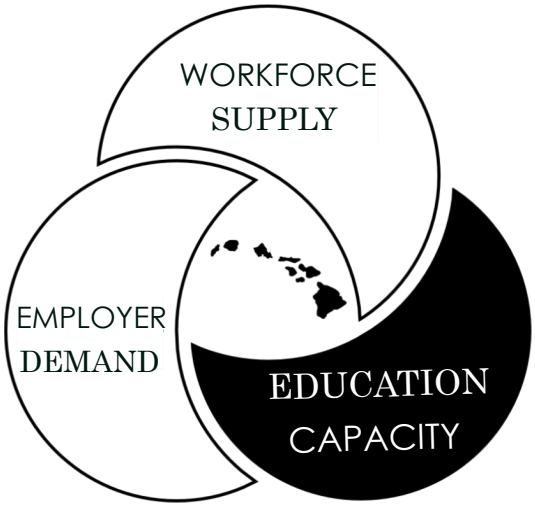
Hawai'i State Nurse Education Capacity Report



Academic Year 2017-2018

HAWAI'I STATE CENTER FOR NURSING
Connecting Nurses. Transforming Healthcare.

Hawai‘i State Nurse Education Capacity Report,

Academic Year 2017-2018

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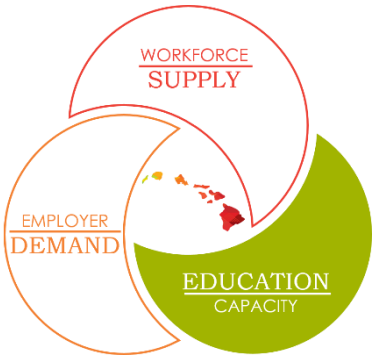

The Hawai‘i State Center for Nursing monitors the state of the nursing workforce in Hawai‘i through the collection and reporting of workforce supply, education capacity, and employer demand data. These three research activities assist entities in the public and private sectors with the development and implementation of initiatives intended to develop a robust nursing workforce that meets the needs of Hawai‘i’s residents now and in the future.

The education capacity report summarizes the state of nurse education in Hawai‘i, including current capacity and barriers to sustainability and growth.

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Executive Summary

Pre-License Programs (LPN, ADN, BSN, and GEPN Programs)

- Pre-license programs accepted 643 new students in AY 2017-2018.
- Enrollment demand in all pre-license programs exceeded enrollment capacity.
- Of all pre-license programs, BSN programs received the largest number of applications
- Men account for a larger proportion of students enrolled in pre-license programs than are currently in the nursing workforce; in ADN programs, 1 in 4 students is male.
- Persons of Native Hawaiian ancestry are represented at higher rates in all pre-license programs than in the existing nursing workforce.
- Pre-license programs graduated 444 students, of which approximately 85% were new graduate RNs.
- There is currently an LPN shortage: LPN programs are not graduating enough new nurses to fill existing vacancies. Further, the number of LPN positions is projected to increase through 2026.
- Schools are graduating more new RNs than there are available positions for generalist nurses, however when new position growth is considered, there is equilibrium between RN supply and demand.
- The current number of NPs graduating from local schools is insufficient to address the existing APRN and primary care shortages in the state.

Post-License Programs (RN-to-BSN, Post-License Graduate Programs)

- Post-license programs accepted 143 new students in AY 2017-2018.
- 85% of applications to post-license programs were received by RN-to-BSN programs.
- 82 students graduated from RN-to-BSN programs; approximately 30 nurses graduated from NP programs.
- Post-license students in all types of programs are more ethnically diverse than the existing nursing workforce.
- Employment demand exceeds production of specialty RNs and NPs.

Nurse Faculty

- The overall faculty vacancy rate is 5%. The vacancy rate for full-time positions (7%) is higher than for part-time positions (2%).
- 30% of full-time nurse faculty are over the age of 60.
- As compared to the total nursing workforce, nurse faculty are more likely to be over the age of 60 and Caucasian and less likely to be male or Native Hawaiian.
- 81% of full-time nurse faculty have their highest degree in nursing; 26% have a PhD in nursing.

Challenges Affecting Schools of Nursing

- 90% of schools reported being adversely affected by one or more challenges related to developing or sustaining their programs.
- The top two challenges affecting schools are insufficient funding for new faculty hires and raises, and difficulty filling full-time faculty positions.
- 40% of schools reported being affected by a lack of clinical training sites and 30% reported being affected by a lack of preceptors.
- In response to challenges, 50% of nursing schools have reduced enrollment cohort sizes and 50% have increased the proportion of clinical education they deliver by high-fidelity simulation.

Workforce Implications

- Lack of either enrollment capacity or clinical placement capacity puts Hawai‘i at risk for having a nursing workforce shortage at all levels of practice. Employers must continue to be active partners to schools of nursing. They must collaborate with schools to accommodate the need for clinical immersions without compromising academic program enrollment capacity.
- Schools' lack financial resources to provide raises to existing faculty or hire additional faculty which contributes to a nurse faculty shortage. Increasing the availability of local, degree-leading programs for nurse educators may improve recruitment of passionate educators with higher tolerance for the cost of living in Hawai‘i than candidates from the continental U.S.

Introduction to the 2017-2018 Hawai'i Nurse Education Capacity Report

Purpose of the Report

The annual Hawai'i Nurse Education Capacity Report summarizes data about the extent to which local schools of nursing have the capacity to prepare a nursing workforce that meets in-state employment demand for nurses at all levels of practice.

This report serves as an important workforce monitoring tool. It provides information about schools' capacity to enroll new students, the number of graduates they produce, and factors that adversely impact their programs. Because academic programs are the beginning of the workforce pipeline, a reduction in their capacity to enroll new students and retain them through graduation will result in an eventual decrease in the number of new nurses entering the workforce. In turn, employers will experience difficulty filling vacant or new positions. A persistent inability for employers to fill open nursing positions could adversely impact that the population's access to nursing care.

By producing this report annually, the Hawai'i State Center for Nursing (hereafter referred to as "the Center") can make schools, employers, and workforce planners aware of changes in the demand for nurse education, schools' enrollment caps or graduation rates, and the availability of academic programs that support the stability of the statewide nursing workforce.

Report Data Sources

The primary data source for this report is the Center's Nurse Education Capacity Survey for academic year (AY) 2017-2018. The survey is based on the Minimum Dataset Survey (MDS) published by the National Forum of State Nursing Workforce Centers (hereafter referred to as the Forum). The Forum recommends that states use the appropriate MDS for education, supply, and employment demand so that national dialogue about nursing workforce development can be informed by data that is collected at the state level.

Report Structure

This report has three major content sections. The first is an overview of the types of nurse education available in Hawai'i. The overview includes a list of the local schools offering nurse education, the types of programs available in AY 2017-2018, and a presentation of the multiple pathways through which nurses can access advanced levels of nurse education.

The second section of the report provides an overview of pre- and post-license nurse education programs available in Hawai'i during AY 2017-2018. The overview includes information about enrollment demand, capacity to accept students, and the number of graduates each program produced. This section also includes data from an employer demand survey and labor statistics to provide information about the employment opportunities available for newly-graduated nurses.

The final section of the report provides information on barriers to the growth of nursing

programs in Hawai‘i. Discussion in this section focuses largely on how the existing scarcity of content-appropriate clinical education experiences affects schools' overall capacity to educate nurses.

Important Notes about the Nurse Education Capacity Survey and This Report

1. Though this report focuses specifically on the educational pathways to nurse licensure available in the state, educational preparation is one of several requirements an individual must meet in order to obtain and maintain a nursing license in Hawai‘i. The full set of requirements for nurse licensure and right to use the title of "nurse" is explicated in Hawai‘i Revised Statutes Chapter 457 and Hawai‘i Administrative Rules Title 16, Chapter 89.
2. All institutions whose data are included in this report (1) have a physical campus in Hawai‘i, (2) offered at least one nurse education program during AY 2017-2018, and (3) are recognized by the Hawai‘i Board of Nursing (HBON). Neither the Education Capacity Survey nor this report includes out-of-state schools that offer nurse education to Hawai‘i residents *exclusively* through distance learning programs. In total, 10 schools offered in-state nurse education programs in AY 2017-2018. All 10 institutions are referred to in this report as "schools of nursing" regardless of the formal designation of the academic unit (i.e., school, college, department, or program).
3. The Center conducts the Education Capacity Survey following the completion of an academic year. Data about nurse education programs available in Hawai‘i during AY 2017-2018 (August, 2017 – July, 2018) were collected between November, 2018 and April, 2019.
4. Following the completion of data collection for this report but prior to its publication, Argosy University terminated all operations in Hawai‘i. Despite being closed at the time of the publication of this report, Argosy University's Hawai‘i nursing program's data are included here so as to accurately summarize the availably of nurse education during AY 2017-2018.
5. To improve the accuracy of statewide estimates, missing data were extrapolated from available data whenever possible. In cases in which extrapolation was performed, the resulting estimate is the lowest mathematically possible value and are, thus, underestimates. All such cases are notated with: [ue].
6. This report uses the term Filipinx to describe persons of any gender who have ethnic ancestry originating in the Philippine Islands. The term Latinx refers to persons of any gender with ethnic ancestry originating in Latin America.
7. The report uses common nursing acronyms including:

- ADN = Associate Degree Program in Nursing
- APRN = Advanced Practice Registered Nurse
- BSN = Baccalaureate Degree Program in Nursing
- DNP = Doctor of Nursing Practice
- GEPN = Graduate Entry Program in Nursing
- HBON = Hawai‘i Board of Nursing

- IOM = Institute of Medicine *Future of Nursing* Report
- LPN = Licensed Practical Nurse
- MSN = Master's Degree Program in Nursing
- NCLEX = National Council and Licensure Examination (-PN = for Practical Nurses; -RN = for Registered Nurses)
- NP = Nurse Practitioner
- NSCBN = National Council of State Boards of Nursing
- RN = Registered Nurse

Overview of Nurse Education Programs Offered in Hawai'i

Accreditation and Board Approval

In AY 2017-2018, 10 post-secondary institutions in Hawai'i offered nurse education through nursing schools, departments, or programs. All of Hawai'i's schools of nursing are accredited by the Commission on Collegiate Nursing Education (CCNE) and/or the Commission for Nursing Education Accreditation (ACEN). These accrediting bodies ensure that the education offered by accredited programs meets the current standards for academic rigor and evidence-based curriculum and instruction. Additionally, in accordance with Hawai'i's Nurse Practice Act, all of Hawai'i's schools of nursing are approved by HBON. The board reviews program curricula, examines faculty credentials, and monitors first-time NCLEX pass rates to ensure that schools are providing the education necessary for licensure in the state.

Types of Nursing Programs Available in Hawaii

Entry-to-Practice Certificate & Degree Programs

The primary function of pre-license nurse education programs is to add new nurses to the workforce. Four types of entry-to-practice programs are available for individuals who are interested becoming nurses. These include LPN certificates of achievement, ADN, BSN, and GEPN programs.

LPN Certificate of Achievement programs provide students with the technical knowledge necessary to pass the NCLEX-PN. LPNs practice under the direct supervision of an RN or other licensed healthcare provider and are important members of healthcare delivery teams, especially in community-based settings.

Individuals who wish to enter the nursing profession as RNs may obtain the necessary education in ADN, BSN, or GEPN nursing programs. All three types of programs provide the essential didactic and clinical education necessary to pass the NCLEX-RN and perform RN core competencies. BSN programs provide additional instruction in community and/or population health and are designed to improve graduates' critical thinking skills, clinical judgment, and overall nursing professionalism. GEPN programs provide BSN-equivalent education which is followed by an immediate transition into graduate education which allows students to obtain specialty RN clinical expertise or to become APRNs.

Table 1. Federal Tax Classification & Nursing Academic Awards Offered by Institution, AY 2017-2018.

Name	Federal Tax Classification			Nursing Certificates/Degrees Offered					
	Public	Not for Profit	For Profit	LPN	ADN	BSN	MSN	DNP	PhD
Number of Institutions (State)	**6**	**2**	**2**	**2**	**4**	**6**	**2**	**3**	**1**
County of Hawai'i									
Hawai'i Community College	✓			✓	✓				
University of Hawai'i at Hilo	✓					✓		✓	
City & County of Honolulu									
Argosy University			✓			✓			
Chaminade University		✓				✓			
Hawai'i Pacific University		✓				✓	✓	✓	
Kapi'olani Community College	✓			✓	✓				
University of Hawai'i at Mānoa	✓					✓	✓	✓	✓
University of Phoenix			✓			✓			
Maui County									
University of Hawai'i Maui College	✓				✓				
County of Kaua'i									
Kaua'i Community College	✓				✓				

Note. All institutions with a federal tax classification of "Public" are institutions governed by the University of Hawai'i System.

Post-License Degree Programs

Post-license programs promote the advancement of the existing workforce by providing nurses with the opportunity to develop their expertise, and to become more competent and specialized in their practice. Nurses with BSN or graduate degrees have access to more opportunities for professional advancement. Further, facilities with higher proportions of BSN- or graduate-prepared nurses report better quality metrics and fewer adverse outcomes for patients (see American Association of Colleges of Nursing, 2019 for review of literature).

RNs who were initially prepared in diploma or ADN programs can become BSN-prepared in RN-to-BSN programs. They build on RNs' initial education and existing expertise and provide nurses with deeper understanding of healthcare systems and models of healthcare delivery across a range of settings. The expanding body of evidence indicating that higher education yields better patient outcomes has prompted many employers to change their hiring preferences or clinical ladder requirements to include the completion of a BSN.

RNs who want to specialize in a clinical or non-clinical practice area may obtain educational preparation in graduate programs. Clinical graduate programs (e.g., advanced population health) allow RNs to develop specialized expertise relevant to their roles in direct patient care. Non-clinical graduate programs (e.g., nurse education, organizational leadership, PhD) provide an avenue for nurses to shift out of direct patient care roles into positions such nurse educators, administrators, and scientists.

RNs who want to become APRNs must have a graduate degree to be eligible for licensure in Hawai'i. APRN programs provide the necessary educational preparation for certification and practice as NPs, nurse anesthetists, nurse midwives, and clinical nurse specialists.

Table 2. Post-License Graduate Nurse Education Programs Offered by Institution, AY 2017-2018.

	Hawai'i Pacific University	University of Hawai'i at Hilo	University of Hawai'i at Mānoa
Master's Degree Programs			
Specialty Clinical RN			
Advanced Population Health Nursing			✓
APRN			
Adult-Gerontology CNS			✓
Acute Care Adult-Gerontology NP	✓		
Family NP	✓		
Doctor of Nursing Practice Programs			
Non-Clinical			
Nurse Education		✓	
Organizational Leadership	✓		✓
APRN			
Primary Care Adult-Gerontology NP			✓
Family NP		✓	✓
PhD Programs			
Non-Clinical			
PhD in Nursing			✓

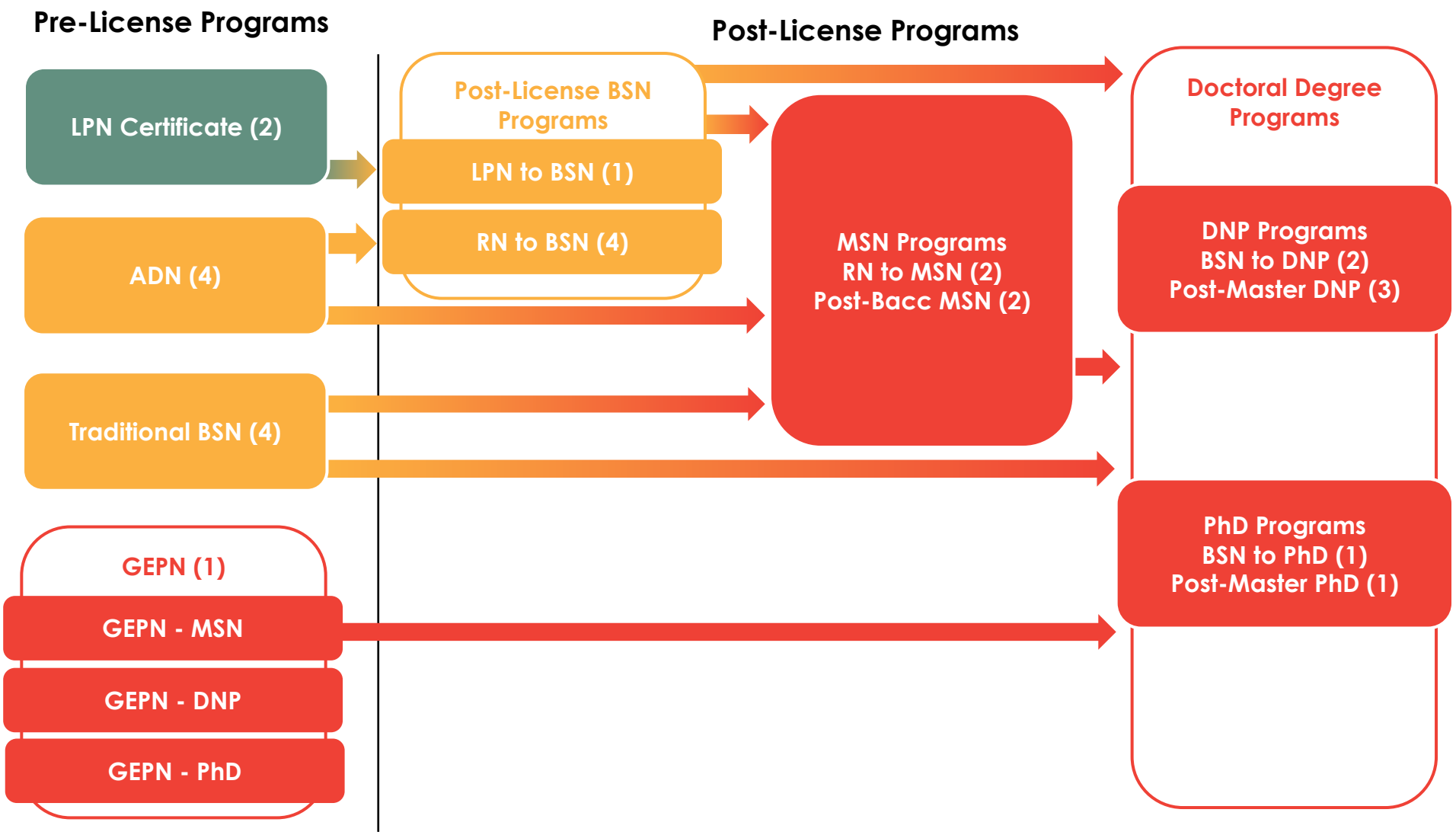
Admissions Pathways

To expand opportunities for RNs to pursue their highest educational goals, schools of nursing offer admission to master's and doctoral programs though two types of pathways.

The first follows the traditional model of higher education wherein a student begins with an undergraduate degree and then must complete a master's degree to be eligible to enroll in a doctoral degree program. The second type of pathway recognizes the knowledge and expertise that nurses acquire through practice and allows them to bypass intervening degrees. Such pathways allow ADN-prepared RNs to enroll in master's degree programs or BSN-prepared RNs to enroll in doctoral degree programs.

The collective offerings of Hawai'i's schools of nursing offer all possible entry pathways, degrees, and modes of instructional delivery to maximize access to nurse education for residents in all counties.

Figure 1. Pathways to Nurse Education in Hawai‘i.



Note. Green boxes indicate certificate programs. Yellow boxes indicate undergraduate degree programs. Red boxes indicate graduate degree programs. Numbers in parentheses indicate the number of programs of each type in existence in Hawai‘i during AY 2017-2018. Not all operating programs accepted new students during the academic year.

Entry-to-Practice Programs

Applicants and New Enrollments

Enrollment demand continues to be high for nurse education in Hawai'i. Hawai'i's pre-license nursing programs received applications from 564 fully qualified individuals in AY 2017-2018. Undergraduate RN programs received 83% of all pre-license program applications. LPN and GEPN programs each received 8% and 9% of pre-license applications, respectively.

Pre-license BSN programs received a larger proportion (66%) of applications to undergraduate RN programs than did ADN programs (33%). Applicants' preference to enter the field with a BSNs is consistent with a national trend that began in 2010. The timing of this trend coincides with the publication of the IOM's *Future of Nursing* report which contained the recommendation that 80% of the nursing workforce have a BSN or higher by 2020 (Buerhaus, Auerbach, & Staiger, 2017).

Enrollment demand to all types of entry-to-practice programs exceeded schools' capacity to admit new students by an average of 1.75 fully qualified applications per new student seat. ADN programs had the largest discrepancy between enrollment demand and capacity which resulted in 55% of ADN applicants being denied admission.

Table 3. Applicants & Enrollments for Pre-License Nursing Programs, AY 2017-2018

	LPN	ADN	BSN[1]	GEPN
Available Openings	46	146	321	51
Qualified Applications	77[ue]	321[ue]	646	58
Applications Received per Available Opening	1.7	2.2	2.0	1.1
Admissions Offered	46	146	398	53
Acceptance Rate*	60%	45%	62%	91%
New Students Enrolled	46	146	292	51

Note. *Calculated as (#Admissions Offered/# Qualified Applicants).

[1] LPN-to-BSN and traditional pre-license BSN programs are included in the BSN counts as both programs produce new graduates to RN practice who are initially prepared at the baccalaureate level.

Total Student Census

In AY 2017-2018, 1,295 students were enrolled in Hawai'i's pre-license nurse education programs. The majority (86%) of pre-license students were enrolled in undergraduate RN programs. LPN and GEPN students accounted for 4% and 11% of all pre-license students, respectively. BSN students accounted for 77% of all students enrolled in pre-license undergraduate RN programs.

The demographic composition of enrolled nursing students is worth noting because it will eventually influence the demographic composition of the workforce. A nursing workforce that is ethnically, racially, and/or culturally similar to the population has the greatest potential to deliver culturally competent care to patients. IOM recommends that nursing workforces should be demographically similar to the populations they serve so as to ensure that patients have access to providers who understand their cultural backgrounds.

In 2017, 13% of nurses employed were male (HSCN, 2017b). In contrast, men accounted for about 20% of all pre-license students during AY 2017-2018. Men had the highest representation (26%) in ADN programs. If the trend of increasing male representation continues, the percentage of men in the workforce should also increase over time.

The ethnic composition of pre-license nursing students varied considerably by program type. More than 50% of LPN students and 25% of ADN students were of Filipinx ancestry. In contrast, 4% of BSN and 13% of GEPN students were Filipinx. BSN students were predominantly Asian or multi-racial whereas GEPN students were approximately equally likely to be Caucasian or multi-racial.

As of 2017, Caucasian and Filipinx nurses each represented 31% of all employed nurses (HSCN, 2017b) though they respectively accounted for only 25% and 16% of the state's population (U.S. Census Bureau, 2017). Overrepresentation of Caucasian and Filipinx nurses may make it more difficult for patients from other backgrounds to find a provider who is ethnically and culturally similar to themselves.

Though the workforce is not currently representative of the population, it will likely become more representative as students enrolled in ADN, BSN, and GEPN programs graduate and obtain employment as nurses. In each of these programs, Caucasian persons account for no more than 17% of students, and Native Hawaiian persons account for no fewer than 8% of students. Further, BSN and GEPN programs both have student bodies that are approximately 20% multi-racial which nearly matches the 24% of the population that identifies as two or more races.

Table 4. Demographic Characteristics of Pre-License Nursing Students, AY 2017-2018

Demographic Characteristic	LPN		ADN		BSN		GEPN	
	#	%	#	%	#	%	#	%
Gender Total	**46**	**100%**	**257**	**100%**	**853**	**100%**	**139**	**100%**
Female	37	80%	189	74%	711	83%	111	80%
Male	9	20%	68	26%	142	17%	28	20%
Unknown/Missing	0	0%	0	0%	0	0%	0	0%
Race/Ethnicity Total	**46**	**100%**	**257**	**100%**	**853**	**100%**	**139**	**100%**
White	4	9%	44	17%	108	13%	24	17%
Black/African American	2	4%	1	0%	11	1%	5	4%
Hispanic/Latinx	1	2%	2	1%	48	6%	7	5%
Chinese	1	2%	20	8%	10	1%	7	5%
Filipinx	24	52%	65	25%	37	4%	18	13%
Japanese	4	9%	18	7%	16	2%	15	11%
Korean	2	4%	2	1%	4	0%	3	2%
Other Asian	1	2%	5	2%	289	34%	6	4%
Native Hawaiian	3	7%	21	8%	107	13%	16	12%
Samoan	0	0%	0	0%	0	0%	0	0%
Other Pacific Islander	0	0%	3	1%	1	0%	5	4%
American Indian/Alaska Native	0	0%	0	0%	7	1%	5	4%
Multiracial	3	7%	21	8%	189	22%	24	17%
Other Ethnicity	0	0%	1	0%	4	0%	0	0%
Unknown/Missing	1	2%	54	21%	22	3%	4	3%
Age Total	**46**	**100%**	**257**	**100%**	**853**	**100%**	**139**	**100%**
20 Years or Younger	0	0%	28	11%	172	20%	0	0%
21 Years to 25 Years	13	28%	91	35%	223	26%	36	26%
26 Years to 30 Years	27	59%	72	28%	90	11%	52	37%
31 Years to 40 Years	5	11%	52	20%	62	7%	43	31%
41 Years to 50 Years	1	2%	10	4%	26	3%	7	5%
51 Years to 60 Years	0	0%	2	1%	3	0%	1	1%
61 Years and Older	0	0%	0	0%	0	0%	0	0%
Unknown/Missing	0	0%	2	1%	277	32%	0	0%

Graduates

In total, 444 new nurses graduated from entry-to-practice programs. Of them, 9% graduated from LPN certificate programs, 83% graduated from undergraduate RN programs, and 8% graduated from GEPN programs.

Of the 370 students who graduated from undergraduate RN programs, 35% graduated from ADN programs and 65% completed a BSN program. ADN and BSN graduates respectively represent 30% and 54% of the 444 graduates from all entry-to-practice programs.

Hawai'i's GEPN graduates are prepared to enter practice as population health RNs or APRNs[2]. In AY 2017-2018, 71% of GEPN graduates completed an NP program track.

Table 5. Graduates from Pre-License Nursing Programs, AY 2017-2018

	LPN	ADN	BSN	GEPN
Program Graduates	40	131	239	34
% of Graduates from Neighbor Island Schools	23%	60%	17%	0%

Post-License Programs

Applicants and New Enrollments

Table 6. Applicants & Enrollments from Post-Licensure Nursing Programs, AY 2017-2018

	Post-License BSN	MSN[3]	DNP	PhD
Available Openings	104*	96	39	0
Qualified Applications	76	42	37	--
Applications Received per Available Opening	0.7	0.4	0.9	--
Admissions Offered	74	40	29	--
Acceptance Rate**	97%	95%	78%	--
New Students Enrolled	62	25	23	--

Note. *Indicates that at least one institution reported that available seats for new students was variable depending on enrollment demand and availability of clinical faculty. The number in the table substitutes number of qualified applicants for the number of seats available. **Calculated as (#Admissions Offered/# Qualified Applicants).

[2] APRN tracks for CNS and NP were available in AY 17-18.
[3] Tabulated data for MSN, DNP and PhD programs in nursing include all students graduating from a program that confers the specified degree regardless of the admission pathway through which they entered a post-license program.

In AY 2017-2018, post-license nurse education programs received a total of 155 applications from fully-qualified individuals. Of these, 49% were for RN-to-BSN programs, 27% were for MSN programs, and 25% were for DNP programs.

The high proportion of nurses who applied to RN-to-BSN programs supports Hawai'i's pursuit of the IOM's recommendation for an 80% BSN-prepared workforce. The proportion of BSN-prepared nurses is a function of both the number of nurses who enter practice with a BSN *and* the number of diploma- and ADN-prepared nurses who pursue academic advancement to the baccalaureate level. Continued interest among diploma- and ADN-prepared nurses in advancing their education will help Hawai'i reach the 80% target within the next three years (HSCN, 2018).

MSN and DNP programs received fewer fully-qualified applications than they had openings for new students. It is tempting to interpret these data as indicative of schools' untapped capacity to enroll new post-license students. However, it is important to recognize that these data present only a partial view of schools' capacity. Schools may decrease their admission cohort sizes if they experience unanticipated changes in the availability of faculty, clinical education sites, preceptors, and/or other funding or support resources. Ultimately, the number of available openings schools have for new students is variable and dependent on the availability of essential resources.

Total Student Census

In AY 2017-2018, 256 students were enrolled in post-license programs. Of these 43% were enrolled in RN-to-BSN programs, 25% were MSN students, 21% were DNP students, and 10% were enrolled in PhD programs.

The RN-to-BSN student population was more ethnically diverse than the population of students enrolled in other post-license programs (see Table 7). Among RN-to-BSN students, the single largest ethnic category (25%) was multiracial, and no other single ethnic group accounted for more than 15% of all enrolled students. In contrast, students of Caucasian ancestry accounted for the single largest ethnic group among MSN (29%), DNP (33%), and PhD (58%) students. Though the one PhD program had the highest proportion of Caucasian students of all post-license programs, it also had the highest proportion of students of Native Hawaiian ancestry (15%).

Table 7. Demographic Characteristics of Post-License Nursing Students, AY 2017-2018

Demographic Characteristic	BSN		MSN		DNP		PhD	
	#	%	#	%	#	%	#	%
Gender Total	**111**	**100%**	**66**	**100%**	**55**	**100%**	**26**	**100%**
Female	93	84%	51	77%	47	85%	22	85%
Male	18	16%	15	23%	8	15%	4	15%
Unknown/Missing	0	0%	0	0%	0	0%	0	0%
Race/Ethnicity Total	**111**	**100%**	**66**	**100%**	**55**	**100%**	**26**	**100%**
White	17	15%	19	29%	18	33%	15	58%
Black/African American	0	0%	2	3%	0	0%	1	4%
Hispanic/Latinx	11	10%	4	6%	0	0%	0	0%
Chinese	2	2%	0	0%	1	2%	1	4%
Filipinx	16	14%	7	11%	4	7%	1	4%
Japanese	10	9%	5	8%	2	4%	1	4%
Korean	2	2%	1	2%	2	4%	1	4%
Other Asian	11	10%	9	14%	13	24%	0	0%
Native Hawaiian	11	10%	6	9%	2	4%	4	15%
Samoan	0	0%	1	2%	0	0%	0	0%
Other Pacific Islander	2	2%	0	0%	0	0%	0	0%
American Indian/Alaska Native	1	1%	0	0%	0	0%	1	4%
Multiracial	25	23%	7	11%	12	22%	1	4%
Other Ethnicity	0	0%	3	5%	1	2%	0	0%
Unknown/Missing	3	3%	2	3%	0	0%	0	0%
Age Total	**111**	**100%**	**66**	**100%**	**55**	**100%**	**26**	**100%**
20 Years or Younger	0	0%	0	0%	0	0%	0	0%
21 Years to 25 Years	14	13%	3	5%	1	2%	0	0%
26 Years to 30 Years	22	20%	7	11%	9	16%	1	4%
31 Years to 40 Years	35	32%	10	15%	16	29%	2	8%
41 Years to 50 Years	29	26%	4	6%	7	13%	11	42%
51 Years to 60 Years	9	8%	0	0%	11	20%	8	31%
61 Years and Older	0	0%	0	0%	1	2%	4	15%
Unknown/Missing	2	2%	42	64%	10	18%	0	0%

Graduates

In AY 2017-2018, 135 students graduated from post-license nurse education programs. Of these, 60% graduated from RN-to-BSN programs, 25% earned MSN degrees, and 14% earned doctoral degrees (7% DNP, 7% PhD).

As part of its 2010 call for a more highly educated nursing workforce, the IOM recommended a doubling of the number of doctoral-prepared nurses. In AY 2017-2018, 19 students graduated with a doctoral degree. These graduates accounted for 36% students who earned a graduate degree in nursing.

Table 8. Graduates Counts for Post-Licensure Nursing Programs, AY 2017-2018

	Post-License BSN	MSN	DNP	PhD
Program Graduates	82	34	9	10
% of Graduates from Neighbor Island Schools	17%	0%	22%	0%

Note. There are no MSN or PhD programs on neighbor islands. See Table 1 for types of programs offered in each county.

Employment Demand for Nurses

Demand Data Sources

Employer demand data comes from a survey of healthcare employers conducted from late 2018 through early 2019 by the Healthcare Association of Hawai'i (HAH). The survey collected information about the number of filled and vacant nursing positions at facilities throughout the state. At the time of the publication of this report, only unpublished preliminary data were available from HAH's survey. HAH will be publishing its final report of the study in late August, 2019.

Labor statistics come from two sources: the Hawai'i Department of Labor and Industrial Relations (DLIR) and the U.S. Bureau of Labor Statistics (BLS). DLIR's long-term occupation projections provide information about the number of nursing positions that are expected to exist in the state through 2026. The average rate of compensation for nursing roles in Hawai'i comes from BLS.

Information about the demand for primary care providers, including nurse practitioners, comes from data published by the Hawai'i-Pacific Basin Area Health Education Center (AHEC).

Employment Demand for LPNs

Since 2015, the number of individuals holding an active Hawai'i LPN license has decreased by 370 (PVL, 2019). This represents a workforce loss of 16% over the last four years. The declining size of the workforce, coupled with persistent employment demand, has resulted in a disproportional number of LPN vacancies. Though they account for only 9% of total nursing positions, LPN positions represent 25% of all vacant nursing roles (HAH). The high number of job openings relative to the number of LPN program graduates results in a highly favorable

post-graduation employment environment for LPNs.

Looking into the future, DLIR (2018b) projects an increase of 160 LPN positions by 2026, representing a 12.4% increase since 2016. The existing production of new LPNs is insufficient to meet existing employment demand. If new enrollments and graduations remain constant over the next seven years, the shortfall between LPN supply and employment demand will worsen.

Employment Demand for New Graduate RNs

RN medical-surgical[4] or "other clinical" RN roles[5] require the skills of generalist rather than specialist nurses and align well with the abilities of new graduate RNs. HAH's data indicate approximately one-third of all existing vacancies are in generalist roles. The number of new graduate RNs exceeds existing generalist vacancies by a substantial margin.

Though these data seem to suggest that schools of nursing are creating a surplus of new graduate RNs, it is vital to consider that point-in-time employer demand data, like HAH's, account for neither anticipated turnover (i.e., the future vacancy of currently filled positions) nor the addition of new positons to the workforce. DLIR's long-term occupational projections (2018b) estimate that the number of RN jobs will increase by an average of 218 new positions each year through 2026. DLIR (2018a) further estimates that turnover plus new positions results in approximately 770 open RN positions each year. Hawai'i's schools of nursing can support the continued equilibrium between employment demand and workforce supply by maintaining the existing enrollment capacity in their entry-to-practice RN programs.

Employment Demand for Specialist RNs

HAH's data indicate that about 40% of all vacant nursing positions are in specialty RN roles such as emergency/trauma, critical care, and case management. Academic opportunities for specialty clinical education are limited: BSN programs are required by their national accreditors and NCSBN to prepare students as generalists, and therefore cannot provide specialty education. As such, academic programs can only offer specialty education in graduate or non-degree certificate programs.

For most schools, development of specialty RN programs is impracticable. In order to create new academic programs, schools must be able to demonstrate the existence of persistent enrollment demand, have faculty who possess the necessary expertise to teach in the specialty, and secure specialty-specific clinical education opportunities from a clinical environment that is nearly at maximum capacity to accept students.

Because most schools do not have the resources to create and sustain specialty programs,

[4] "Medical-surgical nurses . . . practice primarily on hospital units and care for adult patients who are acutely ill with a wide variety of medical problems and diseases or are recovering from surgery" (AMSN, n.d.).

[5] The other clinical RN roles category likely includes any number of community-based RN positions that are not easily classified using the nomenclature typically used to describe nursing roles in hospital settings.

employers share the responsibility of building a specialty nursing workforce. As part of their professional roles, nurses often have the opportunity to work with a variety of patients with a range of illnesses or injuries. Through exposure to a multitude of patients, nurses identify the type of specialists they wish to become. Employers encourage nurses' cultivation of specialist expertise by providing financial support for specialty certification exams, tuition assistance for available academic programs, and other incentives.

Employment Demand for APRNs

In AY 2017-2018, all three of Hawai'i's graduate degree-granting schools offered programs that prepared students for practice as APRNs. Three schools offered adult-gerontology or family NP programs and one school offered an adult-gerontology CNS program.

Hawai'i's graduate nurse education programs predominantly prepare students for practice as NPs, and 3 out of 4 APRNs in Hawai'i is certified as an NP (HSCN, 2017b). Therefore, the remainder of this section will focus only on employment demand for NPs.

According to the *Consensus Model for APRN Regulation* (NCSBN, 2008), the delivery of primary care requires specific education, training, and certification. NPs who are certified in the delivery of primary care may serve as patients' primary point-of-contact for health-related issues, refer patients to specialists, and be the locus of coordinated health care for his/her patients. According to the Health Resources & Services Administration (HRSA, 2019), parts of the City & County of Honolulu and Maui County, and all of Hawai'i County have been designated as primary care heath provider shortage areas.

Consistent with HRSA's shortage area designations, the Hawai'i-Pacific Basin AHEC also found in its most recent provider study that there is a statewide shortage of 396 APRN FTEs (AHEC, 2018) and 263 primary care physician FTEs (Withy, 2018). As DLIR (2018b) projects that the number of NP positions in the state will increase by 37% by 2026[6], this shortage is likely to get worse.

Though the existing shortage creates favorable employment prospects for graduates of NP programs, it also highlights that schools of nursing must maintain or increase their capacity to enroll and graduate primary care NPs. Because of resource constraints that keep schools' NP program enrollment caps low, employers and state agencies must collaborate with schools to find sustainable ways to increase NP program enrollment capacity.

[6] As compared to 2016.

Nurse Faculty in Academic Year 2017-2018

Faculty Positions and Vacancies

During AY 2017-2018, Hawai'i's schools of nursing reported that they employed a total of 262 faculty members, of which 52% were employed in full-time positions.

In the 2017-2018 Hawai'i Nurse Education Capacity Survey, a faculty vacancy was defined as an instructional position that had an approved line of funding and for which recruitment was ongoing during the academic year. Schools reported an overall vacancy rate of 5%. Schools reported that they had more vacant full-time positions (7%) than part-time positions (2%).

Table 9. Faculty Positions and Vacancies, AY 2017-2018

Position Type	Full-Time		Part-Time		Total	
	#	%	#	%	#	%
Position Total	**147**	**100%**	**128**	**100%**	**275**	**100%**
Filled	137	93%	125	98%	262	95%
Vacant	10	7%	3	2%	13	5%

Faculty Demographics

The demographic characteristics of full-time faculty are notably different from the demographic characteristics of the rest of the state's employed nurses. As compared to the employed nursing workforce, full-time faculty are more like to be over the age of 60 and Caucasian, and less likely to be Native Hawaiian and male (HSCN, 2017b).

Figure 2. Demographic Characteristics of Nurse Faculty vs. All Employed Nurses

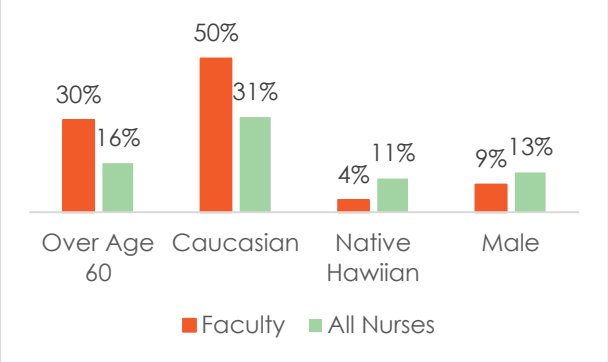


Table 10. Demographic Characteristics of Nurse Faculty, AY 2017-2018

Demographic Characteristic	Full-Time		Part-Time		Total	
	#	%	#	%	#	%
Gender Total	**137**	**100%**	**125**	**100%**	**262**	**100%**
Female	125	91%	109	87%	234	89%
Male	12	9%	16	13%	28	11%
Unknown/Missing	0	0%	0	0%	0	0%
Race/Ethnicity Total	**137**	**100%**	**125**	**100%**	**262**	**100%**
Black/African American	6	4%	0	0%	6	2%
White	69	50%	30	24%	99	38%
Hispanic/Latinx	2	1%	3	2%	5	2%
Filipinx	11	8%	12	10%	23	9%
Chinese	4	3%	1	1%	5	2%
Korean	2	1%	1	1%	3	1%
Other Asian	6	4%	9	7%	15	6%
Native Hawaiian	5	4%	5	4%	10	4%
Samoan	1	1%	0	0%	1	0%
Other Pacific Islander	1	1%	0	0%	1	0%
American Indian/Alaska Native	1	1%	0	0%	1	0%
Multiracial	6	4%	1	1%	7	3%
Other Ethnicity	10	7%	0	0%	10	4%
Unknown/Missing	13	9%	63	50%	76	29%
Age Total	**137**	**100%**	**125**	**100%**	**262**	**100%**
30 Years or Younger	0	0%	3	2%	3	1%
31 Years to 40 Years	14	10%	10	8%	24	9%
41 Years to 50 Years	28	20%	30	24%	58	22%
51 Years to 55 Years	12	9%	6	5%	18	7%
56 Years to 60 Years	24	18%	6	5%	30	11%
61 Years to 65 Years	26	19%	5	4%	31	12%
66 Years to 70 Years	8	6%	2	2%	10	4%
71 Years and Older	7	5%	0	0%	7	3%
Unknown/Missing	18	13%	63	50%	81	31%
Highest Degree Earned Total	**137**	**100%**	**125**	**100%**	**262**	**100%**
ADN	1	1%	2	2%	3	1%
BSN	4	3%	36	29%	40	15%
Baccalaureate, Non-Nursing	0	0%	0	0%	0	0%
Master's Degree, Nursing	59	43%	63	50%	122	47%
Master's Degree, Non-Nursing	1	1%	3	2%	4	2%
DNP	16	12%	9	7%	25	10%
Doctoral Practice Degree, Non-Nursing	11	8%	4	3%	15	6%
PhD, Nursing	35	26%	5	4%	40	15%
PhD, Non-Nursing	10	7%	1	1%	11	4%
Unknown/Missing	0	0%	2	2%	2	1%

Note. Japanese was inadvertently removed from the data collection tool schools used to report faculty demographic data and is therefore not included as an ethnic category.

Challenges Facing Hawai'i's Nurse Education Programs

Top Challenges

Schools reported whether each of eight challenges have negatively affected their education programs. Challenges, summarized in Table 11, range from insufficient funding to inadequate classroom facilities. If schools were adversely impacted by factors not on the list, they were able to report additional challenges in an open-ended question.

Of the 10 schools of nursing, only one reported that it was not adversely affected by any factor. The remaining schools reported being adversely affected by an average of 3 challenges. The top three most frequently reported challenges were difficulty hiring full-time faculty, insufficient funding for faculty compensation, and insufficient resources including funding and/or faculty for new program development. These interrelated challenges describe an environment in which schools' inability to compensate faculty at the same rate as clinical facilities leads to difficulty in hiring that, in turn, may contribute to schools' inability to develop new programs.

For the AY 2017-2018 study, schools also reported which one of the challenges they selected had the most significant adverse impact on their programs. Sixty percent of schools reported that difficulty hiring full-time faculty or insufficient funding for faculty compensation was the top challenge affecting their programs.

Table 11. Factors Adversely Impacting Nurse Education Programs, AY 2017-2018

Challenges Affecting Programs	% of Schools Affected	% of Schools Selecting as #1 Aversive Factor
Difficulty filling full-time faculty positions	50%	30%
Lack of funding for new faculty lines or raises	50%	30%
Insufficient funding, faculty, or other resources for new program development	50%	10%
Lack of adequate clinical training sites	40%	10%
Lack of adequate classroom facilities	30%	0%
Lack of preceptors for clinical training experiences	30%	0%
Difficulty filling part-time faculty positions	20%	0%
Program not adversely affected by any of the above factors	10%	0%
Other concern not listed	20%	10%

Note. The "% of Schools Affected" column total exceeds 100% due to multiple responses from some schools. One school did not report being adversely impacted by any factor.

Responses to Challenges

Table 12. Tactics Used by Nurse Education Programs to Address Adverse Impacts

Responses to Challenges	#	%
Reduced admission cohort sizes	4	50%
Replaced some live clinical training with high-fidelity simulation	4	50%
Pursued alternate funding sources (e.g., grants, employer partnerships)	3	38%
Reduced frequency of new admissions	2	25%
Increased work/responsibilities for existing faculty	2	25%
Eliminated programs/tracks	1	13%
Raised tuition/fees	1	13%
Paid clinical training sites	1	13%
Increased number of adjunct faculty	1	13%

Note. Percentages are computed out of the total number of schools that reported at least one barrier to program growth or sustainability and indicated having at least one specific response to those challenges (n=8). Percent column total exceeds 100% due to multiple responses from some schools.

Schools reported the tactics they used to mitigate the adverse effects of the challenges impacting their programs. Of the schools that reported using one or more tactics (n=8) half of them indicated that they reduced admissions cohort sizes or replaced some of their live clinical immersion experiences with high-fidelity simulation.

As employers reduce their clinical cohort size maximums, schools have had to find cost-effective means to ensure that all of their students have access to appropriate clinical education opportunities. By reducing cohort sizes, schools can avoid hiring additional clinical faculty necessary to supervise more clinical cohorts. The effect of smaller admissions cohort sizes, however, is a reduction in the overall number of nurses being added to the workforce. Given that the number of nursing positions is expected to increase annually (DLIR, 2018b), reduction of admission cohort sizes may lead to an eventual inability for local schools to sustain the local workforce.

In response to the increasing challenges associated with securing clinical immersion experiences for schools of nursing across the country, NCSBN (2017) included a provision in its model rules that up to 50% of the clinical hours in a pre-license course may be delivered through simulation. While simulation is an effective and powerful teaching tool (Hayden, Smiley, Kardon-Edgren, & Jeffries, 2014), it cannot fully replace live clinical experiences. As such, schools must continue to find a way to secure necessary clinical experiences while preserving their capacity to enroll enough new students to sustain the nursing workforce.

Study Implications

Schools' responses to the 2017-2018 education capacity survey suggest two important implications for the future of nurse education in Hawai'i.

Schools and Employers Must Have Capacity to Educate Nursing Students

Since 2011, the Hawai'i State Center for Nursing has coordinated the Centralized Clinical Placement System (CCPS). CCPS comprises educators and employers and has the aim of improving communication, transparency, and collaboration among schools that need clinical placements and the facilities who provide them. The CCPS group meets five times annually to discuss, among other things, challenges related to facilities' ability to meet schools' demand for clinical placements.

During their May 2019 meeting employers' clinical coordinators indicated that they recognize their responsibility to participate in the education of nurses, but also noted that large clinical cohorts pose significant challenges for their facilities. Specifically, the presence of eight or more students at a time often disrupts workflow and creates stress for nurses and patients. Further, schools' clinical faculty have difficulty keeping track of large cohorts which shifts the responsibility for supervising students onto staff nurses.

Facility clinical coordinators further indicated that many of these problems can be reduced if the student-to-nurse ratio is as close to 1:1 as possible, prompting many facilities to reduce their clinical cohort size maximums to six students which is the same approximate number of nurses working on a unit at any one time.

At least one CCPS facility's clinical coordinator reported that because of the implementation of smaller clinical cohort sizes, nurse managers were more willing to make their units available for student clinical placements. As a result, the facility increased the number of clinical placements it offered during the last academic term.

While lower cohort maximums may increase facilities' overall clinical placement capacity, schools' enrollment capacity is adversely impacted by the change. Specifically, about half of schools report that they have reduced their admissions cohort sizes to address the financial cost of hiring additional clinical faculty.

This discussion highlights the essential problem of nursing clinical education: there is an inverse relationship between schools' enrollment capacity and facilities' clinical placement capacity. This challenge, though often framed as a school versus facility problem, is one that requires collaboration and cooperation between schools and clinical facilities.

We Need Effective Ways to Recruit and Retain Nurse Faculty

During AY 2017-2018, Hawai'i's schools of nursing were actively recruiting to fill 7% of their full-time faculty positions. Because a disproportionally high number of nurse faculty are over the age of 60, nursing school administrators must hire into vacant roles while simultaneously

anticipating future vacancies resulting from the retirement of their existing faculty.

Difficulty recruiting and retaining nurse faculty is the subject of much discussion at the national level. Though schools report several challenges with recruiting faculty, the most often cited one is the difference in compensation between clinical and faculty positions. In Hawai'i, the average annual income of nurse faculty is $79,560 (BLS, 2018). In contrast, clinical RNs in Hawai'i make a median[7] annual salary of approximately $85,000 (Smiley et al., 2017). For an RN to transition from clinical practice to a faculty role would result in a loss of $5,440 per year in direct compensation for employment.

The need for additional education exacerbates the financial impact of lost compensation. In Hawai'i, 96% of full-time faculty have a graduate degree (see Table 10) while only 8% of RNs are graduate prepared (HSCN, 2019). To become academically qualified for most faculty positions, an RN would have to complete a graduate program. If a BSN-prepared RN completed an NP program, that nurse would be educationally prepared for either a faculty role or a clinical NP role. In Hawai'i, NPs make an average of $120,570 per year (BLS, 2018) which is 1.5 times the average annual salary of nurse faculty. Moreover, because the average income of an NP is 42% higher than the median income of an RN, this nurse could experience income growth rather than loss by pursuing an NP role. The significant compensation differential between clinical practice and faculty roles means that only the most dedicated and passionate educators would likely decline a higher rate of pay to accept a full-time academic position.

While increasing faculty compensation would likely improve clinical nurses' interest in faculty positions, securing the funding to do so, especially for publicly-funded schools, is difficult. A possible alternative, then, is to increase the number of nurses who are academically prepared to be nurse faculty.

Graduate nurse education programs specifically prepare students for roles as nurse educators. They offer neither specialized clinical education nor preparation for APRN certification. Because of the intentionally narrow scope of their education, graduates from nurse education programs will be more likely to pursue faculty positions upon graduation. Schools should be able to recruit these nurses into open faculty roles even despite the relatively lower rate of compensation. In-state programs may also support retention of nurse faculty by giving admissions preference to in-state students. Local students likely have existing ties to the communities and the ability to teach nursing students about how to deliver culturally-competent care.

[7] Median annual income for NPs and nurse faculty come from BLS data whereas RN compensation comes from the most recent sample survey collected by the National Forum of State Nursing Workforce Centers and NCSBN. BLS reports average annual income whereas the Forum and NCSBN reported median annual income.

Appendices

Appendix A – Glossary of Nurse Education Programs Offered in Hawai'i in AY 2017-2018

Term	Definition
Pre-license Programs	**Nurse education programs that admit students with no prior education or experience in nursing.**
LPN Program	A program of instruction that requires at least one year of full-time equivalent coursework generally within a high school, vocational/technical school, or community/junior college setting, the completion of which results in a diploma or certificate of completion and eligibility to apply for licensure as an LPN (see also Hawai'i Administrative Rules §16-89-11 and §16-89-12).
ADN Program, Generic/Traditional	A program of instruction that requires at least two years of full-time equivalent college academic work generally within a junior or community college, the completion of which results in an associate degree with a major in nursing and eligibility to apply for licensure as an RN. (See also Hawai'i Administrative Rules §16-89-10).
Pre-License BSN Program, Generic/Traditional*	A program of instruction to prepare *generalist* registered nurses that admits students with no previous nursing education, the completion of which results in a baccalaureate degree (e.g. BS, BSN, etc.) with a major in nursing and eligibility to apply for licensure as an RN. The program requires at least four years but not more than five years of full-time equivalent college course work within a senior college or university. (See also Hawai'i Administrative Rules §16-89-10).
Pre-License *Graduate* Entry (*GEPN*) Program*	A program of instruction that admits baccalaureate degrees in other disciplines and no previous nursing education. The program prepares graduates for entry into the profession, eligibility to apply for licensure as an RN, and upon completion, *awards a graduate degree in nursing (e.g., MSN, DNP, PhD).* (See also Hawai'i Administrative Rules §16-89-10).
Post-license Programs	**Nurse education programs that require a prospective student to hold an active nursing license to be eligible for admission.**
*LPN to BSN Program**	*A program for students licensed as LPNs the completion of which results in a baccalaureate degree (e.g., BS, BSN, etc.) with a major in nursing and eligibility to apply for licensure as an RN.*
Post-License BSN (RN-to-BSN) Program	A *post-license BSN* program for students who are already licensed as RNs whose highest nursing education is a diploma or associate's degree.
MSN Program *	A post-license master's program with emphasis on advanced clinical practice, including Nurse Practitioner, Nurse Anesthetist, Nurse Midwifery, and Clinical Nurse Specialist tracks. *Includes RN-to-MSN and post-baccalaureate admissions pathways.*
DNP Program*	A program of instruction that prepares graduates for the highest level of nursing practice beyond the initial preparation in the discipline. The DNP is the terminal practice degree. *Includes post-baccalaureate and post-master's admissions pathways.*
PhD Program*	A post-licensure doctoral program that culminates in the PhD in Nursing. *Includes post-baccalaureate and post-master's admissions pathways.*

Note. *Italicized program titles, definitions, or parts of definitions are additions or modifications to those published in the source document published by the National Forum of State Nursing Workforce Centers (2009, pp. 7-9). There are other types of nurse education programs available throughout the country including ADN-Bridge and Accelerated BSN programs. No institution in Hawai'i reported offering either of these types of programs during AY 2017-2018 and are thus not included in this table. For descriptions of these programs, see either the Hawai'i Nurse Education Capacity Report for AY 2016-2017 or the Forum's Minimum Dataset Survey for Education.

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Appendix B – Study Method for 2017-2018 Nurse Education Capacity Survey

Sample

This survey is intended to be a population study of all institutions of higher education that offer at least one nurse education program through face-to-face instruction at a location in Hawai‘i. During AY 17-18, 10 schools comprised the population of in-state nurse education programs. Of these schools, 100% responded to the survey.

Though it was occasionally the case a school reported that one or more requested data points were not available for reporting, overall data quality was very high. No school had to be excluded from analysis for non-reporting, and very few data points had to be estimated as a result of missing data.

Instrumentation

The data collection instrument is based on the National Nursing Workforce Minimum Dataset for Education as published by the National Forum of State Nursing Workforce Centers (last revised in 2009). In addition to the data points recommended by the National Forum, the Center for Nursing added several questions regarding specialty or certificate education offered in baccalaureate and graduate nurse education programs and a set of questions asking schools to report on barriers to program growth. The full instrument is available upon request to Dr. Carrie Oliveira, Workforce Researcher at the Hawai‘i State Center for Nursing.

Because the survey collected aggregated, secondary data, it does not meet the definition of "human subjects research" and did not require review or oversight by the University of Hawai‘i at Mānoa IRB.

Procedure

The data collection tool was programmed into a web-based online survey software program. The survey contained skip logic that prevented schools from seeing irrelevant questions. Schools initially received the survey link on November 16, 2018. The data collection period ended on April 10, 2019, the date on which the Center received the last school's data.

During the survey period, the researcher at the Center for Nursing responded to any calls or emails asking for clarification on the data points requested on the survey form.

Appendix C – Program Admissions by Semester, AY 2017-2018

	LPN			ADN			BSN			LPN to BSN			RN to BSN			MSN			RN to MSN			DNP			BSN to DNP			PhD			BSN to PhD		
# of Programs	2			4			4			1			4			2			2			3			2			1			1		
Admissions Semesters*	F	S	I	F	S	I	F	S	I	F	S	I	F	S	I	F	S	I	F	S	I	F	S	I	F	S	I	F	S	I	F	S	I
Associate-Granting Institutions																																	
Hawai‘i Community College	●			●																													
Kapi‘olani Community College	●	●		●	●																												
Kaua‘i Community College				●																													
University of Hawai‘i Maui College				●	●																												
Baccalaureate-Granting Institutions																																	
Argosy University													●																				
Chaminade University							●																										
Hawai‘i Pacific University							●	●					●	●		●	●		●	●		●											
University of Hawai‘i at Hilo							●	●					●									●			●								
University of Hawai‘i at Mānoa							●						●			●			●			●			●			—	—	—	—	—	—
University of Phoenix										—	—	—																					

Notes. *Letters in this row refer to the session in a traditional academic year wherein F = Fall Semester, S = Spring Semester, I = Summer Intersession. A gray cell indicates that a school did not offer a given program during AY 17-18. A white cell indicates that a school operated the program during the AY but did not admit new students during the academic term. A dot indicates that a school admitted new students into the program for the indicated semester.

References

AHEC (Hawai'i-Pacific Basin Area Health Education Center), (2018). *The Shortage of Providers in Hawai'i.* Retrieved from http://www.ahec.hawaii.edu/wp-content/uploads/sites/16/2019/01/additional-statistics.png.

American Association of Colleges of Nursing (2019). *Academic Progression in Nursing: Moving Together Toward a Highly Educated Nursing Workforce.* Retrieved from https://www.aacnnursing.org/News-Information/Position-Statements-White-Papers/Academic-Progression-in-Nursing.

AMSN (Academy of Medical-Surgical Nurses) (n.d.). *Medical-Surgical Nursing*. Retrieved from https://www.amsn.org/sites/default/files/documents/practice-resources/med-surg-elevator-speech.pdf

BLS (Bureau of Labor Statistics) (2018). May 2018 National Occupational Employment and Wage Estimates Hawai'i Retrieved from https://www.bls.gov/oes/current/oes_hi.htm.

Buerhaus, P., Auerbach, D. I., & Staiger, D. O. (2017). Recent changes in the number of nurses graduating from undergraduate and graduate programs. *Nursing Economic$, 34,* 46-48.

Department of Commerce and Consumer Affairs (2013). Amendments and Compilation of Chapter 16-89, *Hawai'i Administrative Rules*. Retrieved from http://cca.hawaii.gov/pvl/files/2013/08/har_89-c1.pdf

DLIR (Department of Labor and Industrial Relations) (2018a). *Hawai'i's Best Job Opportunities*. Retrieved from https://www.hiwi.org/admin/gsipub/htmlarea/uploads/BJO_2016-2026-State.pdf.

DLIR (Department of Labor and Industrial Relations) (2018b). *Long-term Occupational Projections, State of Hawai'i, 2016-2016, (Revised).* Retrieved from https://www.hiwi.org/admin/gsipub/htmlarea/uploads/LTOP%202016-26-State-Revised.xlsx.

HAH (Healthcare Association of Hawai'i) Unpublished manuscript.

Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S. & Jeffries, P. R. (2014). The NSCBN National Simulation Study: A longitudinal, randomized controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 5(2),* S1-S64. Retrieved from https://www.journalofnursingregulation.com/article/S2155-8256(15)30062-4/fulltext

HRS (Hawai'i Revised Statutes) Chapter 457. Retrieved from https://www.capitol.hawaii.gov/hrs/isysquery/2cf2a3a0-a8ff-4fcd-a24b-f40857f203d3/1/doc/#hit26

HRSA (Health Resources & Services Administration) (2019). *HPSA-Primary Care Map Tool.* Retrieved from https://data.hrsa.gov/hdw/Tools/MapTool.aspx?tl=HPSA&gt=State&cd=15&dp=ALL

HSCN (Hawai'i State Center for Nursing) (2019). Unpublished preliminary findings from the 2019 Hawai'i Nursing Workforce Supply Survey.

HSCN (Hawai'i State Center for Nursing) (2018). *Hawai'i BSN Forecast.*

HSCN (Hawai‘i State Center for Nursing) (2017a). *2017 Nursing Workforce Supply Survey Special Report: Employment Location of APRNs.* Unpublished report.

HSCN (Hawai‘i State Center for Nursing) (2017b). *Hawai‘i’s Nursing Workforce 2017.* Retrieved from http://www.hawaiicenterfornursing.org/wp-content/uploads/2017/11/2017-Hawaii-State-Nursing-Workforce-Supply-Report-Final-2-2.pdf

HSCN (Hawai‘i State Center for Nursing) (2018). *2017 Nursing Workforce Supply Survey Special Report: Recent Graduate RN Employment & Demographic Characteristics.* Unpublished report.

IOM (Institute of Medicine of the National Academies) (2011). *The Future of Nursing: Leading Change, Advancing Health.* Washington, D.C.: The National Academies Press.

National Forum of State Nursing Workforce Centers (2009). *Nursing Education Minimum Dataset.* Retrieved from http://nursingworkforcecenters.org/wp-content/uploads/2016/06/Nursing_Education_Dataset.pdf

NCSBN (National Council of State Boards of Nursing) (2008). *Consensus Model for APRN Regulation: Licensure, Accreditation, Certification & Education.* Retrieved from https://www.ncsbn.org/Consensus_Model_for_APRN_Regulation_July_2008.pdf

NCSBN (National Council of State Boards of Nursing) (2017). *NCSBN Model Rules*. Retrieved from https://www.ncsbn.org/17_Model_Rules_0917.pdf

PVL (Professional and Vocational Licensing Division) (2015). *Geographic Report (Current Licenses) as of July 22, 2015*. Retrieved from http://cca.hawaii.gov/pvl/files/2013/06/WebGeo_072215.pdf

PVL (Professional and Vocational Licensing Division) (2019). *Geographic Report (Current Licenses) as of April 11, 2019*. Retrieved from https://cca.hawaii.gov/pvl/files/2019/04/WebGeo_041119.pdf

Smiley, R. A., Lauer, P., Bienemy, C., Berg, J. G., Shireman, E., Reneau, K. A., & Alexander, M. (2018). The 2017 national nursing workforce survey. *Journal of Nursing Regulation, 9(3),* S1-S88. Retrieved from https://www.journalofnursingregulation.com/article/S2155-8256(18)30131-5/fulltext#s0425

Withy, K. (2018). *Hawai‘i Physician Workforce Report*. Retrieved from https://www.ahec.hawaii.edu/download/11825/