

Hawai'i's Nursing Workforce: Keeping Pace with Healthcare

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Abstract

Nursing is the largest segment of the healthcare workforce, but over the next decade even more nurses will be required. Changing population demographics, new technologies, and evolving models of healthcare will stimulate expansion of nursing roles and the need for a highly educated nursing workforce. The current nursing workforce is aging, and large numbers of retirements are anticipated. By 2025, the United States is expected to experience a nursing shortage; in Hawai'i this shortfall is forecast to be 3,311 professional nurses. Currently there are nine nursing programs across the state in public and private universities and colleges. These programs are partnering to implement the Institute of Medicine's recommendations for the future of nursing. In Hawai'i, nursing practice is being expanded; different pathways to advanced nursing education are being implemented; and nurses are partnering with other groups to reshape healthcare. The Hawai'i State Center for Nursing collects ongoing data on the nursing workforce to inform strategic planning. Current gaps in nursing specialty education include school health and mental health. The purpose of this paper is to provide an overview of Hawai'i's nursing workforce in relationship to statewide population demographics, healthcare needs and gaps, and then outline steps being taken by the profession to address these needs and gaps while implementing the Institute of Medicine recommendations.

Keywords

nursing; nursing workforce; Hawai'i

Introduction

Over the next decade, healthcare will shift from a volume to a value based business model, with an increased emphasis on health and wellness, and community based chronic disease management.¹ These changes will occur as the population ages and the prevalence of chronic disease continues to increase. New technologies, consumer expectations for positive health outcomes, and governmental programs to increase access to care will reshape the healthcare system of today and tomorrow. Team work, patient and worker safety, culturally appropriate care, efficiency, and cost effectiveness will become even more critical, and citizen expectations for safety and quality of care will be the norm.² These challenges are fueling an accelerated evolution of the nursing profession. Many more nurses will be required, roles will be expanded, and new technologies such as genomics and informatics will provide new tools for the profession. The academic nursing sector must be prepared to rise to the challenge by educating more professional nurses who are better prepared to provide nursing care across the healthcare continuum (eg, preventative, acute, community, and end-of-life) using innovative health care delivery models.³

There are 2.8 million registered nurses (RNs) in the United States.⁴ Understanding the nursing workforce in relation to future healthcare system requirements will assure better planning. The Institute of Medicine's (IOM) report *The Future of Nursing: Leading Change, Advancing Health* (2010) recommends that nurses should practice to the full extent of their education and training, achieve higher levels of education, and be full

partners with physicians and other health care professionals in redesigning health care. The report also states that effective workforce planning and policy requires better data collection and improved information infrastructure.⁵ The purpose of this paper is to provide an overview of Hawai'i's nursing workforce in relationship to projected statewide population demographics, healthcare needs and current gaps, and report on steps taken by academic nursing to meet nursing workforce needs.

Hawai'i Population Demographics and Health

US Census population projections estimate that an ongoing demographic shift is likely to continue until racial and ethnic minorities make up the majority of the entire US population by 2050, but Hawai'i has already reached this level.⁶ As a proportion, Hawai'i has the highest majority-minority population in the United States.^{7,8} Overall, ethnic minorities account for 74% of the state's population.⁹ While 23.1% of the population reports a mixed race/ethnicity, 37.7% are Asian alone (the largest percentage in the nation), 23.0% are white alone, 10% are Native Hawaiians and other Pacific Islanders, and 9.8% are Hispanic or Latino alone.⁹ Nursing education and care in Hawai'i is shaped by the unique health beliefs and needs of this minority-majority in the state.¹⁰

Compared to the rest of the United States, the state enjoys the longest reported years of lifespan at birth (80.5 yrs.), the highest life expectancy (LE) at age 65 (21.3 yrs.) and the highest *healthy* life expectancy (HLE) at age 65 (16.2 yrs.).^{11,12} However, there are vulnerable groups in the state that require special nursing care consideration.

Elderly in Hawai'i

Currently 14.4% of the state population is 65 years and older.¹³ The US Census Bureau projects the number of elderly will rise, and by 2030, 25.7% of Hawai'i's population will be 60+ years (N=410,450) and 2.5% will be 85+ years (N=40,350).¹⁴ This projected increase in elderly and 5 year difference between LE and HLE signals future increased needs for geriatric services. Many senior citizens will develop serious chronic health problems, and need for geriatric nursing services in community, public health, and acute care settings will increase. As health care continues to shift from hospital based services to the community, needs for homecare, elder day care, and long term care, nursing services will rise. A larger number of elderly will ultimately lead to increased utilization of hospital services at the end of life. Nursing will contribute to initiatives for improved patient safety, quality, infection control, hospice care, and discharge planning services.

Chronic Disease, Medically Underserved, and Native Hawaiian Health

The burden of chronic disease is high. Chronic disease, health problems, and unhealthy behaviors are prevalent among school aged children in the state. In Hawai'i, 28.7% of 10-17 year old children are overweight or obese; 12.7% have asthma; only 18% of adolescents exercise every day for at least 60 minutes; and 5.7% miss ≥ 11 days of school each year due to illness or injury.¹⁵⁻¹⁸ The most prevalent diseases among adults include: arthritis (20.3%); asthma (14.3%); mental illness (11.5%), diabetes mellitus (7.8%), COPD (3.67%); chronic kidney disease (3.6%); and angina/ CHD (2.8%). In Hawai'i 3.3% of the adult population has had a myocardial infarction, and 2.9% reported having had a stroke.¹⁹ As the population ages, the burden of most of these chronic diseases will increase.

The Healthcare Association of Hawai'i (HAH) reports that all of the neighbor islands are designated as medically underserved for some portion of their population. While there are inadequate numbers of mental health providers on the neighbor islands, the most common reason for hospitalization in the state each year is a mental health diagnosis.²⁰ Adequate community based mental health services can reduce mental illness hospitalizations, but the state lacks advanced nursing programs for mental health nurse practitioners.

The HAH also reports serious health disparities among various racial/ethnic groups within the state, with the most serious disparities existing for Native Hawaiians.²⁰ Currently, the life expectancy of Native Hawaiians in the state is 74.3 years, which is 6.2 years shorter compared to the overall state population. In addition, Native Hawaiians have higher rates of serious chronic conditions (obesity, diabetes, hypertension, asthma) compared to any other ethnic/racial group in the state.²¹ The health of the Native Hawaiian population continues to be influenced by history as well as the unique Native Hawaiian culture, values, beliefs, and health practices.^{22,23} This speaks to the essential need for nursing educators in the state to pay close attention to the status of Native Hawaiians and understand how nursing care should be shaped to meet the needs of this vulnerable population across the age continuum.

The Professional Nursing Workforce

Nursing Workforce in the United States

The US Bureau of Labor reports nursing workforce growth will occur primarily because of advancements in health technology; an increased emphasis on preventative care; and the large Baby Boomer generation who will require more health care services as they experience longer lives.²⁴ For these same reasons, Hawai'i will experience a similar need to expand its nursing workforce.

Nursing Workforce in Hawai'i

As of April 2013, 14,384 RNs, 807 advanced practice registered nurses (APRNs), and 383 advanced practice registered nurses with prescriptive authority (APRNs-Rx) live and work in the State of Hawai'i. (Table 1).²⁵ The majority reside on the island of O'ahu (Table 1). The neighbor islands of Hawai'i and Maui have a larger number of RNs compared to the less populated islands of Kaua'i, Moloka'i, and Lana'i. As a result, the supply of RNs per 1000 population varies markedly by island, with a high of 11 per 1000 on O'ahu compared with 5 per 1000 on Lana'i and Moloka'i. It should be noted that a significant portion of all tertiary care services are provided on O'ahu, which in part accounts for this higher ratio. The supply of APRNs is ≤ 1 per 1000 population on all Hawaiian islands.^{13,26}

Table 2 highlights the level of nursing education for RNs employed and working as a nurse in-state. Compared to national figures, Hawai'i has a larger proportion of RNs at the baccalaureate level, 54.7% compared to 42.0%.^{26,27} However, there are fewer RNs prepared at the graduate level with master's and doctoral degrees, 4.7% compared to 19.0%.^{26,27} Table 3 provides data about nursing employment by setting. Hospitals employ 61.1% of RNs and 36.4% of the APRNs in the state.^{26,27} The average age of working RNs in Hawai'i is 44 years and APRNs is 49 years.²⁶

Demand for Nurses

The Health Resources and Services Administration (HRSA) projects the United States will experience a shortage of 260,000 nurses by 2025.²⁸ In Hawai'i approximately 1,597 (11.1%) actively employed RNs intend to retire in the next five years.²⁶ Using the HRSA forecasting model, it is anticipated that by the year 2025 there will be a 28% shortfall in the nursing workforce in Hawai'i, or 3,311 full-time RNs.²⁹

Table 1. Location of Licensed Nurses by Island, 2013

| Location | RN* | APRN* | APRN-Rx* | Hawaii Population** | RNs per 1,000 Population | APRNs per 1,000 Population |
|----------|--------|-------|----------|---------------------|--------------------------|----------------------------|
| O'ahu | 10,593 | 627 | 271 | 955,215 | 11 | <1 |
| Hawai'i | 1,698 | 92 | 57 | 185,399 | 9 | <1 |
| Maui | 1,367 | 49 | 34 | 145,602 | 9 | <1 |
| Kaua'i | 678 | 33 | 16 | 67,113 | 10 | <1 |
| Moloka'i | 31 | 4 | 4 | 5,906 | 5 | 1 |
| Lana'i | 17 | 2 | 1 | 3,429 | 5 | <1 |
| Total | 14,384 | 807 | 383 | 1,362,664 | 11 | <1 |

Data Sources: *Professional and Vocational Licensing Division²⁵; **U.S. Census Bureau. 2008-2012 American Community Survey¹³

| Table 2. Licensed Registered Nurses in Hawai'i by Educational Preparation | | | |
|---|----------------|---------|---|
| Educational Level | Number of RNs* | Percent | Percent Workforce National** (N=41,018) |
| Diploma Nursing | 877 | 6.1% | 11.0% |
| Associate Degree | 4,732 | 32.9% | 29.0% |
| Baccalaureate Degree | 7,868 | 54.7% | 42.0% |
| Master's Degree | 575 | 4.0% | 17.0% |
| Doctoral Degree | 101 | 0.7% | 2.0% |
| Missing | 230 | 1.6% | 0.0% |
| Total | 14,384 | 100.0% | 100.0% |

Data Sources: *LeVasseur, 2013²⁶; **Budden et al, 2013²⁷

| Table 3. Percentage of Hawai'i Nurses by Employment Setting | | | |
|---|---------------------------|---------------------------|--|
| Setting | Hawai'i RN* (%) (n=5,213) | Hawai'i APRN* (%) (n=308) | National RN Workforce** (%) (N=34,238) |
| Academic | | | |
| University/College | 1.5% | 12% | 3% |
| Acute Care | | | |
| Ambulatory Care | 5.5% | 13.3% | 9% |
| Hospital | 61.1% | 36.4% | 56% |
| Community | | | |
| Correctional Facility | 0.6% | 0.0% | 1% |
| Home Health | 3.4% | 2.3% | 6% |
| Hospice | 2.0% | 0.6% | |
| Insurance Claims/ Benefits/Company/ HMO | 2.2% | 1.6% | 1% |
| Nursing Home/Extended Care/Assisted Living | 8.6% | 2.9% | 6% |
| Occupational Health | 0.6% | 1.0% | 1% |
| Other | | | |
| Physician's Office | 3.2% | 9.7% | |
| Policy/Planning/Regulatory/Licensing Agency | 0.3% | 0.0% | <1% |
| Public / Community Health | 1.4% | 1.9% | 44% |
| School Health Service | 0.9% | 0.3% | 3% |
| Self-Employed | 0.7% | 3.6% | |

Data Sources: *LeVasseur, 2013²⁶; **Budden, et al, 2013²⁷

Response to Hawai'i's Nursing Education Capacity and Response to Meets Needs of the State

Academic Nursing Programs in Hawai'i

Since 2005, nursing programs across the country have stepped up efforts to increase educational capacity and student enrollment to meet demand.³⁰ The University of Hawai'i (UH) system has the largest capacity for professional nursing education in the state. Within the UH system there are six units that offer a nursing program. UH at Manoa Nursing and UH Hilo offer baccalaureate, master's, and doctoral studies in nursing, while the UH community colleges (Kapi'olani, Hawai'i, Maui, and Kaua'i) offer associate degrees in nursing.

Three private universities in the state also host accredited

nursing programs. Hawai'i Pacific University (HPU) prepares students for entry into the nursing profession at the baccalaureate level and advanced nursing practice (NP) at the master's degree level. The University of Phoenix (UOPX) supports an online nursing program that focuses on up-skilling associates degree prepared RNs to the baccalaureate and masters levels. In 2011, Chaminade University introduced a new pre-licensure baccalaureate-level RN program. This nursing program engages students in community outreach projects, service-learning and supervised clinical experiences to educate nursing professionals prepared to care for Hawai'i's people.³¹

Graduate nursing education has continued to grow in the state with the demand for advanced practice nurses (APRNs) who can manage chronic illness in the community setting. Two

| Table 4. Educational Programs Offered by Hawai'i's Nursing Programs | | | | | | | | | |
|--|-----------------|------------------|------------------|----------------------|----------------------|------------------|------------------|-------------------|-------------------|
| Educational Programs Offered | CU ¹ | HCC ² | HPU ³ | Kap. CC ⁴ | Kau. CC ⁵ | UHH ⁶ | UHM ⁷ | UHMC ⁸ | UOPX ⁹ |
| Non-Baccalaureate Programs | | | | | | | | | |
| Licensed Practical Nurse (LPN) | | X | | X | | | | | |
| "Ladder" Program: Licensed Practical Nurse (LPN) combined with an Associate's degree in nursing (AS) | | | | | X | | | X | |
| Licensed Practical Nurse (LPN) to Associate degree (AS) | | | | X | X | | | | |
| Associate's degree in nursing (AS) | | X | | X | | | | | |
| Baccalaureate Programs | | | | | | | | | |
| Bachelor of science in nursing (BS) | X | | X | | | X | X | | X |
| LPN to bachelor of science in nursing (BS). | | | X | | | | | | X |
| Registered Nurse (RN) to bachelor of science in nursing (BS) | | | X | | | X | X | | |
| Accelerated RN to BS | | | | | | | | | X |
| Master of Science Programs | | | | | | | | | |
| RN to Master of Science in Nursing (MS) | | | X | | | | X | | |
| BS to MSN | | | X | | | | X | | X |
| Master's Entry Program in Nursing (MEPN) | | | | | | | X | | |
| Doctoral Programs | | | | | | | | | |
| BS to Doctor of Nursing Practice (DNP) | | | | | | X | | | |
| BS to Doctor Philosophy in Nursing (PhD) | | | | | | | | | |
| MS to DNP | | | | | | X | X | | |
| MS to PhD | | | | | | | X | | X |

¹Chaminade University; ²Hawai'i Community College; ³Hawai'i Pacific University; ⁴Kapi'olani Community College; ⁵Kaua'i Community College; ⁶University of Hawai'i at Hilo; ⁷University of Hawai'i at Manoa; ⁸University of Hawai'i Maui College; ⁹University of Phoenix

Doctorates in Nursing Practice (DNP) programs, initiated at UH Hilo and UH Manoa School of Nursing and Dental Hygiene respectively,^{32,33} will provide clinical leadership to inform health policy and evidence based practice in all health sectors. Across the state, the 9 nursing programs admit approximately 210 associate, 470 baccalaureate, and 132 graduate students each year. Table 4 summarizes the existing programs and various pathways for nursing education in the state. Collectively, these efforts among the nursing programs in the state have led to an increased number of graduates prepared to enter the nursing workforce each year (RN: 570; APRN: 80). However, it does remain uncertain what the actual demand will be for licensed RNs and APRNs over the next decade as job vacancies increase from retirements and the creation of new positions occur to meet access needs.

Numerous strategies have been implemented to increase the number of Native Hawaiian nurses in the state as well. UH Manoa Nursing supports the *'Ike Ao Pono* (*'Ike* translates as "a shared vision held and nurtured by all," *Ao* meaning "the everlasting quality of continuation," and *Pono* "wellbeing in life") program, which aims to recruit and support Native Hawaiian and Pacific Islander nursing students.³⁴ Once admitted, this program provides academic and social support to the nursing student to increase retention and graduation rates. UH

Windward and Kapi'olani Community Colleges both support nursing career transition programs that focus on Native Hawaiian nursing and health career ladder students.^{35,36}

Native Hawaiian, Pacific Island, and Asian culture in the nursing program curricula

All the nursing programs' curricula emphasize culture (including Native Hawaiian, Pacific Islander, and Asian culture) and its influence on health and healing. Nursing programs in the state also thread lessons on transcultural care throughout core classes such as community health, complex nursing care, and mental health in the undergraduate programs. The UH Manoa Nursing PhD program requires coursework in culturally competent research methods.

Statewide Academic and Practice Sector Responses to Institute of Medicine Recommendations

Much of Hawai'i's nursing workforce response is guided by the IOM recommendations for the future of nursing. Hawai'i has taken a leadership role in a national initiative, *The Future of Nursing: Campaign for Action*.³⁷ The aim of this campaign is to improve the quality of health care by enhancing nurses' skills and education and their ability to work collaboratively with other providers to ensure high-quality, patient-centered care

for all. The partnership is involved in a number of statewide efforts addressing the key IOM recommendations as follows:

1. Nurses practice to the full extent of their training and education
In Hawai'i APRNs including nurse practitioners (NP) and clinical nurse specialists (CNS) have global signature authority as well as prescriptive authority by the State. During the recent 2014 legislative session, initiatives to amend various sections of the Hawai'i Revised Statutes to remove barriers to APRNs practicing to the fullest extent of their training and education were championed by legislators and a diverse group of nurse leaders from the academic and practice sectors.^{38,39}

2. Nurses should achieve higher levels of education through an improved education system that promotes seamless academic progression

There are a variety of programs in the state supporting academic progression in nursing. The Hawai'i Action Coalition (HAC), co-led by the Hawai'i State Center for Nursing (HSCN), Hawai'i Medical Services Association (HMSA) Foundation, Prime Care Services Hawai'i, Inc., and HAH, is one of nine coalitions across the country leading an Academic Progression in Nursing (APIN) project.⁴⁰ The statewide APIN project brings together stakeholders from academic institutions, employer groups, and the community to support the IOM goal of increasing the percentage of baccalaureate prepared nurses to 80% by 2020. Funding for the project is provided by the Robert Wood Johnson Foundation in collaboration with the Tri-Council of Nursing. Partnerships have been formed with 8 public and private universities and community colleges in Hawai'i. Fourteen health care organizations in the state have implemented employee incentives for RNs returning to school for a baccalaureate degree, and as of summer 2014 there were 88 RN to BSN graduates (62 graduates from executive onsite programs hosted in health care organizations and 26 graduates from RN to BSN programs in participating academic programs).⁴¹

The UH system Hawai'i State Nursing Program Consortium supports academic progression by providing community college associate degree students seamless transition to the baccalaureate degree program at UH Manoa.

The UH Consortium participants are able to complete a bachelor's degree in one year. Additional nursing programs in the state are exploring joining this consortium. In addition there are a wide variety of master's program specialties for nursing in the state. All of the baccalaureate programs in the state articulate with the master's programs, and new graduate students from a Hawai'i baccalaureate program will have all of the prerequisite courses in place to begin graduate studies.

In 2011 the UH system nursing schools at Manoa and Hilo each initiated and received Board of Regents approval for a doctor of nursing practice degree (DNP). The DNP is the highest practice doctorate for nursing. DNP programs focus on evidence based practice, quality improvement and systems leadership. DNP graduates are well poised to serve as clinical leaders across the US health system.⁴² Currently there are 18

BS to DNP and 6 MS to DNP, for a total of 24 DNP students in the UH system.

3. Effective workforce planning and policy making requires better data collection and an improved information infrastructure
In 2003 the Hawai'i state legislation authorized the initiation of the Hawai'i State Center for Nursing (HSCN) through Act 198, HB 422.⁴³ Key activities of the HSCN include (but are not limited to): (1) Collect data and disseminate information about the nursing workforce in the state; (2) Conduct research on best nursing practice to support quality care; (3) Initiate strategies for recruitment and retention of nurses; and (4) Conduct research about recruitment and retention of the nursing workforce. The HSCN provides key information about the nursing workforce in the state on an ongoing basis, and this information is used for planning to assure that there is the right number of nurses, with the right specialties available to work in the right areas across the state.

Discussion

The composition of Hawai'i's nursing workforce will be influenced by changes in population demographics, newly emerging (or re-emerging) diseases, evolution of political will towards provision of specialty services (eg, mental health services), and changes in technology (eg, new information systems, telehealth, and advances in critical care). Over the next two decades workforce shortages are anticipated, given that the nursing workforce is aging and retiring while the need for nursing services is increasing.

Academe must be ready to respond to statewide health system needs. Some key elements in planning Hawai'i's future nursing and healthcare workforces include improvements in forecasting the overall numbers and skill sets required by level of practitioner and specialty. Gaps exist in community based mental health providers and cultivation of nurse practitioner programs could serve to alleviate these needs. Another gap area is school health, which is not discussed in detail in this paper.

Quick response to statewide needs by academe does have challenges. Nursing programs traditionally require the largest portion of student clinical rotations to occur in hospital settings. However, the described changes in point of care highlight the need to redeploy more of these clinical experiences into community settings where the elderly increasingly receive care. Similarly, growth in the primary and acute adult/geriatric APRNs workforce is required to assure access to geriatric care. Additional advanced public health nurses will be required to develop and manage population based programs focused on prevention, health, wellness, and early detection of disease in our racially and ethnically diverse population across the age continuum. Similarly, support for doctoral education will aid in the production of DNP leaders who translate research into practice in clinical settings and PhDs conducting integrative and interprofessional research to generate new knowledge.

New nurse roles create educational challenges, highlighting the importance of statewide collaboration among the nursing

programs. Currently, all nursing programs (public and private) in the state are partnering in support of seamless academic progression, decreasing the time to degree and cost of obtaining a degree. Academic partners also benefit by sharing expertise and resources that enrich programs, and create cost efficiencies. In addition, cooperation between nursing programs and the healthcare service sector is essential to promoting and supporting education and workforce planning in the state.

Conclusion

As healthcare needs change, academic, healthcare, and community partners must be prepared to respond by developing innovative educational delivery models, new specialty programs, and diverse clinical placement opportunities to ensure a pipeline of competent nurses across the state. Nursing as the largest segment of the healthcare workforce in Hawai'i and worldwide requires continued investment to yield dividends that improve access to care, quality and patient safety, patient care outcomes, and decreased healthcare costs.

Conflict of Interest

None of the authors identify any conflict of interest.

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