatically. The U.S. General Accounting Office (GAO) reported that 97,679 people passed the national RN licensure examination in 1996. By 2000, that number had fallen 23 percent, to 74,787. (*U.S. General Accounting Office, 2001*)

Impact of Nurse Staffing on Hospitalized Patients

According to a study published in the October 23/30, 2002 issue of the *Journal of the American Medical Association*, more nurses at the bedside could save thousands of patient lives each year. Nurse researchers at the University of Pennsylvania concluded that in hospitals with high patient-to-nurse ratios, surgical patients experience higher risk-adjusted 30-day mortality and failure-to-rescue rates, and nurses are more likely to experience burnout and job dissatisfaction. (*Aiken, L. Clarke, S., Sloane, D., et al. 2002*)

In a report released in August 2002 by the Joint Commission on Accreditation of Health Care Organizations (JCAHO), the authors found that a shortage of nurses in America's hospitals is putting patient lives in danger. JCAHO examined 1,609 hospital reports of patient deaths and injuries since 1996 and found that low nursing staff levels were a contributing factor in 24 percent of the cases. (*Health Care at the Crossroads: Strategies for Addressing the Evolving Nursing Crisis, 2002*)



Promoting and protecting the health of Iowans.

According to a study in 799 hospitals in 11 states published in the *New England Journal of Medicine* in May 2002, a higher proportion of nursing care provided by RNs, and a greater number of hours of care by RNs per day, are associated with better outcomes for hospitalized patients. Among surgical patients, (covering 1,104,659 discharges of surgical patients) a higher proportion of care provided by RNs was associated with lower rates of urinary tract infections, and a greater number of hours of care per day was associated with lower rates of “failure to rescue.” Among medical patients, a higher proportion of hours of care per day provided by registered nurses was associated with a shorter length of stay, and lower rates of both urinary tract infections and upper gastrointestinal bleeding. (*Needleman, J., Bauerhaus, P., Mattke, S, et al. 2002*)

The Supply of Registered Nurses: Driving Forces and Trends

An examination of factors affecting the supply of RNs sheds light on what has caused the current shortage. These factors include the aging of the RN workforce, declines in relative earnings, declines in the number of nursing program graduates and the emergence of alternative job opportunities.

Aging of the RN Workforce: Nationally, the average age of nurses in the year 2000 was 47 (*AHA Commission on Workforce for Hospitals and Health Systems*). The average age for RNs has climbed steadily in recent years resulting in a greater proportion of nurses who are approaching retirement age. Three factors contribute to the aging of the RN workforce: (1) the decline in number of nursing school graduates, (2) the higher average age of recent graduating classes, and (3) the aging of the existing pool of licensed nurses. The number of new licenses in nursing is projected to be 17 percent lower in 2020 than in 2002, while the loss from the RN license pool due to death and retirement is projected to be 128 percent higher. (*National Center for Health Workforce Analysis, 2002*).

U.S high schools will graduate the largest class in history in 2007-2008, a projected 3.2 million graduates (*Western Interstate Commission for Higher Education, 1998*). Because the generation trailing the baby boomers, and even one generation behind that, is a smaller cohort, there will be more competition for these entry-level workers. If new high school graduates choose fields other than nursing, the average age of nurses will remain relatively high, and years of productivity will be limited in a field that requires significant physical stamina.

Declines in Relative Earnings: Salaries play a role in the declining supply of RNs. While actual earnings for RNs increased steadily from 1983-2000, “real” earnings – the amount available after adjusting for inflation -- have been relatively flat since 1991. On the average, RNs have seen no increase in purchasing power over the last 9 years. In contrast, the average salary for elementary school teachers (an alternative career choice traditionally available to baccalaureate prepared RNs) has always been greater than that for RNs and is growing at a faster pace. In 1983, the average elementary school teacher earned about \$4,400 more than the average RN over 12 months; by 2000 this had grown to the point where experienced elementary school teachers earn about \$13,600 more.

Furthermore, a good portion of the wage growth for nurses occurs early in their careers, then tapers off in time. In 2000, hospital-based RNs employed full-time in nursing, who graduated five years earlier, typically earned wages 15-17 percent higher than those newly entering the field, depending on basic nursing preparation. However, they earned only 1 to 3 percent less than nurses who graduated 15 to 20 years earlier. As their potential for increased earnings diminishes over time, nurses may be motivated to leave patient care for additional education and/or other careers in nursing or outside the profession. (*National Center for Health Workforce Analysis, 2002*)

Cost containment: The rise of managed care and the implementation of cost-containment strategies over the past two decades have also seriously affected the industry’s ability to retain and recruit qualified workers. Job satisfaction continues to be a problem, with staffing levels, heavy workloads, use of overtime, insufficient support staff and pay being the problems cited most often. According to a study commissioned by the Federation of

Nurses and Health Professionals in 2001, 1 out of every 5 nurses currently working considered leaving the patient care field for reasons other than retirement within the next five years. The Service Employees International Union (SEIU) reports that, on average, nurses work an extra eight-and-a-half weeks of overtime per year. The American Hospital Association reports 126,000 nursing positions currently unfilled in hospitals across the country. The Centers for Medicare and Medicaid Services reports that 90 percent of long term care organizations lack sufficient nurse staffing to provide even the most basic care. (*JCAHO, 2003*).

Nursing Education: Declines in nursing graduates are seen across all types of programs – diploma, associate degree and baccalaureate. The decrease in diploma graduates continues a trend driven in the past few decades by the closing of hospital-based diploma programs. In contrast, the declines in associate degree and baccalaureate graduates are a more recent phenomenon, having occurred since the mid-1990s. This trend appears to be reversing in 2003 but may not be sufficient to meet the projected demand for RNs.

To meet the more complex demands of today's health care environment, a federal advisory panel has recommended that at least two-thirds of the basic nurse workforce hold baccalaureate or higher degrees in nursing by 2010 (*National Advisory Council on Nurse Education and Practice, 1996*). Aware of the need, RNs are seeking the BSN degree in increasing numbers. In 1980, 22 percent of nurses held bachelor degrees; by 1996, 31 percent held bachelor degrees. Between 1975 and 1999, the number of RNs with diplomas and associate degrees who subsequently graduated from BSN programs had risen from approximately 3,700 annually to more than 12,000 annually.

In 1996, approximately 9 percent of employed RNs held master's degrees and 0.6 percent held doctoral degrees as their highest educational preparation. By 2000, the demand for nurses with masters and doctoral degrees for advanced practice, clinical specialties, teaching and research is expected to significantly outstrip the supply.

Intensifying the overall nursing shortage is an increasing deficit of nursing faculty with masters and doctoral degrees. In 2002, the American Association of Colleges of Nursing determined that 5,283 qualified applicants to baccalaureate, master's and doctoral programs were not accepted; and an insufficient number of faculty was cited by 41.7 percent of responding schools as a reason for not accepting all qualified applicants (*Berlin, Stennett, & Bednash, 2003*). The preparation of qualified nursing graduates requires extensive clinical experience in a short period of time, and most states require a 1:8 to 1:10 faculty-student ratio in pre-licensure programs where direct patient care is provided (Iowa requires a 1:8 ratio). Increasing the current and future pool of qualified faculty, preceptors, mentors and internship coordinators to prepare new nursing graduates to meet the needs of patients in acute and long-term care settings, and clients in the community, is an urgent national priority.

The Demand for Registered Nurses: Driving Forces and Trends

Major factors behind the growth in RN demand include population growth, aging of the population, increased per capita demand for health care and trends in health care financing.

Population Growth and Aging: Recent projections show the nation's population will grow 18 percent between 2000 and 2020, resulting in an additional 50 million people who will require health care. The subgroup of persons 65 years old and older is projected to grow 54 percent between 2000 and 2020. This will add 19 million people to the 65-and-over age group, which contributes disproportionately to health-care spending. This population has twice as many contacts with a physician as those under 65. It accounts for 13 percent of the population but 38 percent of hospital discharges, and has annual per capita health expenditures of \$5,400, compared to \$1,500 for those under 65. (*Agency for Health Care Research and Quality, 2002*) The greatest per capita demand for health care, and thus the services of RNs, will come from the very old - those 85 and over. This is the fastest growing segment of the population and a major user of all RN employers.

Distribution of Demand by Setting: Hospitals are the major source of demand for RNs. While the total number of nurses in hospitals will continue to grow, the hospital sector's share of total RN employment will remain stable at about 62 percent. At the same time the demand for nurses in long-term care and assisted living facilities, ambulatory clinics, and hospital- and community-based home health agencies continues to rise. (*National Center for Health Workforce Analysis, 2002*)

National Recommendations to Address Registered Nursing Supply

The first set of recommendations reflect best practices from the field identified in the Winter 2003 issue (Vol. 7, No. 2) of the *Health Policy Monitor, A Publication of The Council of State Governments*, in a panel entitled "Building Tomorrow's Health Care Workforce: State Strategies for Today." Panelists included:

- Dr. Edward O'Neil, Director, Center for the Health Professions, University of California San Francisco
- Senator Paula Hollinger, Maryland State Senate
- Barbara Blakeney, President, American Nurses Association
- Dr. Jim Bentley, Senior Vice President for Strategic Policy Planning, American Hospital Association.

Invest in education and training: Support loan forgiveness, grants and scholarship programs as incentives to enter nursing. Support expansion of education programs, recognizing that training programs for health professionals are among the most expensive for universities and community colleges. Create opportunities for those already in the profession to advance their careers.

Increase retention: Decrease the number of people leaving nursing because of compensation and benefits, work-place environment, supervisor training and ergonomics. Encourage policy makers to identify problem areas and take appropriate action at the local, state and national levels.

Understand demand: A shortage offers policy makers an excellent opportunity to examine worker productivity and scope of practice. Consider job redesign, reducing the amount of paperwork, and encouraging technologies that increase efficiencies.

Raise the profile of the nursing profession: Invest in strategies that overcome the negative attitude that may prevent some from entering nursing. Consider programs to increase diversity among applicants, support public-private collaborations to train employees displaced from industry and educate young students about careers in nursing.

Establish work force centers: Improve data collection and assessment of supply and demand. Track trends that allow policy-makers to develop short- and long-term strategies to address the current crisis and break the pattern of cyclical shortages.

The second set of recommendations address strategic areas identified by the Robert Wood Johnson Foundation and are adapted from "*Health Care's Human Crisis: The American Nursing Shortage.*"

- Redesign nursing work environments, with particular emphasis on new technologies to facilitate nursing practice.
- Support nursing leadership through formal and continuing education, and training that prepares graduates for, and reflects, the current work environment.
- Attract and retain nurses who represent the ethnic and racial diversity of the United States. Promote replicable demonstration projects to attract and retain men, minorities and special populations, including single mothers and displaced workers.
- Support the establishment of a national nursing workforce measurement and data collection system.

- Establish a national clearinghouse of effective strategies that provides useful information about nursing research, programs and models that have proven successful in advancing the nursing profession.

The third set of recommendations addresses support for the Nurse Reinvestment Act (H.R. 3487) passed by unanimous consent first in the Senate, and then in the House of Representatives on July 22, 2002. On August 1, 2002, President George W. Bush signed the bill into law, creating P.L. 107-205. The Nurse Reinvestment Act establishes:

- *Nurse Scholarships* – provides educational scholarships in exchange for commitment to serve in public or private non-profit health facilities determined to have a critical shortage of nurses.
- *Nurse Retention and Patient Safety Enhancement Grants* – assists health-care facilities to retain nurses and improve patient care through more collaboration between nurses and other health professionals and more involvement of nurses in the decision-making process.
- *Comprehensive Geriatric Training Grants for Nurses* – provides for programs to train and educate people in providing geriatric care for the elderly.
- *Faculty Loan Cancellation Program* – provides for loan cancellation to nurses to allow full-time study and rapid completion of advanced degree studies. For cancellation of a set amount of loan, recipients are obligated to spend a certain amount of time in a faculty position at a school of nursing.
- *Career Ladder Grant Program* – assists nurses to obtain more education; establishes partnerships between health-care providers and schools of nursing to facilitate advanced and specialized training.
- *Public Service Announcements* – advertises and promotes the nursing profession; educates the public about the rewards of a nursing career.

The fourth set of recommendations are based on an online survey of nurses conducted in September and October 2002 by the Bernard Hodes Group and Nursing Spectrum Magazine (<http://www.hodes.com/hcrecruiting/>). In this survey, the top three reasons RNs gave for joining their current employer were a better work schedule (46%), growth opportunity (39%), and shorter commute (31%). The top reasons the RNs gave for leaving their previous employer were not feeling valued (39%), lack of growth potential (33%), too much work or insufficient staffing (33%), lack of confidence in management (31%) and lack of professional respect (30%). The 811 RN respondents said that more people would be attracted into nursing if the following concerns were addressed:

- compensation (28%)
- professional and personal respect (26%)
- perceptions of the profession (23%)
- staffing issues (19%)

State of Iowa Initiatives to Address the Supply of Nurses and Nursing Assistive Personnel

The driving forces impacting the supply of RNs, and the essential pool of LPNs and nursing assistive personnel required to meet Iowa's needs, reflect every national trend. They include a high percentage of nurses who are approaching retirement age and a diminished supply of new nurses. Factors unique to Iowa that compound the problem include:

- The economic challenges of a rural state with small, independent farming communities.
- A declining population between the ages of 18 and 24.
- A relatively high percentage of elderly Iowans with multi-system and accessibility needs.
- A growing population of new Iowans employed in low income jobs.
- A significant tuition and loan burden for students in pre- and post-licensure education programs.
- Low pay in the health fields related to low reimbursement rates in Iowa.
- Departure of newly licensed registered nurses in pursuit of higher wages.
- Aggressive recruitment of students and nurses by states experiencing acute shortages

Iowa recognizes the magnitude of the issue:

Healthy Iowans 2010, Iowa's Health Agenda for the New Millennium, identified the need for accessible quality health services. The document identifies these goals:

- Increase the supply of health professionals in underserved communities.
- Increase funding for education of health professions and allied health disciplines.
- Increase funding for health-profession education by 5 percent annually throughout the decade through new models of financing and the involvement of employers (Iowa Department of Public Health, 2000).

Recommendation #3 of the 2001 Governor Vilsack's Task Force on Nursing Shortage is "to create a program of state and private sponsored nursing scholarships and loan forgiveness in order to expand the overall pool of nurses. Special attention should be given to shortage areas requiring special nursing needs, e.g. the training of nursing educators, intensivists, acute care nurses, geriatric nurse specialists and others." (*Healthy Iowans 2010 – Items 1-3,1-4*)

On April 26, 2002, Governor Tom Vilsack signed legislation to create a Registered Nurse Recruitment Program and Fund to be administered by the Iowa College Student Aid Commission. State funding was not appropriated in 2002 or 2003 to implement Iowa Administrative Code 261.23 that would provide forgivable loans and tuition scholarships for students, and loan repayments for registered nurses. It is anticipated that subsequent collaborative efforts among public and private partners will provide a nursing education loan repayment program for registered nurses and nursing faculty beginning in 2004.

The federally funded Center for Health Workforce Planning, IDPH Bureau of Health Care Access, was created in 2002 through the efforts of U.S. Senator Tom Harkin (D-IA), Governor Tom Vilsack's Task Force on Nursing Shortage, the Iowa Council of Nurses, the Iowa Caregiver's Association and other organizations to address current and projected nursing and nursing assistive personnel workforce shortages. It was also created to identify barriers to recruitment and retention. Under the auspices of the Center, Senator Harkin and Governor Vilsack announced 45 awardees of a \$838,152 competitive grant program to establish Iowa demonstration projects, mentoring programs and stimulus incentive personnel packages that promote recruitment and retention of nurses and nursing assistive personnel. Best practices from the demonstration projects will be replicated and publicized in 2004.

A 2002 survey of 1,320 Iowa employers of nurses and nursing assistive personnel conducted by the Center for Health Workforce Planning found that:

- Long-term care facilities exhibit the highest overall percentage of vacancies.
- RNs and LPNs represent the highest percentage of unfilled positions in hospitals and clinics.
- Vacancy rates are greatest for RNs in long-term care facilities and LPNs in non-hospital based home care agencies.
- RN vacancy rates above 7 percent are found in long-term care facilities and ambulatory clinics.
- LPN vacancy rates above 7 percent are found in long term care facilities, ambulatory clinics and home health agencies.
- Unlicensed nursing assistive personnel vacancy rates above 7 percent are found in long-term care facilities.
- RN vacancies are greatest in the medical and surgical clinical areas.
- LPN vacancies are greatest in geriatric care.
- Unlicensed nursing assistive personnel vacancies are greatest in the medical and surgical areas, and almost as great in geriatric care.
- Wages increased between 2001 and 2002 for RNs, LPNs and nursing assistive personnel.

- For RNs and LPNs, the greatest increase was in the average and maximum wages in long-term care facilities.
- Unlicensed nursing assistive personnel had the lowest wage increase between 2001 and 2002, and was the only group with a decreased wage in any setting.
- The greatest number and percentage of RNs and LPNs employed in any setting are between 40 and 49 years of age.
- The greatest number and percentage of unlicensed nursing assistive personnel in hospitals, clinics, long-term care facilities, assisted living facilities and hospital-based home health agencies are 29 years of age or younger. The greatest number and percentage in non-hospital based home health agencies are 50-59 years of age.
- With the exception of clinics and home care, the greatest number and percentage of RNs, LPNs and unlicensed nursing assistive personnel were employed in their current position for 2 or fewer years.
- The primary reason for leaving a position cited on exit interviews of RNs, LPNs and unlicensed nursing assistive personnel is money. Other frequently cited reasons include desire for another nursing position, relocation and better hours.
- The least cited reason for leaving a position stated by RNs and LPNs is desire for a non-nursing position.
- Most employers instituted changes in the workplace in 2002 to recruit and retain nurses and nursing assistive personnel. Hospitals, long-term care facilities and hospital-based home care programs reported the highest percentage of changes. Clinics and assisted living facilities reported the lowest percentage of changes.
- The majority of hospitals, long-term care facilities and home health agencies increased nursing and nursing assistive personnel wages to improve recruitment and retention.
- Hospitals and long-term care facilities reported the highest percentages of work redesign, changes in staff mix and flexible work schedules.
- A majority of hospital-based home care programs and hospitals conducted staff satisfaction surveys in 2002.
- Restriction of patient volume was the least reported change to improve recruitment and retention. Fewer than 6 percent of employers in any setting reported instituting this change.

New Center interventions include an online survey of Iowa's 426 long-term care facilities supplemented by focus groups and key interviews. They also include a sample survey of 650 RNs and 525 LPNs between the ages of 51 and 60, who are actively licensed in Iowa, to determine intent to retire and strategies that support continued practice.

The Iowa Department of Public Health is working with the University of Iowa, Office of Statewide Clinical Education Programs, to incorporate registered nurses into an existing Health Professions Inventory of physicians, pharmacists, dentists, physician assistants and advanced registered nurse practitioners. The project will collect inclusive data about registered nurses in one region of Iowa that will be expanded to other regions and other health workers.

A forecasting group coordinated by nurse educators identified two statewide priorities in 2003: preparation of qualified faculty to teach nursing and expansion of clinical sites for student experience. Strategies to address the issues are being developed to address both priorities.

Partnerships among the Iowa Department of Public Health, the Iowa Department of Inspections and Appeals and the Iowa Board of Nursing are creating new data sharing capabilities that expedite entry of nurses and nursing assistive personnel into the workforce. Action in 2004 will enhance online license renewal for registered nurses and licensed practical nurses, and provide direct entry of nurse aide test scores into the Nursing Assistant Registry.

New county databases on nursing demand have been created and converted to maps for use by stakeholders and the public. Topical areas include nurses by county of residence and Nursing Education Loan Repayment Program Shortage Areas; population statistics and Federal Health Professional Shortage Areas (HPSA); Iowa hospitals by Medicare Rural Hospital Flexibility Program; nursing education programs; Nursing Assistant Registry data and approved training centers, and community health indicators.

An RN Trend Report was created using data elements identified in the Iowa Board of Nursing Annual Reports between 1986 and 2002 for use by stakeholders and the public. The information has been converted to tables and graphs that illustrate trends among actively licensed nurses on supply, age, basic education, highest degree and NCLEX passing percentages.

Call to Action

Immediate action to expand the current and future pool of qualified nurses is required if Iowa is to meet the demand for nurses in the next decade. Prompt action will retain the expertise of currently licensed nurses and minimize barriers to entry into the profession.

Actions Recommended by the Center for Health Workforce Planning in 2003-2004

1. Support initiatives to recruit and retain qualified nurses in Iowa.
2. Promote legislation that supports a sustainable program administered through the Iowa College Student Aid Commission to fund scholarships, forgivable loans and loan repayment to prepare new nurses, and support nurses seeking advanced education to teach and practice in Iowa.
3. Promote formal partnerships between schools of nursing and employers that support joint faculty-clinical appointments and new student clinical experiences.
4. Implement programs that recruit new Iowans and special populations into nursing and other health fields.
5. Promote collaboration among Iowa agencies that address public health, economic development and workforce development.
6. Participate in national incentives to designate professional shortage areas for nursing and expand nursing education loan repayment.

The Center for Health Workforce Planning was created in the Iowa Department of Public Health, Bureau of Health Care Access, to assess and forecast health workforce supply and demand, address barriers to recruitment and retention, support strategies developed at the local level that prevent shortages, and engage in activities that assure a competent, diverse health workforce in Iowa. Funding for the center, fueled through the efforts of U.S. Senator Tom Harkin, is administered through the Bureau of Health Professions, Health Resources and Services Administration, U.S. Department of Health and Human Services.

http://www.idph.state.ia.us/hpcdp/workforce_planning.asp

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