Predictions and Preparedness: The Registered Nurse and Nurse Educator Shortages

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Introduction

This resource/reference manual began as a simple update of data regarding the registered nurse (RN) and nurse educator shortages in the United States, with a focus on Massachusetts. The literature search for current, pertinent articles revealed a great deal of information about the many complex issues involved in the shortages, as well as best practices for positively impacting the shortages. The project was expanded to summarize and organize the articles so that readers could find topic-related data easily. Further detail can be found in the original articles that have been cited in the chapters and included in the reference lists. It is hoped that this manual will be helpful in increasing awareness of the issues and active participation in instituting policy and program changes, legislative advocacy, collective bargaining negotiations, federal and state funding, grant writing, etc.

The major themes supported by the literature are:

I. Predictions

a) The shortage of RNs will become increasingly apparent over the next few years as the economy improves and health reform measures are implemented.

b) The shortage of nursing faculty will become critical due to retirements and moves to clinical practice positions.

c) The ability of nursing programs to increase enrollments and graduation rates will level off and then decrease as the nurse educator shortage increases.
II. Preparedness

a) Solutions must be focused on preparing a highly-qualified RN workforce of sufficient size to meet the evolving health care needs of the population.

b) The workplace environment should promote quality care and safety, both physically and emotionally, to clients and healthcare providers.

c) Seamless educational progression between all levels of nursing is key to advancing the academic qualifications and competencies of RNs.

d) Efforts to recruit and retain nursing faculty should include salary equity with RNs of equal academic qualifications in practice settings, mentoring, graduated retirement plans, workload redesign to increase student enrollment and increase faculty job satisfaction, and ongoing professional development to assist educators to implement innovative competency-focused, evidence-based teaching strategies.

e) Nurse educators should have curriculum and teaching skills, as well as expertise in clinical areas of instruction.

f) Partnerships between academic and practice agencies are necessary to develop, implement, and evaluate competency-based educational programs that produce graduates with the knowledge, attitudes, and skills required to meet the evolving health care needs of clients.
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Chapter I: Registered Nurse Shortage

National Perspective

The shortage of Registered Nurses (RNs) persists in the United States and is predicted to escalate significantly in the near future. The discussion regarding the shortage of RNs nationally must include the current numbers employed, the trends over multiple years, the volume of nurses getting first licenses, the vacancy rates reported by employers, and projections of need in the future. Information on the various factors influencing supply and demand, such as changes in population, age of workforce, salaries, and job satisfaction help explain the uncertainty about providing an adequate workforce. Lastly, evidence of the negative consequences of the nursing shortage has prompted many organizations to address the nursing shortage in order to assure high-quality care to patients. The goal is two-fold: increase the number of RNs and prepare the current workforce for the challenges facing healthcare.

Registered nurses (RNs) constitute the largest healthcare occupation, with 2.6 million jobs (Bureau of Labor Statistics, 2010, p. 1). The supply of RNs has improved since 2004. In 2010, the Bureau of Labor Statistics reported that there were 2,618,700 RNs employed in the U.S. in 2008 (Bureau of Labor Statistics, 2010, p. 7). Also in 2010, the U.S. Department of Health and Human Services reported that there were an estimated 3,063,163 RNs living in the U.S. with 2,596,599 employed in

According to the American Hospital Association (AHA), there were 116,000 open positions in hospitals with a national vacancy rate of 8.1% in 2007 (AHA, 2007, p. 6). Also, 44% of hospital CEO’s reported more difficulty recruiting RNs in 2006 than 2005 (AHA, 2007, p. 7). American Health Care Association (AHCA) reported staff RNs in nursing facilities equal 111,588 and have a vacancy rate of 7.9 in nursing facilities in 2008 (AHCA, 2010, p. 2). It is important to know that vacancy rates are unfilled positions and the current economic conditions has resulted in heath care agencies closing, downsizing, and/or implementing hiring freezes.

**Predictions of future need.**

In 2004, the Health Resources and Services Administration (HRSA) projected that the shortage of RNs would be 800,000 (41% increase from 2000) by 2020 (National Center for Health Workforce Analysis, 2004). More recent projections have reduced that number due to the current economic downturn. Peter Buerhaus and colleagues predicted in 2009 that the number of nurses in the U.S. workforce will plateau in 2015 and by 2025 the shortage could be nearly 500,000 with a 40% nurse vacancy
rate nationally (Buerhaus, Staiger, & Auerbach, 2009, p. 268). On the supply side of the equation, the economy has contributed additional numbers of RNs. Retired nurses are coming back into workforce, delaying retirement, choosing to work full-time instead of part-time, and taking on additional shifts to provide family income, esp. when spouses have been laid off. On the demand side, employment opportunities for RNs have decreased because hospitals are treating fewer patients because people are delaying procedures or not seeking care due to lack of insurance and high cost of health care.

Economic influence.

There is evidence to show that the economy and job market for nurses is improving. In March 2011, the national economy recorded a 6th consecutive month of job gains and overall unemployment rate decreased to 8.8%. Hospitals posted their strongest month of hiring in nearly a year and healthcare employment (hospitals, doctor’s offices, nursing facilities) grew 2.1% in past 12 months (Carlson, 2011, p. 1). Peter McMenamin, senior policy fellow with the American Nurses Association (ANA), predicts better job prospects for nurses in 2011. Experts state that the reasons for the optimistic view are: a) the stabilizing economy, b) health care reform, and c) the anticipated retirements of baby boomer nurses. “The constraint, I think, is going to be the nurse instructors” (Larson, 2011 p. 3). These positive changes in the economy are likely to reverse the
temporary increased supply of RNs and decreased demands for RNs, thus resulting in more significant nursing shortages.

**Aging workforce.**

A significant factor in projecting the nursing shortage is the aging of both the U. S. population and the nursing workforce. The demand for RNs will increase due to the aging population in the U.S. and the increased incidence of chronic illnesses. Hospital employment of RNs over age 50 increased by more than 100,000 in 2007 and 2008. Many nurses reported that they remain employed because of the recession and spouse work instability. Currently 900,000 RNs out of estimated 2.6 million working are over 50. (AACN, 2010, p. 3) In 2008, the average age of an RN was 47 years. That number is up from 45.2 years in 2000. (U. S. Department of Health and Human Services, 2010, p.8) In 2009, 2/3 of the 185,000 nurses entering workforce are age 50 or above. This reflects a reduced number of years in the profession (Buerhaus et al, 2009, p. 267). In looking at the findings that 291,000 RNs did not renew licenses during the 2004 - 2008 period, one idea expressed was that this might be a possible indication of widespread retirements (U. S. Department of Health and Human Services, 2010, p. 8).

**Salaries.**

The Health Resources and Services Administration (HRSA) study on the Registered Nurse Population found that the nursing workforce is growing
and more diverse with annual earnings that have slightly outpacing inflation. In 2008, the annual salary for an RN was $66,973 which is an increase of almost 15.9% since 2004. (U.S. Department of Health and Human Services, 2010, p. 17) Salaries differ significantly based on geographic location, years of experience, advanced degrees/certifications, and settings. For example, the 2011 Salary Survey conducted by AMN Healthcare (Advance for Nurses) revealed that new RNs with 5 or fewer years of experience averaged $22.10/hour compared to $23.41 in Georgia, Alabama, Tennessee, and the Carolinas. In some areas of the country, (New York/New Jersey, California, Nevada, and Southeast) nurse administrators were earning higher salaries than advanced practice nurses (APN). In six states, nurses in academia reported higher annual salaries than nurses in other settings. The author stated that the higher salaries in academia are exceptions rather than the rule. The table below shows both 2010 and 2011 annual salaries for five states.

Table I: Comparison of Annual RN Salaries in Five States

<table>
<thead>
<tr>
<th>State</th>
<th>2011 Annual Salary</th>
<th>2010 Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>$90,815</td>
<td>$86,786</td>
</tr>
<tr>
<td>Nebraska</td>
<td>$50,541</td>
<td>$55,040</td>
</tr>
<tr>
<td>Florida</td>
<td>$64,611</td>
<td>$55,554</td>
</tr>
<tr>
<td>Texas</td>
<td>$71,248</td>
<td>$67,947</td>
</tr>
<tr>
<td>Georgia</td>
<td>$65,414</td>
<td>$59,260</td>
</tr>
</tbody>
</table>

(Wood, 2011, April 1, pp. 1-2).
**Job satisfaction.**

Buerhaus, Donelan, Ulrich, Norman, and Dittus (2006) reported that most RNs were satisfied with their jobs and had higher scores than lawyers, health executives, specialist and primary physicians, and teachers. The nurses reported that nursing workforce conditions, such as less overtime, less job stress, more job security, improved between 2002 and 2004 but lingering problems unless resolved will erase progress. RNs perceived that they have increased workload, lower quality of patient care; little improvement of respite for RNs; and little improvement in the workplace environment (p. 7).

The picture of nurses and high ratings of job satisfaction may well be changing. The major reasons for RNs gave for leaving their jobs (2004 - 2005) were: a) salary and benefits issues, b) more career options for women, c) undesirable working hours, and d) a negative work environment (Buerhaus et al, 2006). Nurses are leaving the profession in early career because of concerns with inadequate staffing, providing safe care, long work hours with high fatigue, and a sense of not being valued or involved with decisions (Hinshaw, 2008, p. S6). In looking at critical care units, Race and Skees (2010) found that the reasons RNs left their positions were: a) horizontal violence, b) stress, c) inadequacy, d) low morale, e) workloads, f) reduced resources, and g) higher patient acuity (p. 165). The American Medical Association (AMA) news reported in 2011 that, according to a CareerBuilder analysis of resumes, RNs work an
average of 3.3 years at a physician’s office as compared to 3.1 years at a general hospital and 1.8 years at a nursing care facility. The average salary for RNs at a physician's office is $67,290 and $67,750 at a general hospital. The report concluded that work environment, rather than salary, played a larger part in turnover rate. (Elliott, 2011)

Nurse researchers at the University of Pennsylvania in 2011 reported on a study of over 95,000 nurses in 614 hospitals and other health care settings in the U. S. and health care settings. The study measured job satisfaction and nurses' satisfaction with salaries, benefits, opportunities for advancement, work schedules, independence, and professional status to determine job satisfaction and burnout. The findings indicate that nurses employed in direct patient care were statistically significantly more likely than nurses employed in other settings to express dissatisfaction with their jobs and to report feelings of burnout. Twenty-four percent of hospital nurses and 27% of nursing home nurses reported dissatisfaction, as compared to only 13% in other settings. Similarly, 34% of hospital nurses and 37% of nurse employed in nursing homes expressed feelings of burnout, as compared to 22% in other settings. Thirty-six percent of hospitals nurses in the study and 47% in nursing homes, reported that their workload caused them to miss important changes in their patients. Overall, nurses working in nursing homes and providing direct care to patients exhibited the highest levels of dissatisfaction. Health care and retirement benefits were also issues of discontent. Nearly 60% of nurses
in nursing homes and 50% of nurses in hospitals providing direct care were dissatisfied with their retirement benefits. In terms of health care benefits, 41% of hospital nurses and 51% of nurse employed in nursing homes were dissatisfied. The major issue for low job satisfaction and burnout identified was chronic stress from work environment and staffing, leaving nurses over-extended and depleted of emotional and physical resources. (McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011).

**Quest for quality patient care.**

The greatest impact of nursing and nurse educator shortages is the effect on quality patient care. Buerhaus et al (2006) found that a majority of hospital nurses reported that the nursing shortage had negatively impacted quality of patient care. "More than 80% observed the shortage had frequently or often negatively affected the timelines of care; over 70% perceived the shortage had frequently or often negatively influenced patient centeredness, effectiveness, and efficiency of care; and almost two-thirds of RNs reported the shortage had negatively affected the safety and equity of care" (p. 8). Hinshaw (2008) found over 80 studies providing evidence on the relationship of adequate staffing or quality of nurse staffing with increased complications after surgery or procedures and the prevention of death (Hinshaw, 2008, p. S5).

The push for improved patient care is prevalent in the literature. In the annual HealthLeaders Media 2011 Annual Survey, nurse executives, in
ranking their three top priorities for 2011, placed patient experience/patient satisfaction first, followed by quality/patient safety, and then cost reduction (HealthLeaders Media, 2011, p. 4). The overall ranking of priorities by over 1400 respondents, including executives in finance, marketing, technology, physicians, and quality improvement, were 1) quality/patient safety; 2) cost reduction; and 3) patient experience/patient satisfaction (p. 6).

The respondents ratings of very strong/strong on the quality/status of nursing staff of their organization improved over the past three years from 67% in 2009, 72% in 2010, and 74% in 2011 (HealthLeaders Media, 2011, p. 10). When asked "How will the nurse supply impact your organization in next 3 years?", 2% responded that it would have a strongly positive impact; 15% indicated that it would be a positive impact; 51%; stated a neutral impact; 29%; responded that it would be negative, and 3 indicated a strongly negative impact (p. 7).

The goals for nursing in the future will require change not only in the number of RNs needed but also in nurses' roles in health care. In 2010, the Institute of Medicine (IOM)/Robert Wood Johnson Foundation (RWJF) released a report regarding the future of nursing and made some recommendations for an action-oriented blueprint. The following goals were included:

1) Nurses should practice to the full extent of their education and training
2) Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression

3) Nurses should be full partners, with physicians and other health care professionals, in redesigning health care in the United States

4) Effective workforce planning and policy making require better data collection and information infrastructure. (Institute of Medicine, 2010)

How can we provide an adequate nursing workforce to meet the ever-increasing healthcare needs of patients in the future? There is a need to replace those nurses who will be retiring, retain the nurses currently employed, and increase the supply of new nurses to meet the demand of the increasing size and age of the population, expansion of health insurance, advances in technology, and shortages in the numbers of other healthcare workers, including physicians (AACN, 2010, p. 3). May, Bazzoli, & Gerland (2006) reported that a large degree of doubt exists among hospitals about their ability to meet future nursing needs (p. 1).

In a 2008 study of seventy five unit nurses and hospital leaders the policy of boosting quality through performance-based incentives was addressed. While there was agreement that the incentives offered a potential to improve quality and safety, the respondents viewed these emerging policies as burdensome and having little positive effect on staffing or turnover. (Wood, 2011, February 11, p. 1).
Massachusetts

In 2001, the American Association of Colleges of Nursing (AACN) published a position paper and stated that acute nurse shortages existed in certain geographic locations and the shortage would result in an inability to adequately meet the patient needs in the changing health care environment. In 2004 the Health Resources and Service Administration (HRSA) predicted that all states would experience a nursing shortage by 2015. The shortage is present currently and predicted to escalate in the next few years. Massachusetts is no exception. The numbers of Registered Nurses (RNs) licensed in the state, their current salaries, demographic data, rate of employment following graduation, while informative, do not give the true picture of the impact of RNs on the state economy, and the predicted demand/vacancy rates.

Supply of registered nurses.

The supply of registered nurses (RNs) has improved in the state over the past six years as indicated in the following table:

Table II: Number of Registered Nurses (RNs) in Massachusetts 2005 - 2010

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of RNs</td>
<td>103,222</td>
<td>109,816</td>
<td>112,499</td>
<td>110,866</td>
<td>112,421</td>
<td>113,592</td>
</tr>
</tbody>
</table>

(Commonwealth of Massachusetts Department of Public Health, 2010).
Salaries.

The average hourly wage for an RN in Massachusetts is $39.68 and that represents an average annual salary of $78,462 according to the *Advance for Nurses* annual salary survey for 2010 (Friedman, 2011).

Employment of new graduates.

The American Association of Colleges of Nursing (AACN) published the 2010 survey of the employment rate of new RN graduates from 516 baccalaureate and higher degree programs in the country. In Massachusetts approximately half of the new RNs graduate from associate degree programs and half from baccalaureate and higher degree programs. Upon graduation, 65% of newly licensed RNs are offered a job. This rate differs by region of the country as follows:

- South 74%
- West 54%
- Midwest 64%
- Northeast 59%

In comparison, the National Association of Colleges and Employers (NACE) calculated that the job offer rate of all new college graduates was 24.4%. The average job offer rate of RNs four to six months after graduation was 89%. Again, the rate differs by region:
<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>South</td>
<td>94%</td>
</tr>
<tr>
<td>West</td>
<td>78%</td>
</tr>
<tr>
<td>Midwest</td>
<td>89%</td>
</tr>
<tr>
<td>Northeast</td>
<td>88%</td>
</tr>
</tbody>
</table>

The data for Massachusetts indicates that the job offer rate for RNs in 2010 was 50% at graduation and 83% 4-6 months after graduation (AACN, 2010, November, p. 4).

**Vacancy rates.**

One measure of the need for RNs and employment opportunity is reflected in vacancy rates for unfilled positions. In 2002, the Massachusetts vacancy rate was 10% and 8.5% in 2003 (AHA, 2003, p.1). The picture has improved but this may well be more a factor of downsizing than an indication of a more adequate supply of RNs. The American Hospital Association (AHA) conducted the March/April 2010 survey of hospitals and found that 70% of hospitals reported fewer patient visits and elective procedures. Also, nearly nine in 10 hospitals reported an increase in care for which they received no payment. Hospitals are cutting administrative costs, reducing staff and curtailing services. "In fact, 89 percent of hospitals indicated that they have not added back staff or increased staff hours and 98 percent have not restored services or programs previously cut due to the downturn of the economy" (AHA, 2010,
June, p. 2). The recession that began in December 2007 and drove the state unemployment rate to 9.3% in December 2009 appears to have reinforced the trend of lowering the vacancy rates (Massachusetts Hospital Association & Massachusetts Organization of Nurse Executives, 2010a, p. 2). In 2009, the Massachusetts's Executive Office of Labor and Workforce Development identified that there were 4,581 nurse vacancies across all patient care settings for a vacancy rate of 6%. This shortage is expected to grow to 12% in within two years and reach 20% by 2020 (MHA, 2009, p. 1).

The 2009 vacancy rate differed by type of health facility and specialty area. The vacancy rate for Registered Nurses (RNs) in all survey hospitals was 2.8%. Acute care hospitals reported a 2.7% vacancy rate, and specialty hospitals reported a 3.4% rate (MHA & MONE, 2010a, p. 1). Registered nurse (RN) vacancy rates were highest in pediatric intensive care, maternal & child health, skilled nursing, and emergency departments. The lowest vacancy rates were in neonatal critical care, rehabilitation, and pediatrics (MHA & MONE, 2010a, p. 3).

**Prediction for future supply and demand.**

In 2004 HRSA predicted a national RN shortage of 700,000 full-time equivalents (FTEs) by 2020. More recent estimates predict a shortage of nearly 500,000 RNs with a 40% nurse vacancy rate nationally by 2025 (Buerhaus et al, 2009, p. 268). The specific numbers identified by HRSA
in 2004 of a shortage in Massachusetts of almost 17,000 FTE RNs in 2015 and more than 25,000 by 2020 (National Center for Health Workforce Analysis, 2004, p.31) may not be accurate due to effects of the economic climate but the percentages of supply to demand should be examined. The HRSA study was focusing on the full-time equivalents of RNs, not the actual number of RNs licensed in the State. The calculations are based on number of licensed RNs in 2000, adding estimated number of newly licensed RNs, adjusting for participation patterns, subtracting estimated number of separations, including cross-state migration patterns.

Table III: Massachusetts FTE RN Predicted Supply and Demand 2000 - 2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Supply</th>
<th>Demand</th>
<th>Supply - Demand</th>
<th>Supply/Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>63,600</td>
<td>68,300</td>
<td>-4,700</td>
<td>93%</td>
</tr>
<tr>
<td>2005</td>
<td>62,700</td>
<td>71,700</td>
<td>-9,000</td>
<td>87%</td>
</tr>
<tr>
<td>2010</td>
<td>60,100</td>
<td>76,200</td>
<td>-16,100</td>
<td>79%</td>
</tr>
<tr>
<td>2015</td>
<td>56,000</td>
<td>81,700</td>
<td>-25,700</td>
<td>69%</td>
</tr>
<tr>
<td>2020</td>
<td>51,400</td>
<td>87,800</td>
<td>-36,400</td>
<td>59%</td>
</tr>
</tbody>
</table>

(National Center for Health Workforce Analysis, 2004, pp. 32-34).

In 2009, the Commonwealth of Massachusetts published the Employment projections. The report stated that the demand for healthcare would expand 16.7% and account for 4,630 new jobs by 2016. This represents almost 32% of all projected net new, nonfarm wage and salary jobs (Commonwealth of Massachusetts, 2009, p. 9). Registered nurses were listed in the "Occupations generating nearly half of all new jobs by 2016" and were predicted to generate 16,110 new jobs (Commonwealth of
Massachusetts, 2009, p. 19). The anticipated growth rate for RNs was 22% (Commonwealth of Massachusetts, 2011, p. 1). The State Plan Modification for the American Reinvestment Act concluded that RNs continue to be the critical occupation with the highest number of vacancies (Commonwealth of Massachusetts, 2009, June, p. 10).

**Recommendations/Strategies**

The goal to have an adequate supply of Registered Nurses (RNs) qualified to meet the health care needs of patients is shared by all. The means to achieve that goal are directed to recruiting nurses to the profession, improving job satisfaction in order to retain nurses, and providing the skills necessary to meet the needs of a changing population.

In 2008, Allan and Aldebron identified best practices for addressing the workforce needs of nursing. They looked to workforce data and policy centers that collect and analyze data, and make proposals for solutions. The three organizations spotlighted as major influences were:

a) Center to Champion Nursing in America (CCNA) that recommended that the recruitment of nurses will be enhanced by increasing federal and state funding, more nurses will be retained by promoting improvements in the workplace, and nurses should join boards of health care to influence policy;
b) Council on Physician and Nurse Supply, a multidiscipline group that conducts research on physician and nurse shortages and proposes solutions; and

c) State nursing workforce centers collect data to be used for policy recommendations on the state level. (Allan & Aldebron, 2008, p. 289)

As of 2009, 28 states comprise the Forum of State Nursing Workforce Centers with five more states under consideration. Of those 28 states, four states have nurse educator shortage legislation; sixteen have loan forgiveness programs for faculty; and five have nursing shortage initiatives (Hewlett, Bleich, Cox, & Hoover, 2009, p. 326). The current website (www.nursingworkforcecenters.org) lists 34 members with three under consideration. Massachusetts is represented by the Massachusetts Center for Nursing (MCN). The mission of the Forum is to address the nursing shortage within each state and contribute to the global effort to assure an adequate supply of qualified nurses to meet the health needs of U. S. residents.

The general strategies for addressing the nursing workforce, in terms of both supply and demand for quality care, that appear frequently in the literature are emphasis on nurse education, media exposure, competitive compensation, use of temporary staff, tuition benefits, retention of nurses both new and nearing retirement through mentoring, and financial incentives. Buerhaus et al (2006) published a list of strategies that have
current implications for policymakers, employers, and nurses to strengthen
the nursing workforce and address the projected long-term shortage of
RNs:

1) Fix problems associated with a negative workplace climate

2) Measure and improve the contributions of nursing in patient quality and
safety initiatives

3) Keep long-term in mind (improve workplace environment, value of
aging RNs)

4) Promote a balanced and professional image of nursing

5) Improve diversity of workforce - recruit men, racial or ethnic
minorities, and

6) Recognize that positive changes in the workforce are possible.

(pp. 10-12)

The American Hospital Association (AHA) Workforce 2015 report listed
three strategies for addressing the tight labor market:

a) Redesigning work to maximize the efficiency, effectiveness, and
satisfaction of staff,

b) Retaining existing workers, especially those approaching retirement, and
c) Attracting the new generation of workers, especially the Millennial generation. (AHA, 2010, January, p. 21)

**Recruitment and retention.**

Partnerships between healthcare agencies and schools of nursing are recommended to provide programs to encourage individuals to enter nursing (Gormley, Frerick, & Dean, 2009; Hendren, 2009). The Massachusetts Hospital Association (MHA) is working with hospitals in the state to fill nursing vacancies by hosting a career website (MAHospitalCareers.com) that links job-seekers with open positions at more than 30 hospitals (MHA & MONE, 2007).

The need for retention of newly-hired nurses is often identified as a major need by health care agencies. Nurse Residency programs are being developed to serve as a transition between school and employment (Goeddeke, 2009; McCarten, 2011). In 2011, based on the findings from the Human Capital Effectiveness Benchmarking study that showed that first-year turnover was as high as 60% in some of the healthcare systems, the Health Leaders Media published a list of recommendations. The following was developed from characteristics of "best practices" health systems which had a median first-year turnover rate of 17.1%.
5 Ways to Reduce Nurse Turnover in Year One

1) Schedule competency-based interview/selection testing that includes cultural fit

2) Build relationships with SON and a robust residency program

3) Conduct extensive orientation followed by employee feedback

4) Implement new hire support programs, and

5) Track and measure criteria that drive accountability for retention

(Commins, 2011, p. 1)

Several authors make recommendations for specific changes necessary in the workplace to increase productivity while improving job satisfaction/preventing burnout. Specific changes that might improve the working conditions of the RN include a) flexible shifts, b) staffing procedures that reflect actual numbers of patients, c) nurses regulating the patient traffic on the unit, d) interdisciplinary SWAT team approach with patients who seem to be in trouble, e) “peace and quiet time” (1 hour on unit when no patients transferred, no one comes on unit, telephones on call forward), and f) new information technology such as documentation (Hinshaw, 2008, pp. S8-9). Redesigning nursing roles, cross-training, shorter shifts for older employees, offering newly retired workers options
to return to work, focusing on succession planning for key positions have been mentioned to retain nurses (Hendren, 2009).

**Nurse residency model.**

The University of Colorado Hospital (UCH) in partnership with the American Association of Colleges of Nursing (AACN) has developed and implemented the first nationally accredited nurse residency program. The goal is to retain newly-graduated nurses by creating a work environment that brings job satisfaction and builds a nursing workforce with the necessary knowledge, skills, and professionalism. The year-program consists of a) a 12 to 24 week preceptorship on a clinical unit, b) specialty classes built into the paid work week, and c) monthly seminars, also paid, lasting from four to eight hours in length. The program had 500 applicants for 30 opening for July 2010. The outcomes of the residency program at UCH are:

a) The national retention rate for hospital nurses in the first two years of nursing practice is just over 70%; at UCH it is 98%

b) At UCH, fully 60% of the current nursing staff has been through the residency program, a sign of high retention, professional nurse workforce.

c) In a 2009 survey, UCH fond that of the 400 alumni of its residency program, all who responded, had gone on to assume leadership or management roles at UCH or elsewhere; many were enrolled in
graduate education or had already earned an advanced degree in nursing (Center to Champion Nursing, 2010, September 13).

**Competencies for nurses of the future.**

The emphasis on the changing role of the Registered Nurse has resulted in recommendations to enhance the competencies of all nurses. Several organizations have recently issued position papers and consensus statements regarding health care reform and nurses' commitment to quality and safe care. The National Council of State Boards of Nursing (NCSBN) announced in 2011 that it plans to evaluate safety and quality outcomes in nurse transition to practice programs. The study will evaluate the transition model and measure patient outcomes as well as new nurse competencies, job satisfaction, and job stress. The Nursing Community, a collaboration of nursing organizations, representing nursing students, registered nurses (RNs), advanced practice registered nurses (APRNs), nurse executives, nursing educators, and researchers, urged the Administration and Congress to adequately fund programs to help alleviate the nursing shortage, encourage the utilization of providers to the full scope of practice under state law, increase research and clinical focus on wellness and health promotion, implement methods to evaluate the quality and cost of healthcare services by all providers, and support the collection of standardized, evidence-based performance information (Nursing Community, 2009).
The Institute of Medicine/Robert Wood Johnson Foundation report on the Future of Nursing resulted in a number of recommendations. The IOM recommended that 80% of RNs have a minimum of a Bachelor of Science in Nursing (BSN) by 2020. The January 2010 Carnegie Foundation for the Advancement of Teaching report called for the baccalaureate degree as the minimum requirement for RN licensure (Boyd, 2011). In addition, the Council on Physician and Nurse Supply, based on research, have found that at current levels, the shortages in nursing and medicine will continue to increase and there will be too few physicians and nurses to meet future needs. This group recommends that the emphasis on nursing education be at the baccalaureate level. Whether states should be moving toward requiring a BSN or higher is hotly debated but, in the meantime, there is an increasing number of healthcare agencies/employers that have a preference for nurses with BSN and higher (Boyd, 2011, p. 2). The American Organization of Nurse Executives (AONE) board of directors released in 2004 defined the educational preparation needed for nurse's in the future. AONE believes that: "The educational preparation of the nurse of the future should be at the baccalaureate level. This educational preparation will prepare the nurse of the future to function as an equal partner, collaborator and manager of the complex patient care journey that is envisioned by AONE. Given that the role if the future will be different, it is assumed that the baccalaureate curriculum will be re-framed" (AONE, 2004, p.1). The American Association of Community Colleges (AACC) in
2011 issued a policy brief discussing the issue of supplying the nation's nursing workforce and concluded that the nation depends on the successes of both associate and bachelor's-level schools of nursing. The two levels contribute individually to collectively building a strong nursing workforce (Ashford, 2011, p. 1).

In 2007, NLN focused on the levels of nursing and stated clearly that nursing must "sidestep the old argument of baccalaureate entry and move to options, such as RN to BSN or RN to MSN, that are not based on entry but as opportunities for lifelong learning and progression for those who enter the nursing profession through diploma and associate degree programs" (NLN, 2007, p. 1). In response to the current debate, the NLN issued a position paper on academic progression in nursing education in January 2011 that urged lifelong learning for all nurses through seamless academic progression to meet the demands of a reformed health care system. Since approximately 60% of new nurses are associate degree graduates and, on the average, nurses who enter the profession with either an associate degree or baccalaureate degree seek one more degree, the NLN warned that current articulation models will not be enough to provide the qualified nursing faculty and advanced practice nurses that will be needed. The National League for Nursing (NLN) recommended a fundamental reconceptualization of nursing education based on partnerships among educators, practice colleagues, and students to design and implement seamless models based on education
competencies. (NLN, 2011) The American Nurses Association (ANA) passed a resolution in 2008 to promote state initiatives requiring future nurses to obtain their BSN in ten years to continue practicing. ANA’s model bill for BSN-in-10 legislation does not "affect current RNs nor eliminate the existing and valued educational paths students take to enter the profession, such as through associate degrees and diploma programs. Rather, it only would apply to individuals applying for initial licensure in states where legislation requiring them to obtain their BSN within ten years has been enacted" (Trossman, 2008, p.1).

In Massachusetts, the process of determining a set of minimal competencies for nurses upon graduation from a prelicensure RN program was undertaken by a committee of nurses from all segments of nursing education and practice in 2006. The ten clinical competencies are based on the Institute of Medicine’s core competencies and reflect the expected outcomes of accrediting bodies, practice organizations, and other states. The core competencies are expected to be used as a framework for revisions to nursing education curriculum in the state. (Lewis, 2010, p. 56).

In developing the NOF Nursing Core Competencies, the Competency Committee identified a set of assumptions to serve as a framework for its work and as guiding principles for the design of a competency-based education and practice partnership model. The assumptions include the following:
a) Education and practice partnerships are key to developing an effective model.

- Nursing education and practice settings should facilitate individuals in moving more effectively through the educational system
- An integrated practice/education competency model will positively impact patient safety and improve patient care
- Nursing practice should be differentiated according to the registered nurse’s educational preparation and level of practice and further defined by the role of the nurse and the work setting
- Practice environments that support and enhance professional competence are essential

b) It is imperative that leaders in nursing education and practice develop collaborative curriculum models to facilitate the achievement of a minimum of a baccalaureate degree in nursing by all nurses.

- Advancing the education of all nurses is increasingly recognized as essential to the future of nursing practice
- Evidence has demonstrated that nurses with higher education levels have a positive impact on patient care

c) A more effective educational system must be developed, one capable of incorporating shifting demographics and preparing the nursing workforce to respond to current and future health care needs and population health issues.
• The NOF Nursing Core Competencies are designed to be applicable across all care settings and to encompass all patient populations across the lifespan

• Evidence-based knowledge and sensitivity to variables such as age, gender, culture, health disparities, socioeconomic status, race, and spirituality are essential for caring for diverse populations in this global society

d) The nurse of the future will be proficient in a core set of competencies.

• There is a differentiation in competencies among practicing nurses at various levels

• Competence is developed over a continuum and can be measured

e) Nurse educators in education and in practice settings will need to use a different set of knowledge and teaching strategies to effectively integrate the Nurse of the Future Nursing Core Competencies© into curriculum. (Massachusetts Department of Higher Education Nursing Initiative, 2010, pp. 4-5)

**Seamless educational progression.**

Seamless articulation agreements between associate degree in nursing (ADN) and bachelor of science in nursing (BSN) nursing programs are sound strategies for enhancing the RN workforce. The American Association of Colleges of Nursing (AACN), in 2005, identified three types of articulation agreements, mandated, statewide, and individual school-to-school agreements. These frameworks help to inform about course
selections, eliminate redundancies, streamline the application process, and promote collaboration. The goal of reducing the length of time and expense required to achieve the next degree in nursing is significant. Mandated articulations are a result of legislation that mandates credit transfer between nursing programs. A typical mandated law states that all graduates of approved ADN programs will be granted admission into a baccalaureate program offered by any state institution with few exceptions. Usually 72 credit hours, including 42 hours of ADN nursing core courses, are transferable into BSN programs, which cannot exceed 128 credit hours to complete. Eight states (Connecticut, Florida, Maryland, Minnesota, North Carolina, South Carolina, Texas, and Washington) have mandated statewide agreements. Web links to the eight mandated articulation agreements can be found at http://www.aacn.nche.edu/media/pdf/aafs.pdf (AACN, 2005). The next level of articulation, is statewide, voluntary plans accepted by all community colleges and public universities, though private institutions often choose to participate in order to be competitive. This type of agreement exits in 25 states. In states without either mandated or statewide, there must be individual agreements between each community college and each state or private university. To make things more complicated, each school-to-school agreement may differ in terms of transfer credits, liberal arts requirements, and number of total credits to be
completed. Eighteen states, including Massachusetts, do not have either mandated or statewide articulation agreements (AACN, 2005, p. 2).
Chapter I: Nursing Shortage

References


Licensure%2c+and+Registration&L3=Occupational%2c+and%2c+Professional&L4=Nursing&L5=Licensing&L6=Statistics%2c+About+Licensees&sid=Eeohhs2&b=terminalcontent&f=dph_quality_boards_nursing_p_stats_active_nurse_licensees&csid=Eeohhs2

employment+projections&collectorName=ELWDx

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Chapter II: Nursing Program Capacity

National Perspective

In 2004, the Health Resources and Services Administration (HRSA) reported that to meet projected growth in demand for RN services in 2020, the U.S. must graduate approximately 90% more nurses from U.S. nursing programs relative to the baseline graduate projections” (National Center for Health Workforce Analysis, 2004, p. 10). The Council on Physician and Nurse Supply in March 2008 reported that 30,000 additional nurses should be graduated annually to meet US healthcare needs. This is equivalent to an increase of 30% over current annual number of graduates (AMN Healthcare, 2008, p. 1). The goal of increased numbers of RNs depends in large part of the ability of nursing programs to accept and educate larger numbers of students. Nursing program capacity involves the number of applicants to a program, enrollment, and graduation rates. In addition, data collected from administrators of nursing programs regarding the reasons for limited program capacity must be addressed so that strategies can be developed.

Program admissions, enrollment, and graduation rates.

The major source for program capacity information is the National League for Nursing (NLN) that surveys all nursing programs yearly. The number of nursing programs responding are greater than 1500. The following table gives the approximate values for applications, admissions, enrollment, and graduation rates for prelicensure basic RN programs:
Table IV: Numbers of Applications, Admissions, Enrollment, and Graduations in U. S. Nursing Programs 2004-2008

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications</td>
<td>325,000</td>
<td>345,000</td>
<td>320,000</td>
<td>390,000</td>
<td>395,000</td>
</tr>
<tr>
<td>Admissions</td>
<td>145,000</td>
<td>152,000</td>
<td>165,000</td>
<td>181,000</td>
<td>178,000</td>
</tr>
<tr>
<td>Enrollments</td>
<td>280,000</td>
<td>290,000</td>
<td>295,000</td>
<td>310,000</td>
<td>312,000</td>
</tr>
<tr>
<td>Graduations</td>
<td>78,000</td>
<td>85,000</td>
<td>92,000</td>
<td>96,000</td>
<td>108,000</td>
</tr>
</tbody>
</table>

(NLN, 2011a; 2011b; 2011c; 2011d)

Of special interest is the percentage of qualified applications that have been denied acceptance. The yield rate indicates the percentage of accepted applicants that enrolled in the programs. The following table gives the disposition of applications to basic RN programs:

Table V: Percentage of Applicants Not Qualified, Qualified but Not Accepted, and Accepted to U. S. Nursing Programs 2006-2010

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Qualified</td>
<td>30%</td>
<td>33%</td>
<td>35%</td>
<td>35%</td>
<td>32%</td>
</tr>
<tr>
<td>Qualified, Not Accepted</td>
<td>28%</td>
<td>26%</td>
<td>26%</td>
<td>25%</td>
<td>28%</td>
</tr>
<tr>
<td>Accepted</td>
<td>42%</td>
<td>41%</td>
<td>39%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Yield Rate</td>
<td>81%</td>
<td>85%</td>
<td>86%</td>
<td>88%</td>
<td>90%</td>
</tr>
</tbody>
</table>

(NLN, 2011a)
By looking at the summaries provided by the NLN, one can get a picture of the trends over the past five years indicating large applicant pools, significant number of applicants being denied acceptance, higher enrollment figures, and higher graduation rates.

**Overview of 2004-2005.**
The number of application were increased but a smaller percentage of students were admitted. The growth rate of new admissions fell by more than 47% in 2004 - 2005 from 9.4% in 2003-04 to 5% in 2004 - 2005. There were a larger number of qualified students denied acceptance. On a positive note, the NLN reported that the yield rate (number of acceptances that enrolled) was up. The yield rate of 90% is more than the average rate among 4-year colleges (under 50%). Graduation rates continued to rise in 2004-2005 with 84,878 additional prospective nurses. (NLN, 2006a, p. 1)

**Overview of 2005-2006.**
Applications decreased in all types of pre-licensure programs and 88,000 qualified applicants were denied acceptance due to limited program capacity. One hundred and fifty additional prelicensure programs were added nationally. Enrollment growth went from 15% in 2004 to 3% in 2005 and to 1.5% in 2006. Overall graduation rates grew by 8.5%.
**Overview of 2006-2007.**

Enrollments increased by 6.7% and the number of graduates increased by only 3%. but the number of applications fell possibly due to students recognizing the difficulty in being accepted. The number of qualified applicants being denied acceptance remains high - 99,000 or nearly 40%. There were 64 new prelicensure programs added nationally between 2006 - 2007. The 2006-2007 NLN Survey found that 84% of schools attempted to hire new faculty in 2007 - 2008. Of those, 79% found recruitment difficult and 1 of 3 found it "very difficult" due to a) not enough qualified candidates (cited by 46% of schools) and b) inability to offer competitive salaries cited by 38% ). (NLN, 2009a) Of concern to the NLN was the age of new graduates. Forty-three percent of all prelicensure graduates were over age 30 in 2006 indicating that "the average RN's overall length of employment in nursing will be foreshortened considerably by her delayed entrance into the profession" (NLN, 2007, p. 4).

**Overview of 2007-2008.**

Annual admissions to prelicensure programs fell for the first time in six years, and enrollments were flat. In comparing this data with the previous year, ADN programs enrollments fell 0.7 %, while baccalaureate enrollments increased by 2%. Expansion is terms of new RN programs was less than 1%. In comparison, the growth of new RN programs was 10% in 2006 and 4% in 2007. Thirty-nine percent of qualified applications
were denied acceptance. Reasons for denied acceptance were: shortages of faculty, clinical placements, and classroom space. In addition, two-thirds of doctoral programs and 1/2 of master's programs identified lack of faculty as the largest barrier to admitting more students. (NLN, 2008, pp. 1-5)

**Overview of 2008-2009.**

The National League for Nursing (NLN) reported only 8 new ADN programs and 2 BSN programs added nationally since 2007. The major reason given for lack of expansion was shortage of faculty. There were 40% of qualified applicants were denied acceptance to prelicensure programs: ADN 45% ; BSN 28%; and Diploma 23%. In addition, the survey reported evidence of "over-stretched capacity" with yield rate in pre-licensure programs climbing for 54th consecutive year to 88% for ADN and 95%. for BSN. Only one in three prelicensure students was over age 30. However, that percentage differs greatly between ADN (49%) and BSN (14%) students. (NLN. 2010)

In 2009, the NLN annual survey of the deans of the over 1500 nursing programs in the country, concluded the following:

a) Nursing school enrollment growth is slowing

b) There is a significant unmet demand for nursing education.

c) The greatest shortage of seats is in prelicensure programs.
d) Faculty vacancies are a major challenge.

e) But filling faculty vacancies will have less impact on the capacity of prelicensure programs than on other program types, due to the scarcity of clinical placement settings.

f) Broader demographic trends will further reduce college admissions by 2017. (NLN, 2009b)

**Overview of 2009 - 2010.**

The percentage of prelicensure RN students over age 30 is 33% which is consistent with 2009. The demand for prelicensure RN programs continues to exceed the systematic capacity. Yield rate continues to be high but 42% of all qualified applicants to basic RN programs were denied acceptance. Reasons given vary by type of program. Shortage of faculty is still the most frequently cited by RN to BSN and doctoral programs. Prelicensure programs cited lack of clinical placements the primary obstacle. (NLN, 2011e)

**Reasons for limited capacity.**

The American Association of Colleges of Nursing (AACN) annually surveys both its member schools and other schools of nursing offering baccalaureate and higher degree programs to identify reasons for programs not accepting qualified applications. The following table compares the findings from the past two years in terms of the percentage
of programs that listed teach of the reasons for not accepting qualified applications. The number of baccalaureate and higher degree programs responding in 2009 - 2010 and 2010-2011 were 339 and 392, respectively.

Table VI: Percentage of U. S. Nursing Programs Identifying Specific Reasons for Not Accepting Qualified Applications to U. S. Baccalaureate and Higher Degree Nursing Programs 2009-2010 and 2010-2011

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Faculty</th>
<th>Clinical sites</th>
<th>Budget cuts</th>
<th>Classroom space</th>
<th>Clinical Preceptors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baccalaureate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generic BSN</td>
<td>2010</td>
<td>61.4%</td>
<td>60.8%</td>
<td>32.2%</td>
<td>47.5%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>62.2%</td>
<td>65.1%</td>
<td>29.3%</td>
<td>48.2%</td>
</tr>
<tr>
<td>RN to BSN</td>
<td>2010</td>
<td>70.4%</td>
<td>25.9%</td>
<td>40.7%</td>
<td>18.5%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>56.1%</td>
<td>25.6%</td>
<td>19.5%</td>
<td>19.5%</td>
</tr>
<tr>
<td><strong>Master's</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>2010</td>
<td>66.3%</td>
<td>58.4%</td>
<td>26.7%</td>
<td>16.8%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>67.2%</td>
<td>55.5%</td>
<td>24.8%</td>
<td>14.6%</td>
</tr>
<tr>
<td>CNS</td>
<td>2010</td>
<td>78.9%</td>
<td>31.6%</td>
<td>36.8%</td>
<td>26.3%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>41.7%</td>
<td>29.2%</td>
<td>37.5%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Other</td>
<td>2010</td>
<td>56.3%</td>
<td>50.0%</td>
<td>21.9%</td>
<td>17.2%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>53.5%</td>
<td>36.4%</td>
<td>21.2%</td>
<td>12.1%</td>
</tr>
<tr>
<td><strong>Doctoral</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>2010</td>
<td>50.0%</td>
<td>7.7%</td>
<td>23.1%</td>
<td>11.5%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>49.0%</td>
<td>6.1%</td>
<td>12.2%</td>
<td>4.1%</td>
</tr>
<tr>
<td>DNP</td>
<td>2010</td>
<td>64.3%</td>
<td>10.7%</td>
<td>21.4%</td>
<td>3.6%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>57.1%</td>
<td>21.2%</td>
<td>27.3%</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

(Fang, Tracy, & Bednash, 2010, p. 84; Fang, Hu, & Bednash, 2011, p. 86)
The data above indicates that percentage reporting lack of faculty is increasing in generic baccalaureate and NP programs. The need for clinical sites varies greatly between types of programs, and budget cuts are affecting more programs.

The deans of the baccalaureate and higher degree nursing programs were asked to indicate the one most important reason for not accepting qualified applications.

Table VII: Percentage of U. S. Nursing Programs Identifying the Most Important Reasons for Not Accepting Qualified Applications to U. S. Baccalaureate and Higher Degree Nursing Programs 2009-2010 and 2010-2011

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Faculty</th>
<th>Clinical or Classroom space</th>
<th>Clinical Preceptors</th>
<th>Overall Budget Cuts</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baccalaureate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generic BSN</td>
<td>2010</td>
<td>40.4%</td>
<td>26.5%</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>36.5%</td>
<td>30.4%</td>
<td>0%</td>
</tr>
<tr>
<td>RN to BSN</td>
<td>2010</td>
<td>50.0%</td>
<td>9.3%</td>
<td>1.9%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>43.9%</td>
<td>11.0%</td>
<td>1.2%</td>
</tr>
<tr>
<td><strong>Master’s</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>2010</td>
<td>43.6%</td>
<td>17.8%</td>
<td>14.9%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>41.6%</td>
<td>21.2%</td>
<td>13.1%</td>
</tr>
<tr>
<td>CNS</td>
<td>2010</td>
<td>36.8%</td>
<td>10.5%</td>
<td>15.8%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>20.8%</td>
<td>8.3%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Other</td>
<td>2010</td>
<td>37.5%</td>
<td>15.6%</td>
<td>4.7%</td>
</tr>
<tr>
<td></td>
<td>2011</td>
<td>38.4%</td>
<td>17.2%</td>
<td>5.1%</td>
</tr>
<tr>
<td><strong>Doctoral</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The American Association of Colleges of Nursing (AACN) 2010-2011 survey points to the shortage of faculty with 20.8% to 43.9% of programs listing shortage of faculty as the most important barrier to program expansion (Fang et al, 2011, p. 88).

**Opportunities for educational advancement.**

In terms of enrollment in baccalaureate and higher degree nursing programs, the annual AACN surveys indicate an increase in graduate nursing programs that advance the education level of nurses for teaching, leadership, specialty, and primary care roles. The 2010 Survey, released in early 2011, found that for the same schools surveyed in both 2009 and 2010, there was a generic BSN enrollment increase of 5.7% or 8,625 students. The percentage increases differed by region of the country: North Atlantic (3.4%), Midwest (5.5%), South (5.6%), and West (10.4%). Generic graduation rates in generic baccalaureate programs increased by 6.7% (3,165) but 54,686 qualified applications were not accepted due to insufficient faculty and insufficient clinical sites. Registered Nurse to Bachelor of Science in Nursing (RN to BSN) enrollment increased by 21.6% (13,468) and graduations by 13.4%, 2,602 students. Master’s enrollment increased by 10.8% (8,331 students) and graduations...
increased by 12.7%, 2,403 students. Doctoral (research) enrollment increased by 10.4% but graduation rates decreased 6% (34). The largest increase in enrollment was seen in Doctorate in Nursing (DNP) programs with an enrollment increase of 35.3% (1,824) and graduations increased by 92.6% (611). The American Association of Colleges of Nursing (AACN), in comparing enrollment data from the same schools over a five-year period, made the following conclusions: a) Master’s enrollment increased 50.8%; graduations 55.3%, and b) Doctoral (research): enrollments increased 17.4%; graduations 22% (Fang et al, 2011). This is significant growth toward the goal set out by the Institute of Medicine/Robert Wood Johnson Foundation to double the number of nurses with doctorates.

Massachusetts

The Health Resources and Services Administration (HRSA) report in 2004 predicted that Massachusetts would have a shortfall of 17,000 full-time equivalent (FTE) for RNs by 2015. In 2004, there were 102,019 registered nurses with active licenses in Massachusetts. In 2010, that number of RNs with active licenses was 113,592. (Commonwealth of Massachusetts Department of Public Health, 2011.) That represents an increase of over 10,000 nurses in six years. Data regarding full-time versus part-time employment are not available but current and predicted vacancy rates indicate that we have not yet adequately increased the number of nurses.
The primary source of supply comes from the nursing programs through enrollments and graduation rates, and then successful performance on the National Council Licensure Examination (NCLEX).

There are forty-eight prelicensure RN programs in Massachusetts: 1 Diploma, 22 Associate Degree in Nursing (ADN); 18 Bachelor of Science Degree in Nursing (BSN); and 7 RN Graduate entry programs (Commonwealth of Massachusetts Department of Public Health, 2010c).

The Board of Registration in Nursing collects data annually on applications, admissions, enrollment, and graduation from these board-approved nursing education programs in the state.

**Program admissions, enrollment, and graduation rates.**

The 2009 the Interest in Nursing Survey administered by the Board of Registration in Nursing identified the number of applications to each program, the number of qualifies applicants reviewed, accepted, registered, and enrolled. Questions were also included qualified applicant who were not admitted to classes in Fall 2009. Sixty-seven nurse administrators responded (94%) representing 44 programs (1 Diploma, 19 ADN, and 24 BSN/RN Graduate). The following table compares 2005 and 2009 in regards to applications. Please note that 15 additional programs responded to the survey in 2009 as compared to 2005.
Table VIII: Comparison of Applications to Massachusetts RN Nursing Programs 2005-2009

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2009</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Applications</td>
<td>13,669</td>
<td>22,563</td>
<td>165%</td>
</tr>
<tr>
<td>Number of Qualified Applicants</td>
<td>4,206</td>
<td>6,680</td>
<td>159%</td>
</tr>
<tr>
<td>Number Accepted that Enrolled</td>
<td>2,489</td>
<td>3,597</td>
<td>145%</td>
</tr>
</tbody>
</table>

(Commonwealth of Massachusetts Department of Public Health, 2010b)

In 2009, the respondents indicated that they were unable to accept 1,867 qualified applicants. In 2008 that number was 3,204. In 2009, the Massachusetts Hospital Association (MHA) reported that the Board of Registration in Nursing data for 2007 demonstrated a 5% increase in nursing program enrollments while there was a 14% vacancy rate among nursing faculty, and schools turned away 3,475 qualified students in 2007 (MHA, 2009, p. 1). These figures show a steady decrease in the number of qualified applicants being denied acceptance. In a 2009 survey, the reasons given for not accepting qualified applicants were: lack of space, clinical placements, program at capacity, and shortage of faculty (Commonwealth of Massachusetts Department of Public Health, 2010b).

The American Association of Colleges of Nursing (AACN) 2009 - 2010 annual survey reported that U.S. schools turned away 54,991 qualified applicants to baccalaureate and higher degree programs due to
insufficient numbers of faculty, clinical sites, classroom space, and clinical
preceptors, as well as budget constraints. Since the 2002 academic year,
the enrollment in Massachusetts's baccalaureate and higher degree
nursing programs has increased but also the number of qualified
applicants turned away has increased.

Table IX: Enrollment in and Denied Qualified Applicants to
Massachusetts's Baccalaureate and Higher Degree Nursing Programs
2002 - 2009

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment</td>
<td>4512</td>
<td>5434</td>
<td>6441</td>
<td>5809</td>
<td>7186</td>
<td>7918</td>
<td>8499</td>
<td>10,428</td>
</tr>
<tr>
<td>Qualified, Denied</td>
<td>203</td>
<td>680</td>
<td>833</td>
<td>1127</td>
<td>1434</td>
<td>2143</td>
<td>1782</td>
<td>1928</td>
</tr>
</tbody>
</table>

(AACN, 2010c)

**National Council Licensure Examination (NCLEX)**

**passing rates.**

Once an applicant is accepted he or she must enroll in courses, graduate,
and pass the National Council Licensure Examination (NCLEX) before
receiving an RN license to practice in the state. Looking at the changes
over a 5-year period shows that there has been progress. The following
table shows the comparison between 2005 and 2009 for all three types of
prelicensure nursing programs for admissions, enrollment, and graduation:
Table X: Comparison of Admissions, Enrollment, and Graduation Rates by Type of Prelicensure Nursing Program 2005 - 2009

<table>
<thead>
<tr>
<th>Type Program</th>
<th>2005</th>
<th>2009</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSOCIATE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admissions</td>
<td>2074</td>
<td>2033</td>
<td>-2%</td>
</tr>
<tr>
<td>Enrollment</td>
<td>3837</td>
<td>4144</td>
<td>8%</td>
</tr>
<tr>
<td>Graduation</td>
<td>1290</td>
<td>1496</td>
<td>16%</td>
</tr>
<tr>
<td>Type Program</td>
<td>2005</td>
<td>2009</td>
<td>Change</td>
</tr>
<tr>
<td>BACCALAUREATE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admissions</td>
<td>1570</td>
<td>1962</td>
<td>25%</td>
</tr>
<tr>
<td>Enrollment</td>
<td>4771</td>
<td>6177</td>
<td>30%</td>
</tr>
<tr>
<td>Graduation</td>
<td>815</td>
<td>1377</td>
<td>69%</td>
</tr>
<tr>
<td>DIPLOMA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admissions</td>
<td>153</td>
<td>124</td>
<td>-19%</td>
</tr>
<tr>
<td>Enrollment</td>
<td>294</td>
<td>305</td>
<td>4%</td>
</tr>
<tr>
<td>Graduation</td>
<td>54</td>
<td>74</td>
<td>73%</td>
</tr>
<tr>
<td>ALL RN Programs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admissions</td>
<td>3797</td>
<td>4119</td>
<td>8.5%</td>
</tr>
<tr>
<td>Enrollment</td>
<td>8902</td>
<td>10626</td>
<td>19%</td>
</tr>
<tr>
<td>Graduation</td>
<td>2159</td>
<td>2947</td>
<td>36.5%</td>
</tr>
</tbody>
</table>

(Commonwealth of Massachusetts Department of Public Health, 2010d)

Students graduating from the board-approved nursing programs are eligible to take the National Council Licensure Examination (NCLEX). The national pass rate for 2009 was 88.42% and the state rate was 89.81% (Commonwealth of Massachusetts Department of Public Health, 2010a). The following table compares the number of candidates and pass rates for the 2010 NCLEX exam by type of nursing program in the entire country.
Table XI: Number of U. S. Candidates and Pass Rates for 2010 by Type of Nursing Program

<table>
<thead>
<tr>
<th>Type of Program</th>
<th>Number of Candidates</th>
<th>Percentage of Candidates</th>
<th>Pass Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>3,753</td>
<td>2.66%</td>
<td>89.66%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>81,618</td>
<td>57.9%</td>
<td>86.46%</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>55,414</td>
<td>39.3%</td>
<td>88.69%</td>
</tr>
<tr>
<td>All first-time candidates</td>
<td>140,889</td>
<td>100%</td>
<td>87.41%</td>
</tr>
</tbody>
</table>

(National Council of State Boards of Nursing, 2011)

The table above indicates that the national RN candidate pool for 2010 was 57.9% from associate degree programs and 39.3% of the candidates were from baccalaureate nursing programs. In Massachusetts, the percentage of graduates from diploma, ADN, and BSN programs who have been candidates for licensure by NCLEX examination is shown in Table XII. The percentages shown on Tables XII and XIII were calculated from information from the NCSBN for first-time Massachusetts candidates for the NCLEX examinations by type of program.
Table XII: Percentage of Graduates from Massachusetts RN Nursing Programs by Type of Program for 2007 - 2010

<table>
<thead>
<tr>
<th>Type Program</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>2.3%</td>
<td>2.4%</td>
<td>2.27%</td>
<td>1.98%</td>
</tr>
<tr>
<td>ADN</td>
<td>50.97%</td>
<td>48.18%</td>
<td>46.94%</td>
<td>44.62%</td>
</tr>
<tr>
<td>BSN</td>
<td>46.66%</td>
<td>49.36%</td>
<td>50.78%</td>
<td>53.39%</td>
</tr>
</tbody>
</table>

The percentage of graduates from each type prelicensure nursing programs in Massachusetts has been consistently equal. However, beginning in 2008, there were more graduates from baccalaureate than associate nursing programs in the state. Table XIII compares the NCLEX pass rates for candidates from the three types of nursing programs.

Table XIII: Percentage of Pass Rate for Candidates from Massachusetts on NCLEX Examination by Type of Program for 2007 - 2010

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>95.83%</td>
<td>94.94%</td>
<td>93.24%</td>
<td>100%</td>
</tr>
<tr>
<td>ADN</td>
<td>84.09%</td>
<td>87.12%</td>
<td>88.02%</td>
<td>89.17%</td>
</tr>
<tr>
<td>BSN</td>
<td>87.90%</td>
<td>88.43%</td>
<td>91.40%</td>
<td>87.57%</td>
</tr>
</tbody>
</table>
Opportunities for educational advancement.

In order to provide nurses for new roles in primary care, leadership, and education, the opportunities for baccalaureate and higher degree must be examined. In 2004, only 43% of nurses held baccalaureate or higher degrees (AACN, 2004, p. 3). "In 2004, nearly 21 percent (20.9 percent) of RNs initially educated in associate degree programs received baccalaureate degrees and higher. This estimate represents an increase from 2000, when 15.5% of RNs initially educated in associate degree programs received baccalaureate degrees or higher " (U. S. Department of Health and Human Services, 2006, p. 2).

In 2009, in Massachusetts there were 18 Masters of Science in Nursing (MSN) programs with 1,229 full-time students and 1,071 part-time students. In addition the eight doctoral (research) programs had an enrollment of 101 full-time and 74 part-time students. The eight DNP programs reported a full-time enrollment of 87 and part-time enrollment of 205 students. In comparing finding from the same nursing programs in 2009 and 2010, AACN reported that generic baccalaureate nursing programs increased enrollment by 4.4%. Additionally, RN to BSN programs had a 20% increase, while Master’s and Doctoral (research) programs experienced 17.1% and 14.4 % increases. (Fang et al, 2011, pp. 31-33)
Recommendations/Strategies
The goal is to increase RN program capacity while maintaining quality education. The reasons given for limited program capacity by nursing school administrators (lack of space, insufficient clinical facilities, and overall budget cuts) will be addressed in this section. The major factor for limited program capacity, the faculty shortage, will be dealt with in the next chapter, Chapter III. In addition, creative ways to a) recruit and retain students, b) use technology, and c) form academic/practice partnerships should be addressed as possible strategies to enable programs to better prepare the nurse of the future.

Recruiting and retaining students.
Allan and Aldebron (2008), in identifying exemplar strategies to address the nurse educator shortage, listed four organizations that had provided information through the mass media to expand capacity through public awareness. The most notable was the Johnson & Johnson Campaign for Nursing’s Future launched in 2002, as a $50M initiative through national advertisements, educational resources, grants, faculty fellowships, and scholarships. In 2007 the campaign was expanded to include faculty recruitment/retention. The other organizations identified in the Allan & Aldebron (2008) study were: a) Nurses for a Healthier Tomorrow (NHT), a coalition of 43 nursing and healthcare organizations, providing resources to prospective nursing students through a website and a national ad campaign to attract people to nursing as a career and retain those in
profession, b) non-profit Center for Nursing Advocacy that focused on increasing public understanding and perceptions of nurses and mobilizing grassroots efforts to stop negative portrayal of nurses in film and TV, and c) AACN Faculty Career Link, an internet advocacy resource to provide information for prospective nursing faculty. (pp. 288-289)

Larson, McGill, and Palmer (2002) completed a study to describe the effects of motivating factors characteristics of nursing on students selecting nursing as a career. Students \(n=495\) completed a survey during their first semester of their nursing program. The motivating factors were a) past experiences with a loved one or self being ill and/or hospitalized, b) past health care work experience, and c) having a family member or friend who was a nurse. The students indicated that characteristics of a) concern and caring for others, b) job security, and variety of work settings were the most influential in their career decision. This evidence should be used to develop recruitment strategies that have a high probability of success. The study showed that high school guidance/career counselors had little influence on their career choice, and television media had the least influence. The authors recommended mentoring or shadowing programs, direct interactions with practicing nurses, and exposure to health care settings with middle and high school students. (pp. 168-173) One such program in Northern Kentucky, through a partnership including a university, local high school, hospital, and medical practice, offered eight Career Days that included hands-on skills
labs and experience with simulation manikins. Ninety-five percent of the 125 high school students that attended rated the Career Days as helpful and 94% indicated that they might want to be a nurse. The partnership also organized a four-day summer camp on the university campus and surveyed the 45 students following their experiences in nursing. Sixty-two percent said that they would definitely want to be a nurse. (Gormley et al, 2009, pp. 7-8)

**Education experience.**

Benner, Surphen, Leonard, & Day (2010) reported on the findings of the Carnegie National Nursing Education Study and made recommendations that apply specifically to student recruitment and school experience, including the following:

a) Recruit more diverse student body,

b) Come to agreement on a set of clinically relevant prerequisites, including liberal education courses,

c) Strengthen articulation agreements between ADN and higher degree nursing programs and creating more ADN - to - MSN programs

d) Provide more financial aid for all students at all levels,

e) Introduce students to nursing early in education to immerse them in the discipline as soon as possible
f) Broaden clinical by using more practice settings

g) Preserve post conferences and small patient-care assignments,

h) Develop pedagogies that focus on patient’s experiences,

i) Vary the means of assessing student performance,

j) Enhance student competency in areas of inquiry and research,

k) Redesign ethics to focus on everyday ethical comportment and decisions, not just dilemmas, and

l) Prepare nurses to be influential leaders and innovators in the political and public arenas (pp. 217-222).

The role of the faculty in the education process was examined and the Carnegie study made recommendations, including

a) Support faculty development

b) Include teacher education courses in all master’s and doctoral programs

c) Embed advanced clinical practice preparation in MSN programs with a major in nursing education

d) Support faculty to create safe climate for students to use reflection

e) Support faculty to learn how to coach, use narrative pedagogies
f) Provide faculty with resources to stay clinically current, and

g) Improve work environment for staff nurses and support them in learning to teach (pp. 222-228; AACN, 2010b, p. 1)

In 2010, The *American Journal of Nursing* (AJN) began a nine-part series of articles from the Arizona State University College of Nursing and Health Innovations Center for the Advancement of Evidence-based Practice. Evidence-based practice (EBP) integrates the evidence from studies and patient care data with clinician expertise and patient preferences and values in order to achieve the highest quality care and best patient outcomes (Melnyk, Fineout-Overholt, Stillwell, & Williamson, 2010, p. 49.) The Institute of Medicine has set a goal that 90% of all health care decisions in the U. S. will be evidence-based, by 2020. (Olson, Alsner, & McGinnis, 2007, p. 353). The benefits for both students and practicing nurses, besides high quality patient care, are greater job satisfaction leading to less turnover (Melnyk et al, 2010, p. 50).

**Non-traditional days/hours.**

Data that indicate that the individuals entering nursing programs are older than in the past and many have families, has prompted schools to utilize more non-traditional hours for classroom and clinical experiences. In Massachusetts, eleven of the 22 associate degree nursing programs, two of the 18 baccalaureate programs, and one of the 7 RN graduate entry programs offered non-daytime formats (Commonwealth of Massachusetts,
Department of Public Health, 2010c). The use of evening, weekend, and summer hours for classes and clinical also addressing the classroom space and clinical placement factors limiting program expansion. One innovative strategy at the University of Nevada, Las Vegas to increase program capacity was the utilization of the summer months as a third semester and admitting students three times a year. The plan did not require additional space or additional faculty. The faculty who voluntarily agreed were paid on a 12-month rather than a 9-month contract and received 1/3 more pay annually. Faculty who otherwise would be enticed to take clinical positions because of the higher salaries stayed in academia. This model allowed the university to double its enrollment and graduations. (Yucha & Witt, 2009, pp. 154-155)

**Use of technology.**

In an attempt to increase program capacity by expanding the Nursing Centralized Application Service (NursingCAS), a national service for RN programs, to include all levels of nursing programs, from diploma through doctoral nursing programs. Through NursingCAS, nursing programs can post unfilled seats in programs and prospective students can apply online. The American Association of Colleges of Nursing (AACN) announced in 2010, that almost 55,000 vacant seats were identified in baccalaureate and graduate programs (AACN, 2010d, p. 4)
Another innovative way that technology has been introduced to nursing education is through the use of personal digital assistants (PDAs) by nursing students. A study was completed in 2010 with students in undergraduate and graduate nursing courses \((n=48)\) and the data indicated that 79% used the PDAs at least weekly and almost 50% used them daily. Ninety-six percent used the electronic devices in the clinical environment and 67% used it in class. The drug guide was used by 98% of the students. The students found the PDA to be easy to use but the leading barrier was technical problems that were experienced by 23% of the students. The students (71%) indicated that the use of the PDAs improved their efficiency. One hundred percent indicated that they found the PDAs to be an effective educational tool. (George, Davidson, Serapiglia, Barla, & Thotakura, 2010, pp. 373-375)

The use of patient simulators offers an opportunity for students to learn decision-making, use critical thinking, and develop team building skills in a safe, non-threatening environment. Students are able to develop interactive critical thinking. In 2005, Medley and Horne, reported that simulation was being used extensively in anesthesia education, military training, and in advanced practice graduate nursing education. The area in which simulation was least used was in undergraduate nursing programs (p.32). Blum, Borgund, and Parcells (2010) found that the use of simulation in a laboratory setting increased the undergraduate students' self-confidence and competency. Interestingly, there was no
difference in either the self confidence and competency scores between the simulation group and those students in a traditional (non-simulation) laboratory experience (p. 10). The barriers to utilization of simulation is the upfront expense, time to train faculty, and most importantly the need for a "champion for simulation technology use, a faculty member who believes in the technology, is informed and excited about its use, and has a contagious effect on other faculty members" (Medley & Horne, 2005, p. 34). Between 2005 and 2010, the Massachusetts Nursing Initiative, awarded, on a competitive basis, 26 high-fidelity simulation manikins to academic/practice partnerships across the state. Nine partnerships also received funding for scenario building. The scenarios, based on the Nurse of the Future Core Competencies, include critical care, home care, and care of the newborn. The scenarios have been placed on the Department of Higher Education website for use by all nursing faculty in Massachusetts (Lewis, 2010, p. 56).

B. Allan and Aldebron (2008) identified the exemplar strategies of use of technology to expand faculty and educational resources. The two programs were:

a) Georgia Perimeter College's hybrid nursing program that combines classroom and online learning.

b) Simulation and distance learning offered by the Council on Collegiate Education for Nursing of Southern Regional Education Board (SREB)
nursing programs in 16 states to expand faculty resources by offering online teacher education courses. online courses, test prep, info on hiring standards, and job postings. (p. 291)

Clinical placements.

The lack of clinical placements has been assessed to be a major factor limiting program capacity. In Massachusetts, beginning in 2005, through a partnership between the Massachusetts Department of Higher Education and the Massachusetts Center for Nursing, developed a web-based centralized nursing clinical placement (CCP) system. In 2010, 90 health care organizations and 76 nursing education programs participate in the system. The data showed that the system had handled more than 10,000 placements and increased the availability of open placements by 20%. (Lewis, 2010, p. 55) In 2009, the online orientation program was added to the CCP to deliver comprehensive and consistent orientation material to students in order to decrease the time spent in repetitive face-to-face sessions. During the first year of operation, over 17,000 nursing students completed the online orientation (Massachusetts Nursing Initiative Advisory Committee, personal communication, 2011, January 26). By 2011, There were 95 nursing programs and 103 health care organizations participating, with 24, 753 student placements. Between May 2010 and 2011, total placement listings increased by 11 percent and open placement listings increased by 35 percent. (Marie Tobin, personal communication, 2011, June 17)
Collaboration between education and service/practice has been recommended by both the National League for Nursing (NLN) and the American Association of Colleges of Nursing (AACN) as a means to expand the capacity of nursing programs. These partnerships acknowledge that both academia and nursing practice will work together to ensure the preparation of the nursing workforce of the future. Joint appointments for clinical educators has been one strategy. (Mathews, 2003, p. 252). Allan & Aldebron (2008) identified “best-practice” strategies for increasing capacity of nursing programs through the use of non-traditional faculty. The exemplar program was the Dedicated Education Unit (DEU) pioneered by the University of Portland. DEUs are partnerships that increase the clinical placements of students by using master’s prepared staff or health system-based nurses to supervise pre-licensure students on a hospital unit. Typically, two students are assigned to accompany a single staff nurse during performance of patient care over the course of six weeks. The effect is a highly-focused, intensive, and closely supervised clinical experience. A 2006 evaluation estimated that the DEUs saved as many as 15 clinical faculty positions and required 19 fewer training sites (p. 292).

A pilot phase evaluation study of DEUs, supported by the Robert Wood Johnson Foundation, was conducted at the University of Massachusetts Boston in 2009. Following the first semester of implementation, sixteen students enrolled in the junior level adult health course who had
participants on the first DEU were interviewed. The data indicated that the DEU clinical education model facilitated the learning of quality and safety competencies (Mulready-Shick, Kafel, Banister, & Mylott, 2010, p. 719).

**Innovative educational models.**

An innovative strategy to increase student capacity is to quickly prepare competent nurses through accelerated programs for students who already have a bachelor's degree in another field. The BSN programs generally run 12 - 18 months. Some programs for second-degree students results in a master's degree in nursing and take three years to complete. In 1990, 31 accelerated BSN programs and 12 generic master's in nursing programs were offered around the country. In 2010, the numbers had grown to 30 accelerated BSN and 65 generic master's programs. (AACN, 2010a, p. 1) AACN reported that “Graduates of accelerated programs are prized by nurse employers who value the many layers of skill and education these graduates bring to the workplace. Employers report that these graduate are more mature, possess strong clinical skills, and are quick studies on the job” (p. 1).

**National oversight.**

Benner et al (2010), following the Carnegie National Nurses Education Study, made some recommendations for radical changes to the current educational system. In addition to the recommendation that the
baccalaureate degree be the minimum requirement for RN licensure (pp. 216-217), the two other controversial strategies were:

a) Require performance assessments for licensure, and

b) Cooperate on accreditation.

The first recommendation states that there should be a three-tiered clinical competency evaluation. The first assessment during the beginning of a student's senior year, followed by a second at the time of NCEX examination, and a third after a year of post-licensure residency. The second Carnegie national oversight recommendation is for the two separate accrediting bodies, the National League for Nursing Accrediting Commission (NLNAC) and the Commission on Collegiate Nursing Education (CCNE) to collaborate on standards. (pp. 228-229)

**Funding.**

**Federal Sources.**

In 2010, Massachusetts received $8,831,492.00 in awards from the American Recovery Reinvestment Act for training programs in primary care and oral health, and equipment to enhance training for health professionals. In addition a) loan repayment for health professionals including nurse practitioners and mid-wives, b) health career opportunity programs, and c) patient navigation outreach and chronic disease prevention programs were funded. (Monegain, 2011)
The American Association of Colleges of Nursing (AACN) has submitted the following request for Title VIII Nursing Workforce Development Programs, the National Institute of Nursing Research, Nurse-Managed Health Clinics, and the Capacity for Nursing Students and Faculty Program.

a) Between 2006 and 2009, Title VIII supported over 347,000 nurses and nursing students as well as numerous nursing institutions and healthcare facilities. The funds provides grants to nursing programs, as well as loans, scholarships, traineeships, and programmatic grants. The American Association of Colleges of Nursing (AACN) request for FY 2012 is $313.075 million for Nursing Workforce Development Program authorized under Title VIII of the Public Health Service Act.

b) The National Institute of Nursing Research (NINR) is one of 27 Institutes and Centers at the National Institute of Health (NIH). The Institute funds research that establishes the research basis for health promotion, disease prevention, and high quality nursing care to individuals, families, and populations. The request from AACN is $163 million for the National Institute of Nursing Research in FY 2012.

c) The Affordable Care Act amended Sec. 330 of the Public Health Service Act, allowing Nurse-Managed Health Clinics (NMHCs) to apply for grant funding to help cover the costs of operating these community-based
settings. The clinics provide primary care to vulnerable and underserved populations, in addition to serving as clinical placements for nursing students. The request from AACN is $20 million for the NMHCs authorized under Title III of the Public Health Service Act.

d) The Capacity for Nursing Students and Faculty Program, a section of the Higher Education Opportunity Act of 2008, offers capitation grants to nursing schools allowing them to increase enrollment. The American Association of Colleges of Nursing (AACN) is requesting $25 million. (AACN, 2011, pp. 1-5)

In the final funding measure for fiscal year 2011 appropriations, the Department of Health and Human services received $157.7 billion, approximately 3.36% below the FY 2010 enacted level. The Health Resources Administration (HRSA) will be funded at $6.274 billion. The $164 million cut proposed for the Bureau of Health Professionals (BHPPr) within HRSA, which funds programs such as Title VIII Nursing Workforce Development and Title VII Health Professionals programs, are still possible through the end of the year 2011. (Suzanne Begeny, AACN, personal communication, 2011, April 21)

The HRSA operating plan released May 16, 2011 indicated a Title VII funding at $242.387 for fiscal year 2011 which is $1.485 million less than the previous year or a 0.61% decrease. The specific Title VIII program funding for fiscal year 2011 was:
a) Advance for Nursing Education: $64.046 million (-$255,000)

b) Nurse Loan Repayment and Scholarship Program: $93.292 million (-$572,000)

c) Nursing Workforce Diversity: $16.009 million (-$64,000)

d) Nurse Education, Practice and Retention: $39.653 million (-$158,000)

e) Nurse Faculty Loan Program: $24.848 million (-$99,000), and

f) Comprehensive Geriatric Education: $4.539 million (-$18,000)

(Suzanne Begeny, AACN, personal communication, 2011, May 16)

**State sources.**

Allan and Aldebron (2008) identified the exemplar public sector, state funding to address the nursing shortage that in turn addresses the limited capacity of nursing programs. The most notable program, Maryland's Nurse Support II Program in 2006, was funded by legislative action to receive 0.1% of cost of hospital services. The programs has provided scholarships, stipends for graduate students who agree to teach, and competitive grants that encourages partnerships. Other programs identified as outstanding were a) Rhode Island Student Loan Authority that offers 0% interest and partial forgiveness on Stafford loans for borrowers who teach at accredited programs in state, b) Kansas's Board of Regents that funds new faculty positions and supplements salaries for
existing faculty in RN programs at 17 public colleges, c) Florida SUCCEED program that offered 17 nursing grants and educated nearly 200 additional faculty, and d) the Pennsylvania workforce development center for providing the funds to support the "loaned faculty" and "clinical education" programs enabling clinical agency to provide facilities and staff to nursing education. (Allan & Aldebron, 2008, pp. 293-295)

**Philanthropy.**

Alan & Aldebron (2008) identified the Robert Wood Johnson Foundation as the exemplar philanthropic organization for its grants, proposals of policy solutions, research, advocacy efforts with other non-profits, and it efforts to promote collaboration among all stakeholders. Two other organizations were commended for their efforts to promote nursing: a) The Gordon and Betty Moore Foundation in California, b) Jonas Family Fund in New York City, c) St. Davis Foundation in Austin, Texas, d) Northwest Health Foundation in Oregon, and e) California Endowment.

A list of strategies found in the literature for increasing the capacity of nursing programs and maintaining quality can be found in the Appendix: State-by-State Strategies.
Chapter II: Nursing Program Capacity

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Enhancing quality and safety competency development at the unit level: An initial evaluation of student learning and clinical teaching on dedicated education units. *Journal of Nursing Education, 48*(12), 716-719.


Chapter III. Nurse Educator Shortage

National Perspective

Nurse educators are valuable commodities in the U.S. health care system. The Jonas Center for Nursing Excellence (2010) calculated each nursing faculty member's impact and stated "Each nurse educator position left unfilled could impact healthcare for 3.6 million patients." (p. 1). The researchers took the number of nurses that were taught over a nurse educator's 25-year career and then calculated the number of patients each registered nurse (RN) cared for over a 30-year career. A nurse educator would teach an average of 7,500 students and each one of those students, as RNs, would care for 14,400 patients. In 2007 Carnegie Foundation National Study of Nurse Educators predicted that, between 2008 and 2015, half of the current nursing faculty are expected to retire. In 2008, there were approximately 32,000 nurse educators. Of that number, 16,000 are expected to retire by 2015 and 27,000 by 2023. (Buerhaus, Staiger, & Auerbach, 2009, p. 139)

These numbers assume that educators will remain in their positions until retirement and not leave to take clinical positions at higher salaries. The National League for Nursing (NLN) stated in 2010 that based on data from the NLN/Carnegie Foundation National Survey of Nurse Educators that the reasons for the continuing nurse educator challenge were "an aging and overworked faculty who earn less than nurses entering clinical practice, and less than holders of advanced degrees in other academic
disciplines” (NLN, 2010, Nurse Educator Shortage Work Sheet, p. 2). The nurse educator shortage is not just about the nurse educator workforce and program capacity, but also about the threat of inadequate health care for millions of people. The areas that need to be examined in order to determine appropriate strategies for recruiting and retaining a highly competent supply of nurse educators are current vacancies, reasons for insufficient numbers of faculty, effects of the economy on supply, aging of faculty and predicted retirements, salaries, workload, job satisfaction, and the quest for highly qualified faculty.

Overview of workforce.

The National League for Nursing (NLN) collects data from all nursing programs in the country and reported in 2010 that only a third of nursing faculty have a doctorate and 67% have a master’s degree as their highest degree. In post-secondary education, 60% of faculty have the doctorate as their highest degree. Less than 1/3 of all nurse educators had tenure, while 75% of nursing faculty at the professor rank and 65% of nursing faculty at the associate professor rank hold tenure. Clinical faculty have the least percentage of tenure: 31% for clinical professors and 6% for clinical assistant professors. The National League for Nursing (NLN) and Carnegie Foundation Preparation for the Professions Program estimated that there were 32,000 nurse educators in the U. S. during 2005 - 2006. Most nurse educators (90%) work full-time, while 57% of all post-secondary faculty and 70% of health science faculty nationally work full-
time. More than 40% of nurse educators held more than one position in 2005 - 2006, with 23% serving as chairpersons of department or divisions of nursing. Males comprised 60% of all post-secondary faculty positions as compared to 4% of nursing faculty. (NLN, 2010a)

**Vacancies.**

Between 2001 and 2006, the vacancy rate (unfilled, budgeted positions) nationally for baccalaureate and higher degree programs increased 32% to 7.9% in 2006. The vacancy rate in ADN programs rose 10% in the same time period to 5.6%. The National League for Nursing (NLN) estimated that 1,390 full-time faculty were needed to fill the budgeted slots in 2006. The programs hired part-time faculty to compensate for the inadequate supply of full-time nurse educators. More than 58% of baccalaureate and higher degree programs and 47.5% of ADN programs reported hiring part-time faculty to compensate for unfilled, budgeted positions in 2006. "While the use of part-time faculty allows for greater flexibility, often part-time faculty are not an integral part of the design, implementation, and evaluation of the overall program" (NLN, 2010a, p. 2).

Tracy and Fang (2010) reported on the survey on vacant faculty positions for academic year 2010 - 2011 completed by 556 schools of nursing nationally. The data indicated that there were 880 faculty vacancies for 2010 - 2011 out of 12,783 budgeted positions; a 6.9% vacancy rate. Within schools reporting vacancies, the vacancy rate was 9.7%. This
percentage of available positions to unfilled positions varied by region of the country: West 11.7%, South 9.5%; Mid-West 9.2%, and East 9.2%. An additional 257 unbudgeted positions were needed to accommodate student demand in 112 schools. The leading reasons for unbudgeted positions were: a) insufficient funds, b) admin unwilling to commit, c) inability to recruit because of competition with other marketplaces, and d) qualified applicants unavailable for geographic area. Only 25.4% of the schools surveyed indicated that they did not have vacancies nor a need for additional faculty. (Tracy & Fang, 2010)

The survey on vacant faculty positions for academic year 2010 - 2011 further identified specific characteristics of the vacant faculty positions. Most positions were tenure track (56.2%) and ranged from instructor to professor level of appointment. Table XIV shows the vacant positions by level of appointment. An earned doctorate was required in 55.5% of the vacancies as compared to 37.1% with a minimum requirement of an MSN, doctorate preferred.
Table XIV: Incoming Level of Appointment for Vacant Faculty Positions

<table>
<thead>
<tr>
<th>2010 - 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor or Associate Professor</td>
</tr>
<tr>
<td>2.9%</td>
</tr>
<tr>
<td>31.3%</td>
</tr>
<tr>
<td>6.7%</td>
</tr>
</tbody>
</table>

(Tracy & Fang, 2010, p. 8)

The critical issues faced by schools as identified by the schools of nursing (n=546) related to faculty recruitment and retention were:

a) limited pool of doctorate-prepared faculty (30.4%),

b) noncompetitive salaries (30.2%),

c) finding faculty with right specialty mix (18.5%),

d) finding faculty willing/able to teach clinical courses (4.7%),

e) finding faculty willing/able to teach research (2.9%), and

f) other (lack of required/preferred degrees, State budget constraints/hiring freezes, limited teaching experience among applicants, new faculty do not want to teach clinical, and competing institutions are offering higher salaries and recruiting from other programs) (Tracy & Fang, 2010, pp. 13-14).
**Influence of economy.**

The American Association of Colleges of Nursing, in the annual faculty vacancy survey for 2008-2009 (n=554 schools), identified that changes in faculty retirement patterns and hiring freezes at academic institutions were most frequent reasons for the decrease in vacancy rates from 7.6% in 2008 to 6.6% in 2009. It is expected that the shortage will re-emerge when the economy rallies and faculty retirement patterns resume.

Faculty, in order to maintain household income, are choosing to delay retirement, and many schools are facing budget cuts and hiring freezes. Over the next 15 years, workforce analysts project that the nation's nursing shortage will grow twice as large as any shortage experienced in this country since the mid-1960s, and this will no doubt impact the supply of nurse faculty" (AACN, 2009).

**Aging faculty and retirements.**

In 2006 48% of nurse educator were over the age of fifty-five as compared to 35% of U. S. academics and 29% of health science faculty (NLN, 2010a). In 2009, 76% of full-time nursing faculty were over 45 years old (NLN, 2010b). The percentage of nurse educators between age 30 to 45 and age 46 to 60 dropped 3% between 2006 and 2009, percentage of those over age 60 increased from 9 to 16% (NLN, 2010b). Based on age alone, the predictions in 2006 were that 21% of the nurse educators would retire by 2011 and 50% by 2016. Even with the effects of
the economy, those predictions may well come true. The following tables illustrate the progression of average age for nurse educators.

Table XV: Average Age of full-time Nurse Educators 2000 - 2005

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral Preparation</td>
<td>52.8</td>
<td>53.3</td>
<td>53.6</td>
<td>54.0</td>
<td>54.3</td>
<td>54.7</td>
</tr>
<tr>
<td>Master’s Preparation</td>
<td>48.3</td>
<td>48.5</td>
<td>48.8</td>
<td>49.0</td>
<td>49.2</td>
<td>49.1</td>
</tr>
</tbody>
</table>

(Berlin & Sechrist, 2008, p. 465)

Table XVI: Percentage of nursing faculty under and over age 50

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 50</td>
<td>31.7</td>
<td>29.7</td>
<td>29.3</td>
<td>25.1</td>
<td>22.8</td>
<td>20.2</td>
</tr>
<tr>
<td>Over 50</td>
<td>68.3</td>
<td>70.3</td>
<td>70.7</td>
<td>74.9</td>
<td>77.2</td>
<td>79.8</td>
</tr>
</tbody>
</table>

(Berlin & Sechrist, 2008, p. 467)
Table XVII: Percentage of Doctorate-Prepared Nurse Educators

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 50</td>
<td>57.2</td>
<td>54.6</td>
<td>53.1</td>
<td>50.9</td>
<td>46.8</td>
<td>46.2</td>
</tr>
<tr>
<td>Over 50</td>
<td>42.8</td>
<td>45.4</td>
<td>46.9</td>
<td>49.1</td>
<td>53.2</td>
<td>53.8</td>
</tr>
</tbody>
</table>

(Berlin & Sechrist, 2008, p. 467)

In 2010, AACN reported that the average age of doctorate-prepared nurse educators holding ranks of professor, associate professor, and assistant professor were 60.1, 56.9, and 52.1 years, respectively. For faculty with master’s degrees the average ages for professors, associate professors, and assistant professors were 56.9, 55.7, and 50.6 years, in that order. (Fang, Tracy, & Bednash, 2011, p. 1) The average ages of nurse educator has been used to predict retirements but there is no way to know the exact retirement age of each person. In 2006, Kowalski, Dalley, and Weigand surveyed one hundred and twenty-nine nurse educators in 61 U.S. schools of nursing to determine expected and optimal age of retirement. The average anticipated age of retirement was 64.4 years, while the optimal age of retirement was 62.4. The authors concluded that nurse educators, as a group, do not plan to work beyond age 65. Financial status/preparedness was the leading factor in determining a nurse educator’s retirement. Other factors influencing timing of retirement were then workplace issues, personal and family health, attitudes about
retirement. It was estimated in 2002 that 200 - 300 nurse educators would retire each year between 2003 - 2012 (Kowalski, Dalley, & Weigland, 2006, p. 350). If nurse educators are choosing not to retire because of the U. S. economy, this will create a larger percentage of faculty leaving in a shorter period of time in the next few years as the economy improves.

Salaries.

The average salary in 2008 for a nurse educator regardless of educational preparation was $65,844. In 2009, the median salary for an RN was $63,750 (Larson, 2010). “Nursing students with two or three years experience often earn more than the instructors that taught them, even though the nursing professors have to pursue costly master's or doctoral degrees to become educators” (Carlson, 2009, p. 1).

The top salaries in the nursing profession are earned by nurses in advanced practice or high-level management positions. Typically, like nurse educators, these nurses have a minimum of a master’s degree. A graduate degree usually means higher salaries with the exception of nursing faculty (Larson, 2010, p. 1). The top RN salaries in 2008 were:

RN AND NURSE EDUCATOR SHORTAGES

Specialist: $72,856, and j) Management: first-line: $72,006. (Larson, 2010)

The average Nurse Practitioner (NP) who responded to the 2009 National Salary and Workplace Survey (n=5,908) was master's prepared, held a single NP certification; was 47 years old, had worked as NP for nine years, was employed full-time in family practice or hospital, reported to physician, did not take call, saw sixty-four patients, and wrote 67 prescriptions per week. The mean NP salary nationally in 2007 was $81,397 and $89,579 in 2009. (Rollet, 2010)

Nurse educators earn, on average less than similarly-prepared RNs and similarly ranked faculty across higher education. A nurse educator with ranks of professor, associate professor, and assistant professor earn 45%, 19%, 15% less, on average, than all faculty, in higher education, respectively. Nursing instructors earn 8% more than instructors, on average, in higher education. (NLN, 2010b) The American Association of Colleges of Nursing, most recently, collected data on salaries of instructional and administrative nursing faculty baccalaureate and higher degree nursing programs. The numbers of faculty by rank of professor, associate professor, assistant professor, instructor, and other in 2010 nationally were: 1,041 (8.5%), 2,093 (17.1%), 4,635 (37.8%), 2,734 (22.3%), and 1,757 (14.3%), respectively. (Fang, Hu, & Bednash, 2011, p. 69)
Table XVIII: Mean Salaries for All Full-Time Instructional (non-admin) Nurse Faculty by Rank and Highest Degree level 2010 - 2011. (Note: 75% of faculty are on an academic calendar)

<table>
<thead>
<tr>
<th>Rank</th>
<th>ACADEMIC</th>
<th>CALENDAR</th>
<th>n=</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFESSOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctoral</td>
<td>$92,687</td>
<td>$113,285</td>
<td>1017</td>
</tr>
<tr>
<td>nondoctoral</td>
<td>$73,929</td>
<td>$90,357</td>
<td>55</td>
</tr>
<tr>
<td>ASSOCIATE PROFESSOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctoral</td>
<td>$75,872</td>
<td>$92,732</td>
<td>1731</td>
</tr>
<tr>
<td>nondoctoral</td>
<td>$63,063</td>
<td>$77,077</td>
<td>430</td>
</tr>
<tr>
<td>ASSISTANT PROFESSOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctoral</td>
<td>$67,981</td>
<td>$83,088</td>
<td>2090</td>
</tr>
<tr>
<td>nondoctoral</td>
<td>$57,880</td>
<td>$70,743</td>
<td>2744</td>
</tr>
<tr>
<td>INSTRUCTOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctoral</td>
<td>$59,920</td>
<td>$73,236</td>
<td>123</td>
</tr>
<tr>
<td>nondoctoral</td>
<td>$54,835</td>
<td>$67,020</td>
<td>2719</td>
</tr>
</tbody>
</table>

(Fang, Hu, & Bednash, 2011, pp. 70-71)

Salaries differ for regions of the country. The following table gives the data (n=2290) for the North Atlantic Region for 2010-2011. (Fang, Hu, & Bednash, 2011, p. 69)
Table XIX: Mean Salaries for All Full-Time Instructional (non-admin) Nurse Faculty in North Atlantic Region by Rank and Highest Degree level 2010 - 2011. (Note: 75% of faculty are on academic calendar)

<table>
<thead>
<tr>
<th>Rank</th>
<th>ACADEMIC</th>
<th>CALENDAR</th>
<th>n=</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFESSOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctoral</td>
<td>$105,421</td>
<td>$128,848</td>
<td>194</td>
</tr>
<tr>
<td>nondoctoral</td>
<td>$92,274</td>
<td>$112,779</td>
<td>11</td>
</tr>
<tr>
<td>ASSOCIATE PROFESSOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctoral</td>
<td>$80,269</td>
<td>$98,106</td>
<td>419</td>
</tr>
<tr>
<td>nondoctoral</td>
<td>$72,456</td>
<td>$88,558</td>
<td>57</td>
</tr>
<tr>
<td>ASSISTANT PROFESSOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctoral</td>
<td>$70,834</td>
<td>$86,575</td>
<td>480</td>
</tr>
<tr>
<td>nondoctoral</td>
<td>$61,813</td>
<td>$75,549</td>
<td>467</td>
</tr>
<tr>
<td>INSTRUCTOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>doctoral</td>
<td>$64,881</td>
<td>$79,299</td>
<td>27</td>
</tr>
<tr>
<td>nondoctoral</td>
<td>$58,130</td>
<td>$71,048</td>
<td>399</td>
</tr>
</tbody>
</table>

( Fang, Hu, & Bednash, 2011, p. 72, p. 88)

**Job satisfaction/workload.**

The National League for Nursing Accrediting Commission (NLNAC) in its 2009 Report to Constituents reported that there are more nurse educators except in ADN programs. However, the faculty to student ratio increased. For all program types, the increase in enrollment has exceeded the increase in FTE. (NLNAC, 2009, p. 20)

The National League for Nurses/Carnegie Foundation study (2007) indicted that, based on 2005-2006 data, 2/3 of nursing faculty said that their workload exceeded anticipated levels upon employment. Veteran and novice faculty had nearly identical number of work hours. Full-time
nursing faculty in non-administrative positions averaged 56 hours/week. U. S. academic faculty, as a whole, work 45-55 hours/week. During semester breaks and vacations, they were working more than 24 hours per week without compensation. Nurse educators with administrative responsibilities were working more than 31 hours/week during breaks and vacations. Three-quarters of a nurse educator’s work during the academic year is devoted to classroom teaching, advising, and clinical supervision. The nurse educators spent time during school breaks on research and clinical practice. In addition, more than 62% of nurse educators worked on average of 7-10 hours outside of their academic institutions during the academic semesters. Forty-four percent of the nurse educators were dissatisfied with workload and more than 1 in 4 who said they were likely to leave cited desire for reduced workload as the motivating factor. (NLN, Nationwide, 2007, pp. 1-2) The workload of a nurse educator is focused on classroom and clinical student-related activities but also involves curriculum development, outcome assessment, advisement, accreditation, advancing teaching skills, recruitment, community service, and participation on community and professional boards (Allen, 2008).

In 2003, Gormley found that nurse educators feel pressure not only to educate future nurses to be safe and competent but also have many other professional responsibilities such as publishing, research, grants, community service, and maintaining own competencies (p. 174). The factors that significantly predicted job satisfaction found in studies,
published between 1976 and 1996, were: a) the perception of the leader’s role in curriculum and instruction, the dean’s or leader’s behaviors, and role conflict/role ambiguity. The least predictive of job satisfaction were related to organizational characteristics and climate, such as salary, program size, tenure, supervision, and control (pp. 177-178).

In contrast, Brady (2006) examined the factors for recruitment and retention of ADN nurse educators from a literature review and found salary, workload, and work hours to be major factors in burnout and decision to leave the faculty role (p. 191). Additionally, Lane, Esser, Holte & McCusker (2010) explored the relationship of job satisfaction and intent to stay of nurse educators in 23 ADN programs. Many nurse educators in the community college setting felt a) dissatisfied with salary and workload, b) their supervisors were inconsistent, c) their physical work environment as conducive to their job, d) professional relationships increased job satisfaction, e) a deep sense of achievement in their jobs, f) that they did not receive recognition for their accomplishments or contributions to the nursing programs, and g) that advancement to administrative positions in the college was not important. The authors concluded that support for attainment of higher education level, positive working conditions, and reasonable salaries would promote job satisfaction and intent to stay. (pp. 22-25)
A study of three hundred and sixteen nurse educators in 2008 by Garbee and Killacky found that a) organizational commitment, a sense of identification and involvement in an organization; b) a belief in and acceptance of the program’s values and goals; and c) the resultant willingness to exert effort for organization explained 19.7% of the participants’ intent to stay 1 year and 21.2% of the intent to stay 5 years. Faculty with doctoral degrees, faculty with 12-month contracts, and mentored faculty had higher organizational commitment scores. (p. 11)

In her doctoral dissertation, Ruel (2009) surveyed 243 nurse educators in 22 baccalaureate and higher degree nursing programs and identified that role conflict, role ambiguity, and work role balance impacted their job satisfaction and intent to stay (p. 83). In 2011, Gormley & Kennerly surveyed 316 doctorate-prepared nurse educators in 45 U. S. universities and examined the predictive quality of these independent variables on turnover rate: a) work role balance (research/teaching/service), b) role ambiguity, c) role conflict, d) organizational commitment, and e) organizational climate. Turnover was more likely if faculty experience a) poor working relationships with academic head and co-workers, b) unclear work expectations, and c) disagreement on relevant norms. Alternatively, faculty stay if they experience positive working relationships and clarity in their work role. The findings indicate that turnover intention may be deferred if academic administrators support work environments that enhance affective commitment and organizational climate through a)
mentoring of the roles in teaching, research, and service activities; and b) developing work environments that support collegial working relationships with peers and administrators (p. 193).

Shirley (2006) stated that nurse educators experience the stressors of a) high job expectations in teaching, research, and service; b) heavy workloads; c) feelings of frustration; d) lack of empowerment; and e) steep expectations regarding tenure and promotion. Novice nurse educators were found to be the most prone to burnout. (p. 96) Dunham-Taylor, Lynn, Moore, McDaniel & Walker (2008) examined the pressure of horizontal hostility combined with lack of support, guidance, and knowledge about the educational system as factors in novice nurse educator's vulnerability to burnout (p. 337).

The concern for faculty job satisfaction and retention are majors issues as nursing programs deal with the predicted retirements of faculty in the next few years. The effects of burnout, as the workload increases with more students and fewer nurse educators, may result in additional nursing faculty choosing to leave prior to retirement. The need exists, therefore, to retain as many nurse educators as possible while recruiting practicing RNs and graduate students to the teaching role. Preparation for the role of educator and knowledge of expectations may assist in not only recruiting but retaining new nurse educators. Welk and Thomas (2009) offered some guidelines to assist clinicians in their decision to become
educators. Awareness of the job expectations in classroom teaching, clinical supervision, scholarship, and service prior to accepting a position may lead to a more informed decision. Other helpful information that can be gathered prior to employment was expected knowledge and skill in use of technology, resources for teaching methods and content, organizational structure and roles, campus resources, and mentoring opportunities (pp. 165-170).

**Quest for doctorate-prepared faculty.**

As stated previously, nurse educators are aging and facing retirement at a high rate. Younger registered nurses are not choosing to enter academia in the numbers that would positively impact the pending faculty shortage. Non-competitive salaries, high workload, and need for a minimum of a master's degree and, in many cases, a doctoral degree are significant barriers. As of 2009, 56% of faculty not doctorate-prepared (Sims, 2009, p. 221). The average length of time to complete doctorate in nursing is 7.5 years. In other fields the average length of study is 6.6 years (Berlin & Sechrist, 2008, p. 473)

In a doctoral dissertation, Boley (2004) identified the factors influencing career aspirations among graduate nursing students (n= 474) in public institutions that were negative influences on the choice to be a nurse educator as a) focus on expertise and advancement, b) fear of litigation from the actions of others, c) enrollment in an NP degree, d) working in
hospital and e) anticipated salary. The positive influences on the decision to be a nurse educator were: a) teaching and innovative thinking, b) flexible work schedule to accommodate adequate leisure time, c) status and prestige of the job, and d) research opportunities (pp. 124-128).

Focusing on the positive aspects of the educator role, while seeking to resolve some of the negative perceptions, including misconceptions, may lead to an increase in supply of nurse educators.

**Massachusetts**

The Commonwealth of Massachusetts Executive Office of Labor and Workforce Development (2009) in its employment projections for 2006 - 2016 listed the twenty "fastest growing occupations". Job opportunities for health educators are expected to increase by 25%. This increase is "due to the concentration of job growth in the professional and technical workers and health care industries - which currently employ a higher proportion of professional and technical workers than the economy as a whole" (p. 17). "Large numbers of jobs will also result from the need to replace workers who retire, move up the career ladder, or change careers" (p. 17). The demand is predicted to increase but the supply of qualified nurse educators is limited by issues such as age, salary, funding for advanced education, and available positions.
Age and salary issues.

The American Association of Colleges of Nursing (2010) surveyed twenty-one baccalaureate and higher degree programs in Massachusetts regarding age of full-time faculty \(n=401\) teaching in the academic year of 2009 - 2010.

Table XX: Age of Full-time Baccalaureate and Higher Degree Faculty in Massachusetts 2010 - 2011

<table>
<thead>
<tr>
<th>Rank</th>
<th>Age</th>
<th>&lt;35</th>
<th>35 - 44</th>
<th>45-54</th>
<th>55-64</th>
<th>&gt;65</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professor</td>
<td></td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>33</td>
<td>12</td>
<td>49</td>
</tr>
<tr>
<td>Associate.</td>
<td></td>
<td>0</td>
<td>3</td>
<td>18</td>
<td>59</td>
<td>15</td>
<td>95</td>
</tr>
<tr>
<td>Professor</td>
<td></td>
<td>0</td>
<td>3</td>
<td>18</td>
<td>59</td>
<td>15</td>
<td>95</td>
</tr>
<tr>
<td>Assistant</td>
<td></td>
<td>4</td>
<td>25</td>
<td>72</td>
<td>51</td>
<td>6</td>
<td>158</td>
</tr>
<tr>
<td>Professor</td>
<td></td>
<td>4</td>
<td>25</td>
<td>72</td>
<td>51</td>
<td>6</td>
<td>158</td>
</tr>
<tr>
<td>Instructor</td>
<td></td>
<td>5</td>
<td>10</td>
<td>16</td>
<td>4</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>0</td>
<td>9</td>
<td>23</td>
<td>30</td>
<td>2</td>
<td>64</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>9</td>
<td>47</td>
<td>133</td>
<td>177</td>
<td>35</td>
<td>401</td>
</tr>
</tbody>
</table>

(AACN, 2010a)

Half of the faculty members teaching in 2009 - 2010 were 55 years of age or older. The percentage would increase significantly if the current faculty remain but it is highly probable that many of those age 62 or more will choose to retire. Younger nurse educators may choose to leave
academia, especially as their colleagues retire and workload increases, for positions in practice settings that earn higher salaries. The average salary for a nurse practitioner (NP) in Massachusetts in 2009 was $92,960 (Rollet, 2010, p. 30).

Table XXI: Full-time salaried RN nursing faculty positions among 2006, 2008, and 2010 survey respondents

<table>
<thead>
<tr>
<th>Degree Type</th>
<th>Average Salary 2006</th>
<th>Average Salary 2008</th>
<th>Average Salary 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma/Associate Degree RN Programs</td>
<td>$47,170</td>
<td>$56,140</td>
<td>$50,363</td>
</tr>
<tr>
<td>Baccalaureate/Higher Degree RN Programs</td>
<td>$58,384</td>
<td>$67,245</td>
<td>$70,480</td>
</tr>
</tbody>
</table>


Need for graduate degrees.

The minimum requirement for a nurse educator is an MSN and in many cases a doctoral degree is required, especially for tenure-track positions. The National Institute of Nursing Research (NINR) supports basic and clinical research that examines health and illness across the lifespan. Seven percent of the total budget is allocated to research training to help
develop the pool of nurse researchers. Some of these researchers may choose to teach but there is no obligation to do so.

Table XXII: National Institute of Nursing Research (NINR) Grants to Massachusetts Nurse Researchers

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount</td>
<td>$2,643,233</td>
<td>$2,568,283</td>
<td>$3,548,158</td>
<td>$3,922,434</td>
<td>$4,109,846</td>
<td>$4,170,622</td>
<td>$5,874,954</td>
</tr>
</tbody>
</table>

(AACN, 2010b)

The Massachusetts Nursing Initiative in partnership with Tufts Health Plan has awarded twenty-nine scholarships for graduate nursing education at the master's and doctoral levels. Each nurse received $10,000 in scholarship with the stipulation that he or she teach one year following graduation. The total awards equal $250,000. (Massachusetts Nursing Initiative Advisory Committee meeting, personal communication, 2011, January 26).

Vacancy rates.

One measure of demand is vacancy rates or unfilled, funded, and available positions. In 2009, the vacancy rate for full-time nurse faculty in baccalaureate and higher degree programs in Massachusetts was 2.3%. Five out of 17 schools that responded to the survey reported vacancies. There were seven unfilled positions for 2009-2010 out of a total of 310 positions in all 17 schools. (AACN, 2010a) As discussed previously,
some institutions of higher learning may have not made enough faculty positions available to meet increased student enrollments, and those positions would not be reflected in vacancy rates.

The Massachusetts Board of Registration in Nursing (BORN) surveys all prelicensure RN programs to identify not only vacancy rates, but primary reasons for difficulties in recruiting nurse educators, critical areas of need, and strategies used to deal with shortages. The number of budgeted RN nursing faculty full-time equivalent (FTE) positions decreased since 2008, the student/faculty ratio increased, and programs experienced greater than projected enrollments in 2008 but less than projected in 2010.

Table XXIII: Massachusetts Faculty Vacancy Rates

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2008</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=32 of 40 RN programs</td>
<td>n=37 of 40 RN Programs</td>
<td>n=25 of 41 RN Programs</td>
</tr>
<tr>
<td>Total faculty FTEs</td>
<td>555.3</td>
<td>691.22</td>
<td>555.95</td>
</tr>
<tr>
<td>RN Faculty FTE Vacancies</td>
<td>32</td>
<td>6.5</td>
<td>20</td>
</tr>
<tr>
<td>Number of Programs with Vacancies</td>
<td>18</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Impact of vacancies</td>
<td>Increase in instructor to student ratio (36%)</td>
<td>Increase in instructor to student ratio (36%)</td>
<td>Increase in instructor to student ratio (19%)</td>
</tr>
<tr>
<td>Years</td>
<td>2006</td>
<td>2008</td>
<td>2010</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------</td>
<td>---------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>n</td>
<td>n=32 RN programs</td>
<td>n=37 RN Programs</td>
<td>n=25 RN Programs</td>
</tr>
<tr>
<td>Factors Contributing to Shortage</td>
<td>Return to clinical practice, move to other position within academia, retirements</td>
<td>Return to clinical practice, retirements, program expansion</td>
<td>Returning to clinical practice, moving to another position within academia</td>
</tr>
<tr>
<td>Factors Related to Recruitment</td>
<td>Salary range, competition with practice, competition with other academic institutions</td>
<td>Competition with practice, salary range, competition with other academic institutions</td>
<td>Salary range, competition with practice</td>
</tr>
<tr>
<td>Areas Hardest to Fill</td>
<td>Pediatrics, Obstetrics, Medical-Surgical</td>
<td>Pediatrics, Medical-surgical</td>
<td>Pediatrics</td>
</tr>
<tr>
<td>Strategies to Deal with Shortage</td>
<td>Adding weekend/evening clinicals (38%), increasing hourly salary (25%), using joint appointments (22%)</td>
<td>Increasing hourly salary (44%), adding weekend/evening clinicals (42%), redesigning faculty workload (33%)</td>
<td>Adding weekend/evening clinicals (29%), redesigning faculty workload (21%)</td>
</tr>
<tr>
<td>Strategies for Recruitment</td>
<td>Networking/word of mouth</td>
<td>Networking/word of mouth</td>
<td>Networking/word of mouth</td>
</tr>
</tbody>
</table>


**Waiver policy.**

Education Policy 02-02 of 244 CMR 6.04(2) (b) 3 Waiver Criteria establishes criteria for a waiver in the appointment of otherwise qualified
faculty to Registered Nurse programs for the purpose of clinical or skills laboratory instruction only. The waiver criteria include:

a) the prospective instructor possess an earned baccalaureate degree in nursing and is matriculated in a graduate nursing program with an expected graduation date within five years of the date the Board grants such waiver;

b) the prospective instructor possesses an earned baccalaureate degree in nursing and a related non-nursing graduate degree; or

c) the prospective instructor possesses an earned baccalaureate degree in nursing and possesses a minimum of five years full-time experience or its equivalent within the last eight years, and evidence of competence in the area of clinical instruction. A faculty member qualified under 244 CMR 6.04(2) (b) must be designated to mentor the instructor in accordance with Section III, Education Policy 02-02 Waiver Option 3: Novice Nurse Educator Mentorship, Guidelines for Clinical Learning Experiences, Massachusetts Board of Registration in Nursing (2004). A waiver granted under Waiver Option 3 will begin on the date the Board grants the waiver and will expire at the conclusion of the fourth year of employment with the same appointing institution. (Commonwealth of Massachusetts Department of Public Health, 2009a)
During 2005-2006, 87.5% of the 32 RN nursing programs reported at least one clinical or skills waiver. Half of the programs identified that a reduction in admissions would have occurred without the waiver options. During 2007-2008, 83% appointed at least one clinical or skills instructor using the waiver policy. More than 50% identified that a reduction in admissions would have occurred without the waiver options. The respondents (31%) in the 2010 survey identified that an increase in faculty student ratio to 1 to 10 would have potentially occurred. There were a total of 237 waivers in 2007, 238 waivers in 2008, and 203 in 2010. (Commonwealth of Massachusetts Department of Public Health, Division of Health Professionals Licensure, 2007, 2009b, 2011).

**Input from Massachusetts educators.**

The Faculty Vacancy Survey also asked respondents to suggest strategies to address the faculty shortage. The final section of this chapter deals with strategies for the nurse educator shortage found in the literature. The following strategies are from the Massachusetts nursing faculty:

a) increase tuition reimbursement for community college and state college faculty members to include both tuition and fees.

b) secure federal loan repayment for teaching.
c) suggest that clinical agencies allow qualified staff to be released from normal duties for clinical instruction or share salary with academic institution

d) have agencies pay for graduate courses (tuition and fees) to increase pool of qualified faculty

e) provide online or onsite master's programs, and

f) change the collective bargaining agreements to allow master’s prepared nursing faculty to apply for tenure without doctoral degree.

(Commonwealth of Massachusetts Department of Public Health, 2007, 2009b)

**Recommendations/Strategies**

The American Federation of Teachers (AFT) in 2005 issued the following recommendations to address the nurse educator shortage:

a) increase faculty salaries through collective bargaining process,

b) mentor new faculty, and

c) utilize alternate ways of teaching clinical skills, including simulation

(American Federation of Teachers, 2005).
Also in 2005, the American Association of Colleges of Nursing (AACN) proposed both short- and long-term solutions that several authors have elaborated on, including:

a) utilize non-nursing faculty and advanced practice nurses, to teach in selected nursing courses;

b) host programs to attract nurses to faculty roles;

c) educate nurses outside the academic setting about positive aspects of teaching;

d) allow retired faculty to teach part-time without financial penalty;

e) recruit nurses into academia through grants and media advertisements, and develop programs with middle and high schools to introduce students to nursing and nursing education as a career;

f) encourage doctoral degrees and increase funding;

g) make graduate programs more flexible and streamline the path to advanced degrees;

h) establish partnerships for clinical instruction;

i) provide mentoring;
j) provide strong orientation programs and ongoing professional development;

k) base teaching assignments on faculty expertise and reward teaching excellence;

l) evaluate the multiple responsibilities of an educator, not just teaching;

m) initiate research on faculty utilization to identify best ways to use faculty and establish best practices of teaching;

o) establish a positive and safe work environment;

p) develop relationships with state legislators for support and funding; and

q) establish partnerships with public schools, colleges, healthcare institutions, and governmental agencies. (Allen, 2008; Evans, 2009).

The list of possible strategies is extensive and requires action in educational redesign, federal and state funding, and establishment of private and public partnerships. Nurses represent the single largest sector of health care providers, yet practicing nurses and nurse educators are not viewed as powerful in influencing the politics of nursing in academic settings or in the health care system. Nursing faculty have traditionally been concerned with parity with other non-nursing faculty in terms of salary, rank, tenure, and promotion.
Salary.

Gender issues are concerns since most nurse educators are women and there are often times disparity in salaries between male and female faculty. Female in academe earn 22% less than their male counterparts (Hewlett, Bleich, Cox, & Hoover, 2009, p. 324). Also, "average salaries have not kept pace with increases in the private sector, and nursing faculty are frequently paid less than the new graduates coming out of their programs" (p. 324). The present nursing and nurse educator shortage opens up a unique opportunity for nursing faculty to be viewed as relevant and capable of being change agents in their educational programs, academic institution, state legislation and regulations, and health care reform. Two "best practice" strategies resulting in salary increases for faculty have already been discussed, but deserve a second mention. At the University of Nevada, Las Vegas, nursing faculty leveraged higher salaries by negotiating a waiver in the collective bargaining agreement to allow nursing faculty to voluntarily select a 12-month contract. Faculty negotiated equal pay for a summer session for equal workload (Yucha & Witt, 2009). As identified by Allan and Aldebron (2008) as an outstanding example of state funding, the Maryland Nurse Support Program II, created in 2006 and funded through a 0.1% increase in hospital rates, has an annual budget of 8.8 million dollars toward scholarship funding, stipends for nursing students, and salary stipends for faculty (pp. 293-294). Nurse educators worked toward regulatory changes in existing state scholarship
programs to include faculty and then focused on influencing nursing, state, and hospital stakeholders. The process taken in Maryland is a model that can hopefully be replicated to address the critical nurse educator shortage (Allan & McClellan, 2007, pp. 187-189). The State-by-State list of innovative strategies (see Appendix) lists eight states that have been able to increase faculty salaries through legislation or curricular redesign: California, Kansas, Maryland, Mississippi, Nevada, South Carolina, Texas, and Virginia.

**Changes in educational design.**

Many of the recommendations involve innovative changes in the current educational system and/or practices. The strategies found in the literature have required passage of legislation, modifications in collective bargaining agreements, changes in program offerings, and/or curriculum and policy changes.

One prominent theme throughout the literature was the need to be adequately prepared for the teaching role. In a study of associate degree faculty, the respondents identified that their teaching load was 20 to 24 contact hours/week and salaries were dramatically less than in the practice arena. In recruiting faculty, clinicians may determine that even loan forgiveness does not make up for the reduction in salary. Of importance were clear expectations regarding workload prior to employment and mentoring opportunities. (Brady, 2006).
Beres (2006) and Siela, Twibell, and Keller,(2009) agreed with the focus on teaching skills and the need for both clinical expertise and proficiency in curriculum, teaching strategies, technology, and evaluation. One of the concerns of the faculty shortage is that clinicians will not have these essential skills. The author calls a post-master’s Certification in Nursing Education Program invaluable in preparing her for the teaching role (p. 143). "Teaching is not a natural byproduct of clinical expertise, but it requires a skill set of its own" (Cangelosi, Crocker, & Sorrell, 2009, p. 371). Mathews (2003) stated that all MSN programs need to include teaching/curriculum courses (p.254). A senior nursing student commented on the nurse educator shortage and stated that the solution might be to add a minor in nursing education to the BSN degree and then offer accelerated MSN in nursing education (Eddy, 2010, p. 111). The literature also identifies accelerated doctoral programs as a strategy to increase the supply of nurse educators. As of 2010, there were 73 research-based baccalaureate to doctoral nursing programs with 13 additional programs in the planning stage (AACN, 2011, p. 2). One accelerated doctoral program in California, funded by the Gordon and Betty Moore Foundation, financially supported forty-two doctoral students in 5 cohorts beginning in 2003. This program was identified by Allan & Aldebron (2008) as an example of philanthropic support to expand the nursing faculty pool in California (p. 294). The students agreed not to work full-time while in school and agreed to teach three years in one of the
17 area nursing programs after graduation. The addition of 42 doctorate-prepared nurse educators was significant in providing needed faculty to the nursing programs but the students reported high stress levels related to the loss of income and pressure to finish in the three-year period (Scherzer, Stotts, & Fontaine, 2010). Allan & Aldebron (2008) identified the creation and growth of DNP programs, research-focused doctoral programs, and programs offering a master's degree with a specialty in nursing education as outstanding strategies addressing the nurse educator shortage (p. 292). Hewlett, Bleich, Cox, and Hoover (2009) listed the web-based Nurse Educator Certificate Program at the University of Kansas as an exemplar institutional/individual example giving nurses the essential knowledge and skills of an educator (p. 327).

**Use of part-time faculty.**

In order to increase program capacity, nursing programs have utilized part-time faculty, primarily in clinical instruction. Between 2002 and 2006, there was a 72.5% increase in the number of part-time faculty teaching in baccalaureate nursing programs (Gazza & Shellenbarger, 2010). The literature describes several models for use of part-time faculty such as joint appointments (Delunas & Rooda, 2009), clinical scholar model (Kowalski, Horner, Carroll, Center, Foss, Jarrett & Kane, 2007), and preceptorships (Baxter, 2007). The salaries of the clinical instructors are the responsibility of the practice agency, academic institution, or shared. The educational level of the part-time educators varies in these models.
from a minimum of a BSN to a master's degree. An innovative model is the use of non-faculty registered nurses (NF-RNs) to supervise high-fidelity human-patient simulation. Foster, Sheriff and Cheney (2008) found that properly trained NF-RNs were effective teachers.

**Support of novice faculty.**

Part-time nurse educators are a potential source of full-time faculty, but they require orientation, mentoring, and ongoing support. The workplace environment is not always welcoming. In a study of part-time faculty, eight of the nine participants interviewed stated that they wanted to be full-time faculty and that they thought part-time employment was a way to achieve their goal. All of the respondents perceived that both full-time and part-time faculty shared a love of teaching students but that divisions were present between a) part-time and full-time faculty, b) clinical and classroom instructors, c) master's prepared and doctorate-prepared faculty, d) tenured and non-tenured faculty and e) faculty teaching in acute care settings and community settings. There was clearly a need for part-timers to be provided with resources, such as information about the course requirements and theory component being taught to the students they supervised in the clinical settings. (Gazza & Shellenbarger, 2010). To meet the needs of part-time faculty, Pierangeli (2006) developed a clinical teaching handbook following a needs assessment of adjunct faculty that gave a) an overview of school and nursing department, b) information about classroom teaching c) list of library and campus
resources, d) guidelines for pre- and post-conference and clinical logs, e) student evaluations, f) process for learning laboratory referrals, g) policy regarding problematic students, h) information on making clinical assignments, i) clinical forms, j) rubrics for APA format, and k) references for further professional development. The single most frequently mentioned support service for both part-time and full-time novice faculty was mentoring (Smith & Zsohar, 2005; Anibas, Brenner, & Zorn, 2009). The National League for Nursing (2006) advocates the use of mentoring to establish healthful work environment and facilitate career development. As a means to recruit and retain faculty, mentorship is helpful with early, mid, and late career educators as they assume new roles. The outcomes of establishment of collegial relationships improves job satisfaction and increases faculty retention.

**Leadership succession.**

The predicted retirements of faculty will also impact the leadership of nursing programs. In 2006, only 2.1% of deans and directors were younger than 45 years (Glasgow, Weinstock, Lachman, Suplee, & Dreher, 2009). The Institute of Medicine stated a need to provide nurses with greater opportunities to gain leadership skills and put them into practice. Leadership academies and executive coaching programs are two strategies to develop leadership skills for practicing RNs to become educators and for educators to assume the director/dean positions (New Academy, 2010; Glasgow et al, 2009). The Josiah Macy Jr. Foundation
announced a funding initiative to develop national leaders in medical and nursing education by providing salary support of $100,000 per year over two years along with career development opportunities through mentoring and access to a national support network (AACN, 2010, December).

**Federal funding.**

Kathleen Sebelius, secretary of the U.S. Department of Health and Human Services, when asked about the nurse educator shortage, replied "there are additional funds this year that HRSA is putting out the door for nursing faculty. There also is a brand new work force commission which is about to get to work. One of the things I think is still lacking is an accurate mapping of where the providers are going to be needed, what the specialties are [by] geographic location, by specialty area and then having a very strategic plan to not just educate more folks of various kinds, but really match the need to the training that’s given" (Hut, 2011, p. 1). The traditional resources of federal funding for nursing education include a) Title VIII Nursing Workforce Development Programs, b) research grants through the National Institute of Nursing Research (NINR), c) Nurse Reinvestment Act 2002 to support graduate nursing education, and d) Graduate Assistance in Areas of National Need (GAANN) to provide fellowships for research-focused doctoral students (Livsey, Campbell, & Green, 2007). The American Association of Colleges of Nursing (AACN)
requests for fiscal year 2010 funding can be found in Chapter II: Nursing Program Capacity (pp.76-78) under recommendations/strategies.

**Partnerships.**

Nursing programs have established collaborative partnerships with professional nursing organizations, private companies, public agencies, and foundations as a means to address the nursing shortage, increase program capacity, increase student and faculty diversity, enhance teaching methodology through technology, and add new nursing faculty. Specialty nursing groups, concerned about the shortage of nurse educators, have conducted campaigns to recruit nurse educators. Nurses for a Healthier Tomorrow, a partnership among forty-three leading nursing and allied health care organizations, including the National Coalition of Ethnic Minority Nurse Associations and Chi Eta Phi, black nursing sorority, launched a national campaign to help increase number of nurse educators. Articles were written in *Minority Nurse* encouraging readers to distribute the promotional materials available online (Chwedyk, 2004, p. 6).

Leonard, Fulkerson, Rose, and Christy (2008) surveyed deans ($n=191$) and pediatric faculty ($n=237$) to assess perceptions of the pediatric nurse educator shortage, as well as identify implications and solutions. Vacancies for full-time pediatric faculty were reported by twenty-two percent of the deans and 11% reported vacancies for part-time pediatric faculty. Seventy percent of the pediatric faculty perceived that there was a
shortage of pediatric faculty and, of that group, eight out of ten indicated that the shortage would result in increased workload. The pediatric faculty were concerned that the shortage would reduce the classroom instruction and clinical experiences of nursing students with children. The respondents focused on the need for competitive salaries and active mentoring programs as factors in recruitment and retention of new faculty.

*Critical Care Nurse* published a continuing education article in February 2009 focusing on the shortage of nurses and nurse educators from a critical care perspective. In addition to information about the shortages, the article promoted dual roles/joint appointments for clinical nurses, competencies expected of educators, pursuing graduate degrees, salaries, and mentoring (Siela, Twibell, & Keller, 2006).

The American Association of Colleges of Nursing's list of fifty-four innovative partnerships and grant initiatives (2006 - 2010) can be found at http://www.aacn.nche.edu/Media/PartnershipsResource.htm (AACN, 2010c). Specific innovative solutions can be found in the Appendix: State-by-State Strategies.
Chapter III. Nurse Educator Shortage

References


doi:10.1016/jpronurs.2009.01.007
Appendix: State by State Strategies

This list was compiled after an extensive literature review of the nursing and nurse educator shortages. It is hoped that these innovative solutions will stimulate ideas and initiate action. A list of references is included.

**Alaska**

Providence Health Systems, Fairbanks Memorial Hospital, Yukon-Kuskokwim Health Corp. Alaska Regional Hospital and the Alaska Native Tribal Health Consortium/ANMC joined to share cost of expanding programs at University of Alaska with goal of doubling graduates in 3 years. (Allan & Aldebron, 2008)

**Arizona**

1) Arizona's University Medical Center funds tuition for 24 nursing students at University of Arizona on condition that they work at Medical Center for 3 years post graduation. (Allan & Aldebron, 2008)

2) DNP at Arizona State with HRSA funding. (Allan & Aldebron, 2008)

3) Hartford Center of Geriatric Nursing Excellence in partnership with Arizona State University to increase numbers of qualified nursing faculty in geriatric nursing-( Arizona State University, 2011).
Arkansas

Hartford Center of Geriatric Nursing Excellence in partnership with University of Arkansas for Medical Sciences to increase numbers of qualified nursing faculty in geriatric nursing-(University of Arkansas for Medical Sciences, 2011).

California

1) Southern California Regional Collaborative (5 colleges, 7 hospitals, 3 foundations, and medical equipment manager) 2004 - use of simulation and distance learning to extend faculty capacity. (Allan & Aldebron, 2008)

2) Education/Service Partnership Initiative (E/SPI) Southern CA - increased student enrollment by 1200 over 5 years and has been replicated elsewhere. (Allan & Aldebron, 2008)

3) Gordon and Betty Moore Foundation - CA - University of California San Francisco new accelerated PhD. (Scherzer, Stotts, & Fontaine, 2010; Allan & Aldebron, 2008)

4) University of California at Davis - new school focusing on education of educators; San Jose State to educate more educators. (Allan & Aldebron, 2008)

5) Gordon and Betty Moore Foundation and Dominican University of California developed geriatric Clinical Nurse Specialist/Nurse Educator Program to provide clinical faculty. (Ganley & Sheets, 2009)
6) University of California San Francisco uses non-nurses to teach courses thus freeing nurse educators for clinical. (Allan & Aldebron, 2008)

7) University of California San Francisco and University of California Los Angeles allow retired faculty to collect full pension while teaching part-time or permit phased retirement. (Allan & Aldebron, 2008)

8) California Endowment - 2006 scholarship program (with AACN) toward grants to minority graduate students to become nursing faculty in CA. (Allan & Aldebron, 2008)

9) Partnership with WellPoint Inc. (BCBS) through the Foundation for California Community Colleges for nursing education and faculty increases. (Allan & Aldebron, 2008)

10) California Institute for Nursing and Health Care (CINHC) - Statewide plan to build capacity of nursing programs, create initiatives for financial support, and utilize an interagency task force for new nursing programs. Goals include new accelerated BSN programs, faculty targets related to retirement and growth, diversity and retention of faculty, flexibility of faculty salary structures, financial support and incentives for graduate nursing students, enhanced articulation, and faculty resource sharing. (National Council of State Boards of Nursing, 2008)

11) California State Nursing Assumption Program of Loans for Education for Nursing faculty. (AACN, 2006)
12) Hartford Center of Geriatric Nursing Excellence in partnership with University of California, San Francisco to increase numbers of qualified nursing faculty in geriatric nursing-(University of California, 2011).

**Colorado**

1) In 2005, Colorado Department of Labor and Employment granted the Colorado Center for Nursing Excellence $1 million for the development of a Clinical Scholar Program to prepare staff nurses to assume the role of clinical faculty. Results indicate increased quality of clinical experiences, increased quality of patient care and safety, and increased staff satisfaction. (Kowalski, Horner, Carroll, Center, Foss, Jarrett, & Kane, 2007; Colorado Center for Nursing Excellence, 2009)


3) Colorado Nursing Faculty Fellowship Program, April 2006. (AACN, 2006)

4) Colorado Center for Nursing Excellence -key grant initiatives focusing on faculty recruitment and retention: a) educational loan repayment program; b) three educational programs to support clinical scholar/instructors; new classroom faculty, and senior faculty; and c) evaluation and data collection. Outcome include: a) a total of $110,000 awarded to at least 50 nominated faculty members who agree to teach for
at least two years, b) the three educational offerings will train a total of 194 participants. (Colorado Center for Nursing Excellence, 2009)

**Florida**

1) Summit to assess how best to educate, train, and retrain nurses and faculty. (Chun, 2010)

2) Through the State legislature, partnership of stakeholders proposing a sort of "GI Bill" for nursing faculty that would include tuition relief and stipends for nurses who go back to school for graduate studies who then return to accept faculty positions. (Chun, 2010)

3) University of Florida – new doctor of nursing program for students who want to teach. (Chun, 2010)

4) Recruitment of nurse faculty from Philippines “Nurses to USA” (Chun, 2010)

5) “Plus – 50” program to recruit active nurses who are interested in teaching (Chun, 2010)

6) Development of cooperative doctoral program with shared faculty from 3 colleges using interactive distance learning. (Allan & Aldebron, 2008)

7) SUCCEED - 17 nursing grants and educated nearly 200 additional faculty (Allan & Aldebron, 2008)
8) BCBS helps to fund MSN program with educator track at University of West FL (Allan & Aldebron, 2008)

9) University of Florida allows retired faculty to collect full pension while teaching part-time or permit phased retirement. (Allan & Aldebron, 2008)

**Georgia**

1) Uses technology to expand faculty and educational resources at Georgia Perimeter College in a Hybrid Program that combines classroom and online teaching. Simulation and distance learning are included. (Allan & Aldebron, 2008)

2) Provides educator institutes through Emory University. University developed post-masters certificate program that combines 2-week workshop, 6 weeks of self-paced online learning, and a 1-semester internship with a mentor. (Allan & Aldebron, 2008)

3) Georgia Nurse Faculty Service Cancelable Loans. (AACN, 2006)

4) Statewide Nursing Shortage Initiatives - University System of Georgia Nursing Education Initiative. (AACN, 2006)

**Hawaii**

1) Statewide Nursing Consortium to develop a unified, competency-based curriculum using Oregon Model
2) Increase capacity through distance learning, faculty sharing, and web-based simulation. (Lewis, 2010a)

**Illinois**

1) Loyola University uses non-nurses to teach courses thus freeing nurse educators for clinical instruction. (Allan & Aldebron, 2008)

2) DNP (Allan & Aldebron, 2008)

3) Illinois Center for Nursing collects data to be used for policy recommendations. (Allan & Aldebron, 2008)


5) Illinois Nurse Educator Fellowship Program. (AACN, 2006)

6) Metropolitan Chicago Healthcare Council sponsored Clinical Faculty Academies to develop qualified staff nurses for clinical educator roles. (Metropolitan Chicago Healthcare Council, 2010, August 3)

**Indiana**

1) Clarian Health Partners funds 8 master’s prepared nurses to serve as faculty at Indiana University School of Nursing, enabling school to double enrollment in accelerated BSN program. (Allan & Aldebron, 2008)
2) Federal grant at Purdue University Calumet for online program for APRNs to obtain certificates in nursing education. (National Council of State Boards of Nursing, 2008)

3) Partnership model and pilot study at Indiana University to provide clinical instruction by staff nurses. (Delunas & Rooda, 2009)

Iowa

1) Iowa Student Loan, a non-profit organization, through a Nurse Educator Grant Program, provides direct grants (up to $4,000 per academic year) to each qualified recipient to pursue higher degree and become teachers. A survey conducted by the Iowa Student Loan in 2008 indicated that the program was working. (NLN, 2011, February 8)

2) Utilizes non-salaried faculty appointments or buy part of nurse's time to educate students in clinical and/or classroom. (Allan & Aldebron, 2008)

3) University of Iowa uses non-nurses to teach courses thus freeing nurse educators for clinical. (Allan & Aldebron, 2008)

4) Hartford Center of Geriatric Nursing Excellence in partnership with University of Iowa to increase numbers of qualified nursing faculty in geriatric nursing-(University of Iowa, 2011).
Kansas

1) University of Kansas' Nurse Educator Certificate Program is web-based. (Hewlett, Bleich, Cox, & Hoover, 2009)

2) Kansas's Board of Regents funds new faculty positions and supplements salaries for existing faculty in RN programs at 17 public colleges. (Allan & Aldebron, 2008)

3) $30 Million State funding and matching grant program to expand faculty pool. (National Council of State Boards of Nursing, 2008)

4) Statewide Nursing Shortage Initiatives - Kansas Board of Regents' Nursing Shortage Initiative. (AACN, 2006)

5) Kansas State Nurses Association, as stated in the 2009 Resolution to Address the Faculty Crisis in Nursing Education, is resolved to advocate for nurse educators as they work for equity in salary and benefits, strategize ways to support nurse educators as they work to balance the demands of teaching, research, service, and practice, increase awareness of career opportunities in nursing education and financial support for graduate education, and collaborate with key stakeholders to advance efforts to recruit and retain qualified nurse educators. (Kansas State Nurses Association, 2009).
Louisiana

1) Partnerships with clinical agencies for staff nurses to serve as faculty (National Council of State Boards of Nursing, 2008)

2) State wide initiatives mandated by governor. (National Council of State Boards of Nursing, 2008)

Maine

Partnership between nursing leaders and state policy makers resulting in law to publish annual Healthcare Occupations Data Report and funding of faculty loan repayment program. (National Council of State Boards of Nursing, 2008)

Maryland

1) Partnership of University of Maryland and the US Army Nurse Corp in an Alliance since 2007. Army provided 6 master's prepared clinicians to School of Nursing for 2 years. In return Army nurses receive education courses and opportunity for doctoral degree. Army retains nurses and School of Nursing gets highly competent nurse clinicians as clinical instructors. (Allan & Aldebron, 2008)

2) Maryland’s Agenda - Statewide Nursing Initiative - Maryland's Nurse Support II Program begun in 2006. The state regulates hospital charges for services and allocates- 0.1% of hospital rates for scholarships, stipends for graduate students who agree to teach. This competitive grant program encourages partnerships and has resulted in development of a
DNP at the University of Maryland/ Johns Hopkin, a clinical nurse educator and RN-MS program at Salisbury, and a nursing education master’s at Towson. (Allan & Aldebron, 2008; National Council of State Boards of Nursing, 2008; AACN, 2006; Allan & McClellan, 2007)

3) Maryland "Teach for the Health of It" initiative uses non-salaried faculty appointments or buys part of nurse’s time to educate students. (Allan & Aldebron, 2008)

4) Partnership with BCBS to fund a regional faculty scholarship program. (Allan & Aldebron, 2008) (National Council of State Boards of Nursing, 2008)

5) Initiatives for increasing Nurse Faculty salaries, (National Council of State Boards of Nursing, 2008)


7) Maryland Higher Education Commission Loan assistance Repayment Program. (AACN, 2006)

**Massachusetts**

1) Dedicated Education Units - University of Massachusetts Boston in partnership with two agencies. Incorporation of QSEN Competencies. (National Council of State Boards of Nursing, 2008) (Mulready-Shick, Kafel, Banister, & Mylott, 2009)
2) State funding of the Massachusetts Nursing Initiative for the development of core competencies for future nurses, a centralized clinical placement system, increased access to simulation technology, and financial assistance to nursing students. Partnership of stakeholders from nursing education, practice, industry, workforce development, legislation, professional association, community (AARP) and foundation organization (Tufts Health Plan Foundation) (Lewis, 2010b)

3) Dissemination of Nurse of the Future (NOF) Core Competencies for Massachusetts, New Hampshire, and Rhode Island. Also, shared with AARP Center to Champion Nursing in America, Health Science Research Associates (Marlene Kramer), Lawrence Memorial Hospital (CT), University of Maine Fort Kent, Maine Partners Investing in Nursing's Future Statewide grant; Washington State Center for Nursing. (Massachusetts Nursing Initiative Advisory Committee Meeting, personal communication, 2011, January 26).

4) 2011-2012 Proposals planned for the a) development of models of curriculum redesign to create seamless transition between levels of nursing education, b) expansion of Core Competency utilization, and c) continued fostering of partnerships between academic and practice in the redesign of nursing education. (Massachusetts Nursing Initiative Advisory Committee Meeting, personal communication, 2011, January 26).
5) Massachusetts Association of Colleges of Nursing (MACN) in 2005 listed the following recommendations and strategies: a) collaborate with the Massachusetts Board of Higher education on its nursing education initiative to strengthen baccalaureate and higher degree nursing programs through technology, capacity building, and clinical resources; b) develop successful partnerships between healthcare facilities and nursing programs to expand and prepare additional faculty and clinical resources to support increased enrollment; c) support current and proposed state legislation to create nursing scholarships and fund faculty development in schools of nursing (both private and public); d) initiate a "call to action" with key stakeholders to address the barriers confronting baccalaureate and higher degree education in nursing; e) partner with community colleges to increase the enrollment and graduation of RN to BSN students in Massachusetts and to assist in the development of nursing faculty across all levels of nursing education; f) increase the enrollment and graduation of master’s and doctorate prepared nurses in Massachusetts; g) increase the rate of progression to doctorate in nursing by designing curricula that allow and encourage students to enter doctoral programs within five years after completing the baccalaureate degree and to complete doctoral programs within a five-year period; h) secure private and public funding to develop, implement, and accelerate the opening and growth of doctoral programs in nursing; i) partner with key stakeholders on a statewide campaign to recruit nursing faculty through public and
professional education that informs nurses about academe and faculty
career options, including qualifications, preparation, and graduate
nursing preparation; j) conduct a study to assess interest in, as well as
barriers to pursuit of academic positions by master’s- and doctorate-
prepared nurses in Massachusetts; k) collaborate with the Massachusetts
Organization of Nurse Executives (MONE) to create a database for
benchmarking faculty salaries to salaries of nurses in clinical practice with
comparable education and experience; l) examine retirement policies in
universities with nursing programs to identify and eliminate unnecessary
restrictions to continued nurse faculty service, particularly mandatory
retirement ages and financial penalties for retired nurse faculty who return
to work; m) create academic-service partnerships to increase the
involvement of service-based, graduate-prepared nurses in the instruction
of nursing students; n) participate in educational consortia to coordinate
clinical training sites; o) develop a marketing plan to communicate
information to clinical agencies about the conditions, costs, and benefits of
serving as a clinical education site; and p) partner with MONE and other
healthcare facilities to develop policies and procedures that will decrease
the burden of clinical clearance for faculty and students. (Massachusetts
Association of Colleges of Nursing, 2005)

**Michigan**

Partnerships with BCBS for several programs to recruit and retain
faculty (Allan & Aldebron, 2008)
Minnesota

1) College of St. Catherine developed two preceptor models: a) Clinical Partner Model (CPM) - one faculty with two clinical adjunct instructors - 2 units. mid-shift conference daily and b) Home Room Mentoring Model (HRMM) - post baccalaureate student assigned to BS prepared nurse who acts as mentor throughout 2-year program. (Campbell & Filer, 2008)

2) FLAG Program through John A. Hartford Foundation Center of Geriatric Nursing Excellence at University of Minnesota to prepare nurse faculty with expertise in geriatric nursing, teaching, and academic leadership. (Krichbaum, Kaas, Mueller, & Wyman, 2010)

Mississippi

1) Mississippi Office of Nursing Workforce (MONW) statewide strategic plan partnership with other professional organizations has been successful in passing legislation in 2005 to increase all nursing faculty salaries by $12,000 over two years, funding reliable and accurate faculty workforce database, maintaining a website (www.monw.org), and a simulation study. (Hewlett et al, 2009)

2) Mississippi Board of Trustees of State Institutions of Higher Learning, as part of the Nursing Education Loan Scholarship Program, funds master's and doctoral nursing students who agree to teach upon
graduation through a Nursing Teacher Stipend Program. (Williams, 2006)

3) Initiatives for increasing Nurse Faculty salaries, (National Council of State Boards of Nursing, 2008)

Missouri

1) Clinical Faculty Academy - partnership with hospital associations to increase program capacity through 2-day institutes and enrollment in graduate programs. (National Council of State Boards of Nursing, 2008)

2) Workforce Collaborative Pilot Program to expand the number of nurse educators, increase school enrollments, and implement an innovative education model. Partnerships resulted in "loaned faculty", creation of the Clinical Faculty Academy (CFA), increased enrollment in programs, and additional nurses enrolled in graduate degree programs. (Murray, Schappe, Krienkamp, Loyd, & Buck, 2010).

3) Missouri Hospital Association Graduate Nursing Faculty Assistance Program (AACN, 2006)

Nebraska

1) Promotion of education-focused master's degrees at Clarkson College includes a Director of Diversity. (Williams, 2006)

2) Nebraska Nurse Faculty Student Loan Act. (AACN, 2006)
3) Nebraska Loan Repayment Program for Rural Health Professionals. (AACN, 2006)

Nevada

1) University of Nevada Las Vegas and University of Nevada Reno Orvis School of Nursing developed in 2007 a 3-year model to streamline master's students into a doctoral program. (Allan & Aldebron, 2008)

2) Collective bargaining negotiations to have nursing faculty paid for 12 months, rather than nine, which allowed three academic sessions. (Yucha & Witt, 2009).

New Hampshire

Weeks Medical Center contributed the services of a full-time salaried staff nurse to teach nursing students part-time at New Hampshire Community Technical College in Lancaster in addition to subsidizing another faculty position. (Allan & Aldebron, 2008)

New Jersey

1) In 2007 RWJF, in partnership with the New Jersey Chamber of Commerce, funded graduate nursing education, development of graduate curriculum revisions, collaboration efforts, and the enhancement of nursing education as a career. (Hewlett et al, 2009)
2) Support for minority students in nursing education in the MSN Program at William Patterson includes a nursing support coordinator. (Williams, 2006)

3) RN-to-BSN legislation pending (Boyd, 2011)

New York

1) Jonas Family Fund (NYC) (Allan & Aldebron, 2008)

2) Winthrop-University Hospital financed construction of 2 nursing labs and pays for instructional staff at Farmingdale State University in Mineola, NY. (Allan & Aldebron, 2008)

3) Promotion of education-focused master's degrees at College of New Rochelle School of Nursing to recruit minority students. (Williams, 2006)

4) New York's Nurse Faculty Loan Forgiveness Incentive Program. (AACN, 2006)

5) RN-to-BSN legislation pending (Boyd, 2011)

North Carolina

Funding increases to prepare faculty, clinical teaching associate role to educate practitioners and move them into joint appointments, working on regional simulation and transition into practice projects. (National Council of State Boards of Nursing, 2008)
North Dakota

1) As a member of the Upper Midwest Geriatric Nursing Education Alliance, supports the University of Minnesota program to prepare nurse faculty through the development of expertise in geriatric nursing, teaching, and academic leadership. (Krichbaum, Kaas, Mueller, & Wyman, 2010)

2) Nurse Faculty Intern (NFI) Model - use of academic consultant and mentor to investigate role development of nurse educators and expand knowledge about gaining competencies in teaching. Qualitative and quantitative study in progress. (National Council of State Boards of Nursing, 2008)

3) North Dakota Board of Nursing Education Loan Program. (AACN, 2006)

Ohio

Ohio Board of Regents Nursing Education Assistance Loan Program. (AACN, 2006)

Oregon

1) Dedicated Education Units -1st at the University of Portland School of Nursing (Hewlett, 2009) (Allan & Aldebron, 2008; National Council of State Boards of Nursing, 2008)

2) Oregon Consortium for Nursing Education (OCNE), a school-to-school partnership model, includes all of the state's nursing programs (4
University and 8 Community colleges) to increase program capacity and number of licensed RNs in the state. (Allan & Aldebron, 2008) (National Council of State Boards of Nursing, 2008)

3) Northwest Health Foundation (Oregon) (Allan & Aldebron, 2008)

4) Oregon's Nurse Faculty Loan Repayment Program. (AACN, 2006)

5) Hartford Center of Geriatric Nursing Excellence in partnership with Oregon Health and Science University to increase numbers of qualified nursing faculty in geriatric nursing-(Oregon Health and Science University, 2011).

Pennsylvania

1) DNP (Allan & Aldebron, 2008)

2) Educator institutes at Drexel University are offered to award certificates in teaching. (Allan & Aldebron, 2008)

3) PA workforce development program of "loaned faculty" and clinical education" provides funds that enable use of agency resources, including staff as faculty. (Allan & Aldebron, 2008)

4) Promise of Tomorrow for Pennsylvania Gala raised $550,000+ for regional nursing school grants, faculty fellowships, and student scholarships (Hewlett et al, 2009; Reuters, 2008, March 12).
5) "Turn Teach" at Penn State University uses a model of having non-course assigned faculty "guest lecture" to reduce the primary full-time faculty member's workload (Evans, 2009).

6) Partnership with BCBS to fund state schools of nursing specifically for faculty positions and Nurse Scholars Program. (Allan & Aldebron, 2008; Williams, 2006)

7) Leadership executive coaching at Drexel University consisting of symposium series and individual coaching. (Glasgow, Weinstock, Lachman, Suplee, & Dreher, 2009)

8) Statewide Nursing Shortage Initiative - Pennsylvania Higher Education Foundation Responds to the Nursing Shortage. (AACN, 2006)

9) 2008 - The State investment of $750,000 to address the nursing shortage would be matched by at least $870,000 in private-sector funds. money to be used for schools to hire more nurse faculty and educate more students (AACN, 2010).

10) Hartford Center of Geriatric Nursing Excellence in partnership with Penn State University to increase numbers of qualified nursing faculty in geriatric nursing-(Pennsylvania State University, 2011).
Rhode Island

1) RI Student Loan Authority offers 0% interest and partial forgiveness on Stafford loans for borrowers who teach at accredited nursing programs in the state. (Allan & Aldebron, 2008)

2) Rhode Island Student Loan Authority Nursing Rewards Program. (AACN, 2006)

3) RN-to-BSN legislation pending (Boyd, 2011)

South Carolina

1) In 2006, nursing leaders formed One Voice One Plan Consortium and crafted legislation resulting in The Critical Nursing Needs Initiative Act to a) increase faculty salaries. $1M/year in recurring funds was appropriated to schools to raise base salaries, b) provide funding for additional faculty lines, c) provide monies for graduate student stipends and scholarships, d) establish a nursing workforce data office, and e) provide monies for educational redesign and simulation (Hewlett et al, 2009; South Carolina Hospital Association, 2010)

2) South Carolina Nurses Foundation grant from Blue Cross Blue Shield Foundation for scholarships to nurses pursuing a master’s or doctoral degree who agree to teach upon graduation. (Smart, Pruitt, Cox, & Deane, 2008)
South Dakota

As a member of the Upper Midwest Geriatric Nursing Education Alliance, supports the University of Minnesota program to prepare nurse faculty through the development of expertise in geriatric nursing, teaching, and academic leadership. (Krichbaum, Kaas, Mueller, & Wyman, 2010)

Tennessee

Tennessee Graduate Nursing Loan Forgiveness Program. (AACN, 2006)

Texas

1) University of Texas at Arlington allows retired faculty to collect full pension while teaching part-time or permit phased retirement. (Allan & Aldebron, 2008)

2) New PhD Program with funding from HRSA (Allan & Aldebron, 2008)

3) St. Davis Foundation (Austin) (Allan & Aldebron, 2008)

4) Alliance for Innovative Education (TX) includes BSN and ADN programs in partnership with 17 local hospitals in Central and West TX to provide agency-based nurses as faculty (clinical coaches). (Allan & Aldebron, 2008; Allen, Schumann, Collins, & Selz, 2007)

5) $6M for Nursing Shortage Reduction Fund and $2M for student financial aid to augment salaries and open new positions; provide tuition
exemption for children of nursing faculty for school at which they teach; allow no benefit loss in retirement if retired faculty return to teach, and make available low-interest home loans. (Hewlett et al, 2009)

6) Four nursing programs created the South Plains Nursing Education Community Coalition to add faculty, increase scholarships, ensure career mobility from AD to BSN, and promote nursing profession. (Allan & Aldebron, 2008)

7) University of Texas at Arlington (UTA) and Texas Health Resources (THR) LEARN Project, in 2008, supported an accelerated BSN program: UTA furnishes support and facilities to clinical instructors and makes lectures available via iPod for students to download. Texas Health Resources, consisting of 13 hospitals, provides clinical faculty, training sites, and staff RN students to mentor students. (Allan & Aldebron, 2008)

8) Project WINNER - Texas Project Workforce Increases in Nursing and Nursing Education Excellence in Resources Collaboration partners with 12 nursing programs and 45 hospitals and clinics settings to provide preceptors for clinical instruction. (Allan & Aldebron, 2008; Allen, Schumann, Collins, & Selz, 2007)

9) Study of the effectiveness of nonfaculty in facilitating student learning using simulation at Texas Woman's University, (Foster, Sheriff, & Cheney, 2008)
10) Texas Graduate Nurses’ Education Loan Repayment Program.  
(AACN, 2006)

11) Statewide Nursing Shortage Initiative - Texas Team -  
development of a strategic plan to meet nursing workforce needs of 2013.  
(Texas Team, 2010)

12) Web-based, second-degree,  accelerated BSN program in  
partnership with hospitals to "grow your own" staff.  Clinical supervision  
provided by agency clinical coaches, paid $1000/semester by the school  
(Allen, VanDyke, & Armstrong, 2010).

13) University of Texas at Arlington's MSN in nursing education  
program. (New master's program to address nursing faculty shortage,  
2008)

Utah

The Utah Hartford Center of Geriatric Nursing Excellence  
(UHCGNE)  developed projects to expand the number of qualified  
geriatric nursing faculty. The strategies include: a) preparation of  
nurse-scientists for teaching careers through innovative distance  
format/virtual classroom, b) provision of geriatric content/course for all  
MSN and DNP students in the region (University of Utah, 2011).
Vermont

1) Vermont educational loan repayment program for nurses - funded by the State of Vermont through the Department of Health, and administered by the University of Vermont College of Medicine (UVM) Area Health Centers (AHEC) Program. (UVM, 2011)

2) Vermont Educational Loan Repayment Program for Nurse Educators/Faculty. (AACN, 2006; )

Virginia

1) NoVA Health FORCE consisting of community and 4-year colleges joined with government, business, etc. in Northern Virginia to raise awareness of nursing faculty shortages. The funds raised are used for faculty endowments, salary supports, and promotion of the preparation of educators. (Allan & Aldebron, 2008)

2) George Mason University School of Nursing, in the promotion of advanced degrees for those wanting to teach, added a PhD education concentration. (Allan & Aldebron, 2008)

3) DNP (Allan & Aldebron, 2008)

4) VA Collaboration - Partnership with 7 nursing programs to expand recruitment. $40 million programs create employment for nursing students and funding for schools to increase enrollment. (National Council of State Boards of Nursing, 2008)
5) Initiatives for increasing Nurse Faculty salaries, (National Council of State Boards of Nursing, 2008)

6) Virginia Doctoral Nursing Student Loan Assistance Repayment Program. (AACN, 2006)

7) Shenandoah University established a partnership with Inova Health System to promote an accelerated BSN program through $7,500 scholarships to up to 55 students who commit to working at Inova hospital. The health system will also contribute $500,000 for simulation labs and administrative space. Additional clinical placements will become available at three Inova hospitals. (AACN, 2010).

**Washington**

DNP (Allan & Aldebron, 2008)

**Wisconsin**

1) As a member of the Upper Midwest Geriatric Nursing Education Alliance, supports the University of Minnesota program to prepare nurse faculty through the development of expertise in geriatric nursing, teaching, and academic leadership. (Krichbaum, Kaas, Mueller, & Wyman, 2010)

2) University of Wisconsin in Madison, through a HRSA grant, focused on increasing the number of nurse educators from underrepresented populations (nurses of color, men, rural nurses). (Williams, 2006)
3) Statewide Nursing Shortage Initiative. Wisconsin Nurse Faculty Shortage Task Force (2007), a partnership between the Board of Nursing and the Wisconsin Center for Nursing. (Wisconsin Nurse Faculty Shortage Task Force, 2007).
Appendix: State-by-State Strategies

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