

UNIVERSITY OF HAWAI‘I SYSTEM ANNUAL REPORT



REPORT TO THE 2020 LEGISLATURE

Annual Report on Findings from the
Hawai'i Physician Workforce Assessment Project

Act 18, SSLH 2009 (Section 5)
Act 186, SLH 2012
Act 40, SLH 2017

December 2019

In accordance with Act 18, SSLH 2009; Act 186, SLH 2012; and Act 40, SLH 2017;
A report to the 2020 Hawai‘i State Legislature:

Findings from the Hawai‘i Physician Workforce Assessment Project

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December 2019

Hawai'i Physician Workforce Report

Executive Summary

There are currently 3,484 active physicians providing patient care to patients in Hawai'i for a total of 2,974 Full Time Equivalent (FTEs) of direct care to patients. The national demand model applied to the State of Hawai'i indicates a need for 3,483 total FTEs or a shortage of 509. However, when island geography and unmet specialty specific needs by county are examined, the estimated unmet need for physicians (accounting for geographic distance and air travel) increases to 820 FTEs (up from 797 last year). Primary care is the largest shortage statewide (300 FTEs needed), and on all islands, with Infectious Disease (72%), Pathology (58%), Pulmonology (56%), Colorectal Surgery (52%), Hematology/Oncology (47%), Thoracic Surgery (45%), and Allergy & Immunology (43%) being the largest subspecialty shortages statewide by percent of estimated unmet need.

To help meet these needs, the Hawai'i Physician Workforce Special Fund has supported the following ongoing activities:

- Maintaining the workforce database and providing de-identified data as requested throughout the state;
- Providing presentations on workforce statistics;
- Providing continuing education including the Hawai'i Health Workforce Summit (556 participants in 2019) and Project ECHO (over 1,700 people-hours of case-based education);
- Providing Educational Loan Repayment: the Hawai'i State Loan Repayment Program currently supports 20 loan repayment recipients and has supported 46 during the six years of existence; 17 new applicants are currently under review and the State Legislature will again be asked to provide matching funding;
- Posting all job openings in Hawai'i online through collaboration with Hawai'i Physician Recruiters Group;
- Supporting the health career pipeline by promoting health careers to students of all ages across Hawai'i through publication and distribution of the 140-page Health Career Navigator resource (4,500 printed and distributed across the State), 94-page interactive Student Companion booklet (3,000 printed and distributed across the State) and growing the Pre-Health Career Corps program that provides mentoring, training, career orientation and preparation, test preparation training, CPR and other workshops, research and shadowing experiences, interview practice, and essay writing assistance for 2,080 youth;
- Collaborating with the Hawai'i Health Workforce Advisory Board to increase loan repayment opportunities and expand conversation about health workforce needs and methods for monitoring;
- Assisting the Department of Health with increasing Health Professional Shortage Area designations in Hawai'i;
- Coordinating neighbor island clinical teaching, travel, lodging, community activities and recruitment of health careers.

In addition, nine new activities have been undertaken:

- Hiring of a Hawai'i Physician Recruiter who will work closely with the Hawai'i Physician Recruiter Group to match program graduates and interested physicians with

open positions, assist with finding young doctors to take over practices of retiring physicians, and set up eight unique physician connection groups including Young Doctors groups and Mental Health Huis on all islands.

- Assisting with Oahu and Maui Health Sector Partnership activities to include partnership with Healthcare Association of Hawai'i Health Workforce Initiative to bolster non-physician health professions in order to lighten the load on the physicians by maximizing teamwork and collaboration.
- Build the Bridge to Practice Mentoring Program in collaboration with Hawai'i Medical Association and Queen's Hospital.
- Introduce the Hawai'i Health Career Academy, a college and career success course for eighth grade through undergraduate students to increase local students competitiveness for medical school.
- Create local Area Consortia to promote careers locally and generate support for providers (Mental Health Huis now exist on Moloka'i, Maui and East Hawai'i) but others are being started across Hawai'i.
- Introduce Hawai'i Health preceptor tax credit for preceptors offering professional instruction, training, and supervision to students and residents in medicine, nursing and pharmacy. In June, 2018, a new law was signed to allow these vital preceptors to receive an annual tax credit, which applies to taxable years after December 31, 2018. Currently 225 physicians have qualified for the credit and more will be reviewed before the end of the year.
- Promote neighbor island teaching hub development for interprofessional students and residents.
- Present at Hawai'i's Health Workforce Development for the 21st Century Legislative Briefing August 21, 2019 and assist in developing payment transformation task force.
- Assist in development of JABSOM scholarships that require pay back of time practicing in Hawai'i.

Project Methodology

Supply and Demand

The **supply** of physicians in Hawai‘i is estimated based on responses to a voluntary survey of physicians administered between November 2017 and February 2018 (at the time of state medical license renewal), with all physician addresses confirmed in 2019 through queries of local community contacts, internet searches and direct calling of physician offices to confirm hours of active patient care. Data were obtained for an estimated 95% of the providers who report working in Hawai‘i. Of the 10,510 physicians licensed to practice in Hawai‘i, only 3,484 physicians are actively practicing in non-military settings. The total FTEs of direct patient care provided by these physicians (including those providing telehealth to Hawai‘i patients from outside the state) is 2,974 FTEs.

Table 1: Hawai‘i Physician Supply Trends (in Full Time Equivalents)

Year	2013	2014	2015	2016	2017	2018	2019
FTEs	2894	2802	2806	2903	2978	2927	2974

The **demand** for physician services is estimated using a model purchased from IHS Global in 2014. The major components of the demand model include: 1) a population database that contains characteristics and health risk factors for a representative sample of the population in each Hawai‘i county, 2) predictive equations are based on national data that relate a person’s demographic, socioeconomic and health risk factor characteristics to his or her demand for healthcare services by care delivery setting, and 3) national care delivery patterns that convert demand for healthcare services to demand for FTE physicians. For purposes of physician workforce modeling, the relevant settings are physician offices, outpatient clinics, hospital emergency departments, and hospital inpatient settings. While the forecasting equations and staffing patterns are based on national data, a population database was constructed for Hawai‘i that was representative of the population in each county in Hawai‘i. This was done using county-level population information (e.g., age-gender-race/ethnicity), whether a county was considered metropolitan or non-metropolitan, and information from the Behavioral Risk Factor Surveillance System (BRFSS) for the population, including summary statistics by county for factors such as prevalence of obesity, diabetes, current smoking status, and other risk factors used in the model.

Applying the model to Hawai‘i produced estimates of physician demand by select specialty if people in each county were to receive a level of care consistent with the national average, while adjusting for differences across counties in demographics, health and economic factors that affect demand for health care services. The total estimated demand for physicians in Hawai‘i as a state in 2019 is 3,481 FTEs. However, in some areas there are overages of physicians of certain specialties. Because we are an island state, it is difficult for patients from a different island to make use of specialty overages, so worst case shortage numbers are calculated by eliminating the overages in the calculations. This is represented in Tables 6-10 as “Without overage”. Using the first estimate of shortage, we are short 509 physician FTEs, however when eliminating specialty overages on each island, the estimated shortage is 820 full time equivalents of physician time (up from 797 last year). The actual need for physicians in any area depends

upon the productivity of the physicians working there, characteristics and utilization of that unique community, ability of the people of that community to travel to care elsewhere, non-physician clinicians present in that community and many other factors. We therefore use the comparison to average US utilization to give us an estimate of what Hawai‘i would have if we were on the continental US.

Table 2: Estimate of Hawai‘i Demand Trends (in FTE)

Year	2014*	2015	2016	2017	2018	2019	2020
FTEs	3276	3317	3358	3399	3440	3481	3522

*New demand model purchased adjusted for Affordable Care Act.

Shortage is calculated in two ways. The first is by simply subtracting supply from demand. Percent of shortage is then calculated as $(\text{Demand}-\text{Supply})/\text{Demand}$. This number is included on the Supply and Demand tables starting on page 10 as “Shortage”. In order to take into account the impact of geographic isolation due to the island nature of the region and difficulty in traveling to a physician on another island, a second calculation for shortage is included. On each island, if there is an excess of physicians in a specialty, there is a second calculation which zeros out any over-supply on an island. This calculation is included in the Supply and Demand tables starting on page 10 as “Without overage”. The percentage of shortage is calculated by dividing this “Without overage” number by the demand. The actual shortage is most likely somewhere between the two calculations, and depends on many factors including the productivity of practicing physicians, the impact of non-physician clinicians and patient health-related demands.

Projections of future demand are calculated based on increase in population. Estimates of future supply are difficult to assess, as there are no clear indications of trends based on the ten years of data available. If the workforce remains unchanged, and we replace all departing doctors with new doctors, the demand curve will look as outlined in Figure 1.

Other data collection:

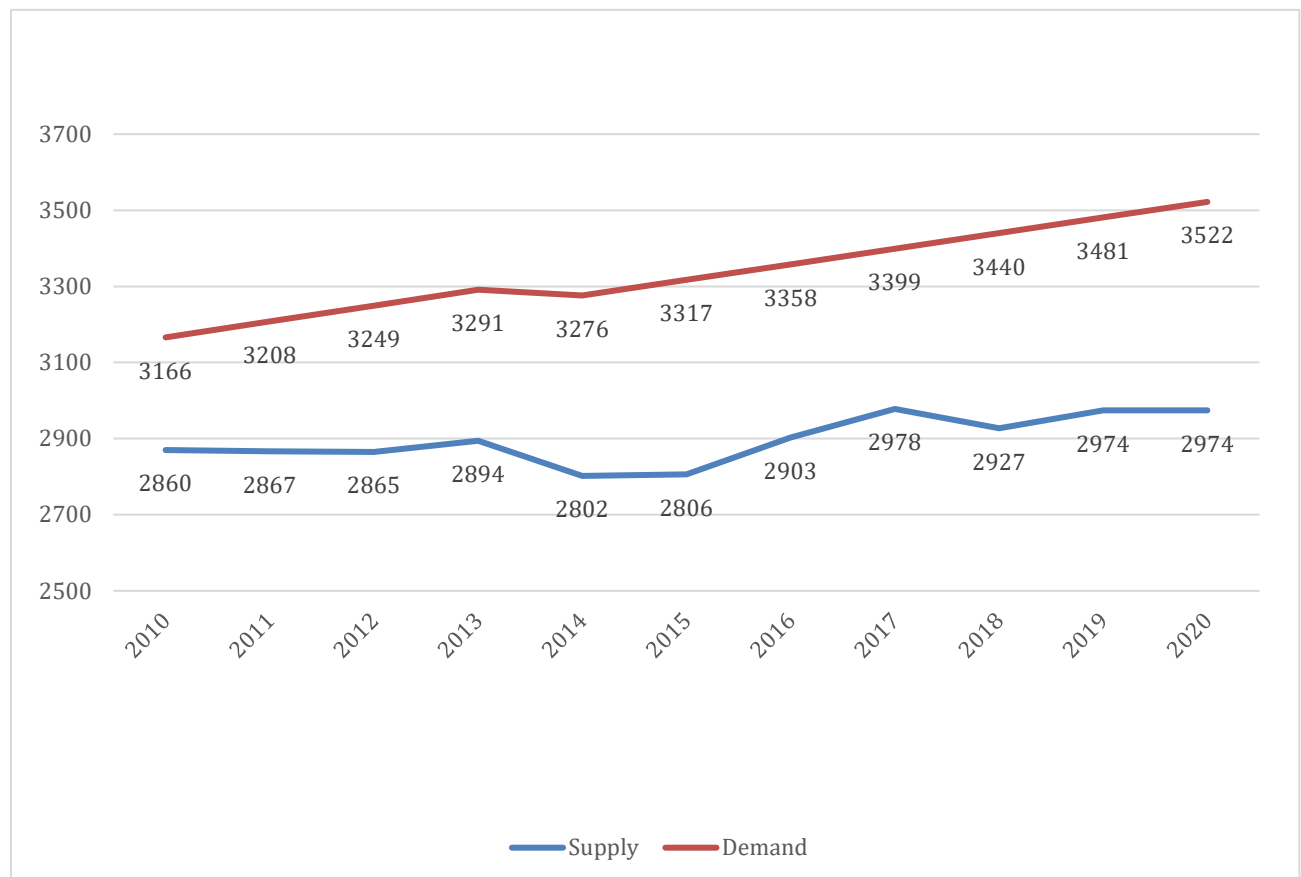
Physician age and gender are obtained as available from internet searches. Retirement, death, decreased time practicing and moved out of state status is obtained from physicians, community contacts, internet search or the physician office upon phone call.

Project Results

Workforce statistics obtained from internet searches, community contacts and calling of physician offices indicate that there are:

- 10,510 physicians licensed in Hawai‘i
- 3,484 physicians are practicing in non-military settings in Hawai‘i
- 2,974 total Full Time Equivalent (FTE) of physicians are practicing in Hawai‘i
- At least 91 physicians were found to have retired in 2019, 123 decreased their work hours, four passed away and at least 152 physicians left the State in 2019
- 23% of active physicians are at least 65 years of age, and 50% are at least 55 years of age.
- Female physicians represent 38% of the active workforce, male physicians make up 62%.

Figure 1: Physician Supply and Demand FTE Comparison Over Time as of 11/2019



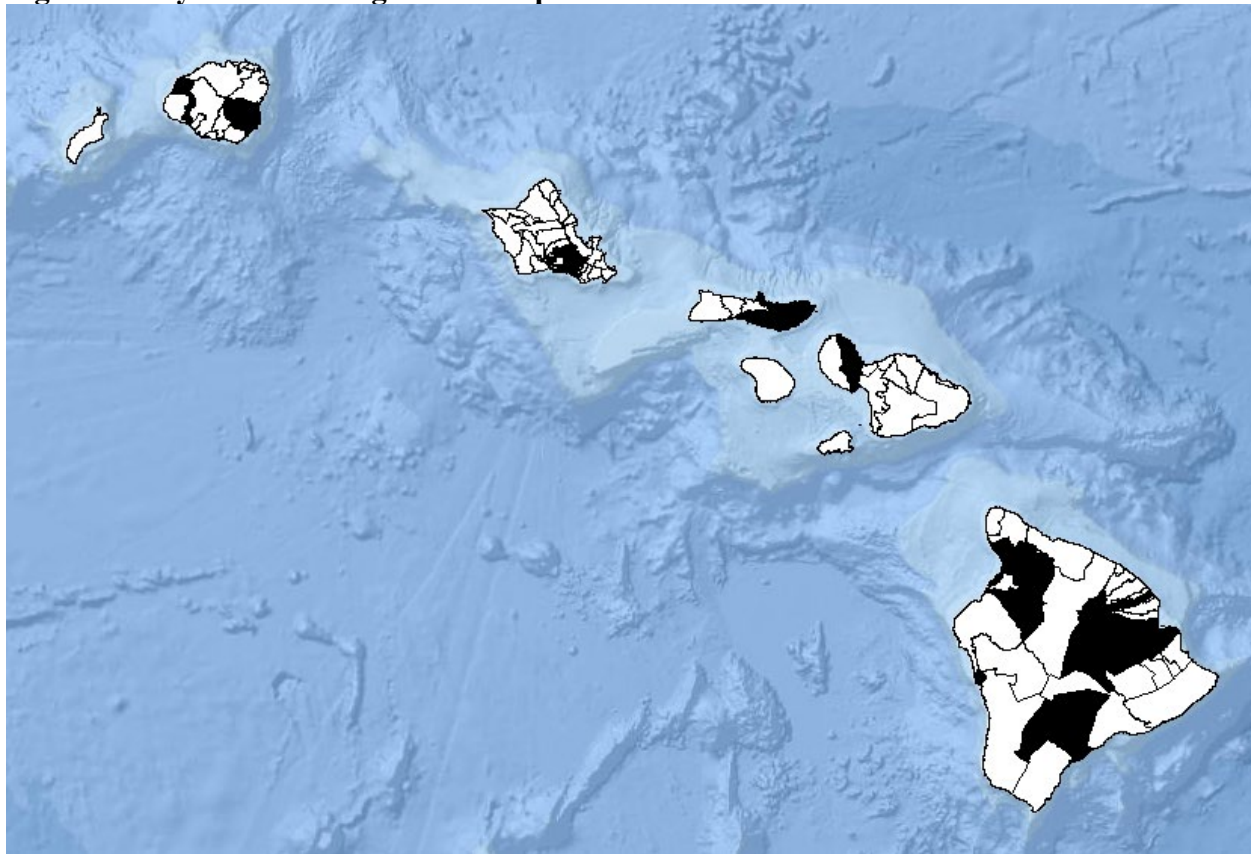
County Specific Results

The O‘ahu shortage decreased from 384 (in 2018) to 377 (in 2019); Big Island shortage increased from 213 to 230; Maui shortage increased from 141 to 153; and Kaua‘i shortage increased slightly from 59 to 60.

Table 3: Physician Shortage by County 2019

	O‘ahu	Big Island	Maui County	Kaua‘i	Statewide
Shortage	377	230	153	60	820
Percentage	16%	44%	36%	32%	24%

Figure 2: Physician Shortage Areas Represented in White as of 11/2019



Of this shortage, the largest single factor is primary care with a shortage of 276 FTEs across all islands (up from a shortage of 262.7 last year). When geographic overages are eliminated, this shortage is 300 for a 23% statewide shortage. The shortage on O‘ahu increased from 157 to 192; Maui decreased slightly from 44 to 43; Big Island maintained their shortage of 47 primary care physicians and Kaua‘i increased from 16 to 21 between 2018 and 2019.

Table 4: Primary Care Physician Shortage by County 2019

	O‘ahu	Big Island	Maui County	Kaua‘i	Statewide
Shortage	192	47	43	21	300
Percentage	22%	25%	27%	31%	23%

Figure 3: Primary Care Shortage Areas Represented in White as of 11/2019

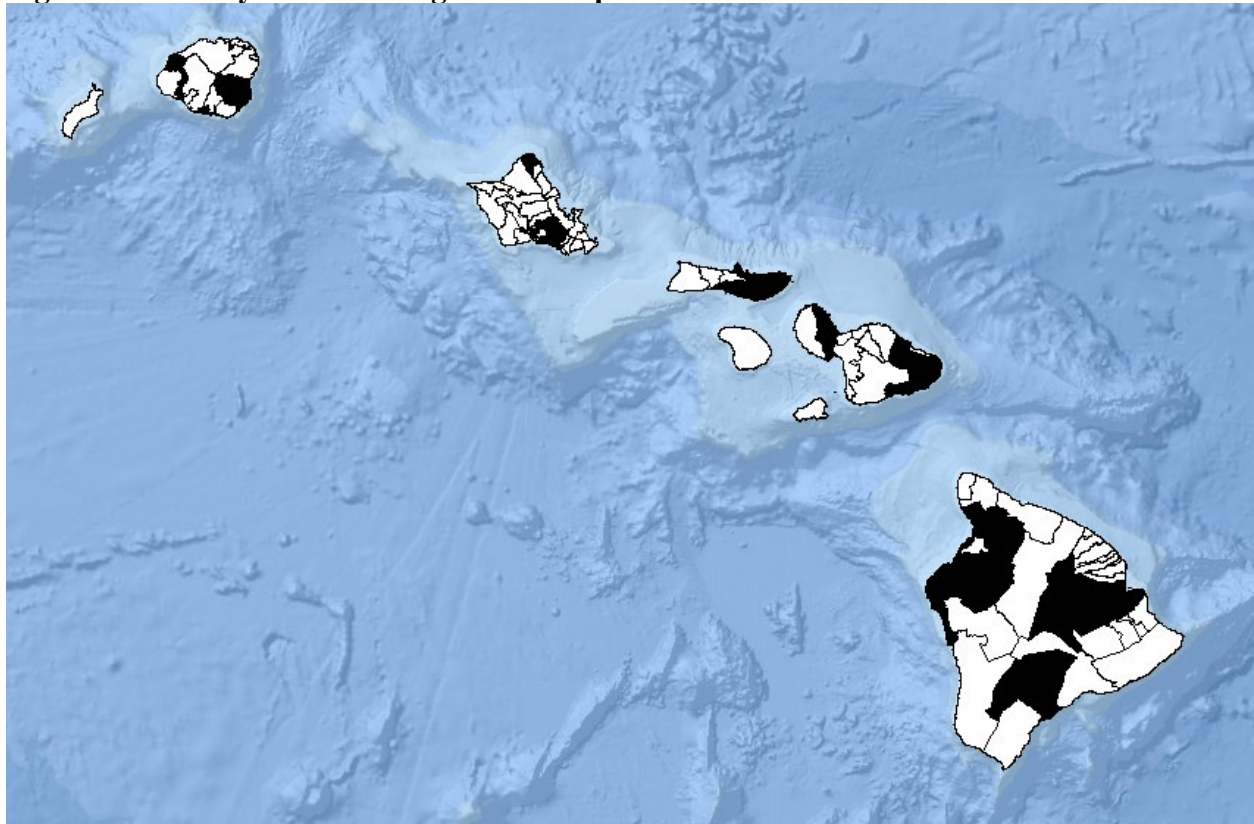


Table 5: Top 2019 Six Individual Specialty Shortages by County in Rank Order of Percent Shortage Estimate (all county shortages in bold)

O'ahu	Big Island
Infectious Disease	Colorectal Surgery (100% shortage)
Pathology	Infectious Disease (100% shortage)
General & Family Practice	Neonatal-Perinatal (100% shortage)
Pulmonology	Pulmonology (99% shortage)
Colorectal Surgery	Neurological Surgery (97% shortage)
Hematology & Oncology	Thoracic Surgery (97% shortage)
Maui County	
Colorectal Surgery (100% shortage)	Kaua'i
Endocrinology (98% shortage)	Allergy and Immunology (100% shortage)
Hematology and Oncology	Critical Care (100% shortage)
Neonatal-Perinatal	Neonatal-Perinatal (100% shortage)
Pulmonology	Neurosurgery (100% shortage)
Pathology	Rheumatology (100% shortage)
	Thoracic Surgery (100% shortage)

Neonatology/Perinatology is a shortage in all counties except O'ahu, and both Pulmonology and Colorectal Surgery are shortages in all counties except Kaua'i. Pathology is a shortage on O'ahu and in Maui County, and Thoracic Surgery is a shortage on Hawai'i Island and Kaua'i.

Table 6: Statewide Supply and Demand Numbers as of 11/2019

	State of Hawai'i				
	Demand	Supply	Shortage	Without overage	Percent Shortage
General & Family Practice	530.7	364.4	166.3	172.1	32%
General Internal Medicine	492.4	399.0	93.4	93.4	19%
Pediatrics	250.4	215.9	34.5	34.5	14%
Geriatric Medicine	18.3	36.6	-18.3	0.0	0%
Allergy & Immunology	21.2	12.0	9.2	9.2	43%
Anesthesiology	170.2	149.1	21.1	23.5	14%
Cardiology	116.5	77.8	38.7	38.7	33%
Colorectal Surgery	7.1	4.0	3.1	3.7	52%
Critical Care	27.5	28.7	-1.3	0.0	0%
Dermatology	47.7	55.1	-7.4	4.0	8%
Emergency Medicine	180.1	212.8	-32.7	18.4	10%
Endocrinology	30.3	20.8	9.5	9.0	30%
Gastroenterology	64.2	55.0	9.2	11.0	17%
General Surgery	120.2	89.8	30.4	30.1	25%
Hematology & Oncology	62.8	35.5	27.3	29.6	47%
Infectious Disease	40.7	11.3	29.4	29.4	72%
Neonatal-perinatal	22.8	30.2	-7.5	0.0	0%
Nephrology	35.5	31.5	4.0	6.0	17%
Neurological Surgery	21.8	18.0	3.8	3.8	17%
Neurology	77.6	45.1	32.5	32.5	42%
OBGYN	187.8	165.5	22.3	22.3	12%
Ophthalmology	85.6	101.9	-16.3	0.0	0%
Orthopedic Surgery	109.7	80.7	29.0	29.0	26%
Otolaryngology	43.8	32.4	11.5	11.6	26%
Pathology	88.8	37.4	51.4	51.4	58%
Physical Medicine/Rehabilitation	35.4	31.6	3.8	7.2	20%
Plastic Surgery	32.9	27.5	5.3	7.0	21%
Psychiatry	195.4	160.9	34.5	34.5	18%
Pulmonology	56.7	25.1	31.5	31.5	56%
Radiology	140.7	120.5	20.2	20.2	14%
Rheumatology	20.0	14.0	6.0	6.0	30%
Thoracic Surgery	20.4	11.3	9.2	9.2	45%
Urology	46.6	31.8	14.8	14.8	32%
Vascular Surgery	13.7	13.0	0.7	2.7	20%
Other Medical Specialties	68.3	227.9	-159.6	0.0	0%
Total	3483.3	2974.0	509.3	819.9	24%

Table 7: Supply and Demand Numbers Honolulu County of 11/2019

	Honolulu County				
	Demand	Supply	Shortage	Without overage	Percent Shortage
General & Family Practice	360.4	207.2	153.2	153.2	43%
General Internal Medicine	336.4	311.6	24.8	24.8	7%
Pediatrics	168.3	154.6	13.7	13.7	8%
Geriatric Medicine	12.6	32.6	-20.0	0.0	0%
Allergy & Immunology	14.4	10.3	4.1	4.1	28%
Anesthesiology	114.8	117.8	-3.0	0.0	0%
Cardiology	79.1	57.1	22.0	22.0	28%
Colorectal Surgery	4.7	3.0	1.7	1.7	37%
Critical Care	18.7	26.8	-8.2	0.0	0%
Dermatology	32.2	43.4	-11.2	0.0	0%
Emergency Medicine	106.7	152.9	-46.2	0.0	0%
Endocrinology	20.9	18.9	2.0	0.0	0%
Gastroenterology	43.4	45.2	-1.8	0.0	0%
General Surgery	81.3	63.6	17.7	17.7	22%
Hematology & Oncology	40.9	28.7	12.2	12.2	30%
Infectious Disease	27.5	8.3	19.2	19.2	70%
Neonatal-perinatal	15.4	30.0	-14.7	0.0	0%
Nephrology	24.5	26.5	-2.0	0.0	0%
Neurological Surgery	14.8	16.9	-2.2	-2.2	-15%
Neurology	52.6	38.8	13.8	13.8	26%
OBGYN	128.5	124.9	3.6	3.6	3%
Ophthalmology	58.4	80.7	-22.3	0.0	0%
Orthopedic Surgery	74.3	60.3	14.0	14.0	19%
Otolaryngology	29.7	22.9	6.9	6.9	23%
Pathology	60.3	31.9	28.4	28.4	47%
Physical Medicine/Rehabilitation	24.1	27.5	-3.4	0.0	0%
Plastic Surgery	21.9	23.5	-1.7	0.0	0%
Psychiatry	132.0	119.6	12.4	12.4	9%
Pulmonology	38.3	23.0	15.2	15.2	40%
Radiology	93.3	87.6	5.7	5.7	6%
Rheumatology	13.5	12.3	1.2	1.2	9%
Thoracic Surgery	13.7	10.6	3.2	3.2	23%
Urology	31.3	24.8	6.5	6.5	21%
Vascular Surgery	9.4	11.4	-2.0	0.0	0%
Other Medical Specialties	45.9	175.1	-129.2	0.0	0%
Total	2343.7	2230.2	113.5	377.1	16%

Table 8: Supply and Demand Numbers Hawai'i County of 11/2019

	Hawai'i County				
	Demand	Supply	Shortage	Without overage	Percent Shortage
General & Family Practice	78.8	84.6	-5.8	0.0	0%
General Internal Medicine	72.4	38.1	34.3	34.3	47%
Pediatrics	38.0	27.1	10.9	10.9	29%
Geriatric Medicine	2.7	0.5	2.2	2.2	81%
Allergy & Immunology	3.1	1.1	2.0	2.0	65%
Anesthesiology	25.6	10.9	14.7	14.7	57%
Cardiology	17.5	8	9.5	9.5	54%
Colorectal Surgery	1.1	0	1.1	1.1	100%
Critical Care	4.1	0.4	3.7	3.7	90%
Dermatology	7.2	4.9	2.3	2.3	32%
Emergency Medicine	34.0	23.8	10.2	10.2	30%
Endocrinology	4.3	0.2	4.1	4.1	95%
Gastroenterology	9.6	3	6.6	6.6	69%
General Surgery	18.1	11.7	6.4	6.4	35%
Hematology & Oncology	10.3	2.3	8.0	8.0	78%
Infectious Disease	6.1	0	6.1	6.1	100%
Neonatal-perinatal	3.5	0	3.5	3.5	100%
Nephrology	5.1	2.1	3.0	3.0	59%
Neurological Surgery	3.3	0.1	3.2	3.2	97%
Neurology	11.6	1.8	9.8	9.8	84%
OBGYN	27.6	16.8	10.8	10.8	39%
Ophthalmology	12.6	6.2	6.4	6.4	51%
Orthopedic Surgery	16.4	7.6	8.8	8.8	54%
Otolaryngology	6.5	3	3.5	3.5	54%
Pathology	13.4	2.5	10.9	10.9	81%
Physical Medicine/Rehabilitation	5.3	1.6	3.7	3.7	70%
Plastic Surgery	5.1	1	4.1	4.1	80%
Psychiatry	29.3	18.3	11.0	11.0	38%
Pulmonology	8.5	0.1	8.4	8.4	99%
Radiology	22.2	13.2	9.0	9.0	41%
Rheumatology	3.0	0.9	2.1	2.1	70%
Thoracic Surgery	3.1	0.1	3.0	3.0	97%
Urology	7.1	1.5	5.6	5.6	79%
Vascular Surgery	2.0	0.6	1.4	1.4	70%
Other Medical Specialties	10.4	21.9	-11.5	0.0	0%
Total	528.9	315.9	213.0	230.3	44%

Table 9: Supply and Demand Numbers Maui County of 11/2019

	Maui County				
	Demand	Supply	Shortage	Without overage	Percent Shortage
General & Family Practice	64.3	52	12.3	12.3	19%
General Internal Medicine	58.4	33.4	25.0	25.0	43%
Pediatrics	31.1	26.1	5.0	5.0	16%
Geriatric Medicine	2.0	2	0.0	0.0	0%
Allergy & Immunology	2.6	0.6	2.0	2.0	77%
Anesthesiology	20.8	12	8.8	8.8	42%
Cardiology	13.8	10.7	3.1	3.1	22%
Colorectal Surgery	0.9	0	0.9	0.9	100%
Critical Care	3.2	1.5	1.7	1.7	53%
Dermatology	5.8	6	-0.2	0.0	0%
Emergency Medicine	27.7	19.5	8.2	8.2	30%
Endocrinology	3.5	1.6	1.9	3.4	98%
Gastroenterology	7.8	4.8	3.0	3.0	38%
General Surgery	14.5	8.5	6.0	6.0	41%
Hematology & Oncology	8.1	2.5	5.6	7.9	98%
Infectious Disease	4.9	2	2.9	2.9	59%
Neonatal-perinatal	2.7	0.2	2.5	2.5	93%
Nephrology	4.1	1.9	2.2	2.2	54%
Neurological Surgery	2.6	1	1.6	1.6	62%
Neurology	9.4	3.5	5.9	5.9	63%
OBGYN	22.5	17.8	4.7	4.7	21%
Ophthalmology	10.2	9	1.2	1.2	12%
Orthopedic Surgery	13.3	8.8	4.5	4.5	34%
Otolaryngology	5.3	4.1	1.2	1.2	23%
Pathology	10.5	2	8.5	8.5	81%
Physical Medicine/Rehabilitation	4.2	2	2.2	2.2	52%
Plastic Surgery	4.1	3	1.1	1.1	27%
Psychiatry	24.0	15.1	8.9	8.9	37%
Pulmonology	6.9	1	5.9	5.9	86%
Radiology	17.6	12.1	5.5	5.5	31%
Rheumatology	2.4	0.8	1.6	1.6	67%
Thoracic Surgery	2.5	0.6	1.9	1.9	76%
Urology	5.7	3	2.7	2.7	47%
Vascular Surgery	1.6	0.9	0.7	0.7	44%
Other Medical Specialties	8.4	18.9	-10.5	0.0	0%
Total	427.4	288.9	138.5	153.1	36%

Table 10: Supply and Demand Numbers Kaua'i County of 11/2019

	Kaua'i County				
	Demand	Supply	Shortage	Without overage	Percent Shortage
General & Family Practice	27.2	20.6	6.6	6.6	24%
General Internal Medicine	25.2	15.9	9.3	9.3	37%
Pediatrics	13.0	8.1	4.9	4.9	38%
Geriatric Medicine	1.0	1.5	-0.5	0.0	0%
Allergy & Immunology	1.1	0	1.1	1.1	100%
Anesthesiology	9.0	8.4	0.6	0.0	0%
Cardiology	6.1	2	4.1	4.1	67%
Colorectal Surgery	0.4	1	-0.6	0.0	0%
Critical Care	1.5	0	1.5	1.5	100%
Dermatology	2.5	0.8	1.7	1.7	68%
Emergency Medicine	11.7	16.6	-4.9	0.0	0%
Endocrinology	1.6	0.1	1.5	1.5	94%
Gastroenterology	3.4	2	1.4	1.4	41%
General Surgery	6.3	6	0.3	0.0	0%
Hematology & Oncology	3.5	2	1.5	1.5	43%
Infectious Disease	2.2	1	1.2	1.2	55%
Neonatal-perinatal	1.2	0	1.2	1.2	100%
Nephrology	1.8	1	0.8	0.8	44%
Neurological Surgery	1.1	0	1.1	1.1	100%
Neurology	4.0	1	3.0	3.0	75%
OBGYN	9.2	6	3.2	3.2	35%
Ophthalmology	4.4	6	-1.6	0.0	0%
Orthopedic Surgery	5.7	4	1.7	1.7	30%
Otolaryngology	2.3	2.4	-0.1	0.0	0%
Pathology	4.6	1	3.6	3.6	78%
Physical Medicine/Rehabilitation	1.8	0.5	1.3	1.3	72%
Plastic Surgery	1.8	0	1.8	1.8	100%
Psychiatry	10.1	7.9	2.2	2.2	22%
Pulmonology	3.0	1	2.0	2.0	67%
Radiology	7.6	7.6	0.0	0.0	0%
Rheumatology	1.1	0	1.1	1.1	100%
Thoracic Surgery	1.1	0	1.1	1.1	100%
Urology	2.5	2.5	0.0	0.0	0%
Vascular Surgery	0.7	0.1	0.6	0.6	86%
Other Medical Specialties	3.6	12	-8.4	0.0	0%
Total	183.3	139.0	44.3	59.5	32%

Solutions Being Implemented

Efforts to grow the population of satisfied physicians working in patient care in Hawai‘i are many. The Physician Workforce Research Team held the first Physician Workforce Summit in 2010 in order to prioritize the interventions to initiate first. At the first Summit, 10 solutions were identified as the most important interventions in Hawai‘i to improve the physician workforce. These are: Expand the pathway to health careers; Expand rural training opportunities; Support practice reform such as Patient Centered Medical Home; Inter-professional teamwork in practice; Payment reform; Rural payment differential; Community Involvement; Medical malpractice reform; Administrative simplification; and Assistance with Electronic Health Records. In 2012, with the reauthorization of the Physician Workforce Assessment activities and the emphasis on solutions created in Act 186, SLH 2012, the Physician Workforce Research team began closer collaboration with the Hawai‘i Medical Education Council which identified two additional activities: a state loan repayment program and an initiative to recruit Hawai‘i medical training graduates back to practice in Hawai‘i. In 2017, the Physician Workforce Research legislative sunset was lifted and the State Loan Repayment Program was funded. Activities to advance the outlined aims are included below.

Activities have been accomplished in all areas except for Rural Payment Differential, which has met with resistance in the changing medical insurance marketplace. The most notable successes of the Physician Workforce Assessment activities are listed below by category:

- Expand the pathway to health careers: The Physician Workforce Assessment team has made contact with over 3,000 health professions students in the intervening year. Even more exciting, is the development of the Hawai‘i Health Careers Navigator, a 140-page health careers resource book with information on all the health professions in Hawai‘i and local resources for pursuit of health careers, which was printed and distributed to 3,500 students, counselors and parents with Hawai‘i federal grant funding and can be viewed at www.ahec.hawaii.edu. In addition, a 94- page interactive Student Companion booklet to the Navigator is available at www.ahec.hawaii.edu to help students perform activities exploring their interests and skills in healthcare. Federal grant funding has also been obtained to continue the Hawai‘i Pre-Health Career Corps for students interested in health careers to receive shadowing, research and mentoring experiences with over 2,000 students currently enrolled. Through the Speakers Bureau, AHEC also recruits health professionals and sets up speakers for any school in Hawai‘i to discuss their careers and educate students about health opportunities.
- Expand rural training opportunities: AHEC has hired a Rural Coordinator to work with neighbor island communities to recruit additional preceptors to teach health professions students, recruit and support students interested in health careers, work with community members to host students, and document the impact of rural activities. In addition, AHEC has hired a student recruiter on Maui Island who has worked with 134 students to date to help prepare them for college and careers in healthcare. In addition, through the Aloha Welcome Wagon Program and UH Homestay Aloha Program, AHEC also coordinates travel and hosted lodging for UH health sciences students on clinical rotations across the state. In 2019, 84 students were supported to travel to and work in rural areas and interest is growing.

- Expand Loan Repayment: With three years of State support, the number of loan repayment has increased to 46, and we are selecting an additional five to fund out of 17 applicants who work in rural and underserved areas across the State. As a result of State Legislative funding to match federal grant dollars, physicians (allopathic/osteopathic), nurse practitioners, physician assistants, psychologists, licensed clinical social workers, marriage and family therapists, licensed professional counselors, registered nurses, certified nurse-midwives are all eligible for loan repayment. Federal funding has also been obtained for the following additional specialties: pharmacists, dentists, dental hygienists and certified substance abuse counselors.
- The 2019 Hawai‘i Health Workforce Summit offered 7.25 hours of Continuing Education Credit to 556 participants. The Summit addressed avoiding burnout, oral health topics, geriatric topics, rural health and distance education (see evaluation summary in Appendix 3). Evaluation demonstrated a high level of satisfaction with the event and improvement in knowledge. In addition, the ECHO Hawai‘i project provided over 2,136 person-hours of continuing education between January 1 and November 21, 2019, covering topics of Behavioral Health and Pediatrics. There are three options for case based distance education through the supported Project ECHO in Hawai‘i with information at www.hawaiiecho.info:
 - Behavioral Health Every Tuesday noon to 1
 - Geriatrics ECHO Every second Wednesday noon to 1
 - Pediatrics ECHO Every first and third Wednesdays noon to 1
- Administrative simplification is proving challenging in the changing healthcare environment, but the Physician Workforce team is collaborating with medical organizations to highlight ideas for simplification when possible. Currently AHEC is assisting with the development of a Payment Transformation Task Force that is the highest rated solution identified during the Hawai‘i’s Health Workforce Development for the 21st Century Legislative Briefing August 21, 2019. This group will work with insurers to maximize patient care.
- Administering repayment responsibilities for new JABSOM scholarships that require graduates to practice in Hawai‘i.
- Community Involvement: the Physician Workforce Assessment team is working with the Hawai‘i State Rural Health Association and the Hawai‘i Physician Recruiter’s Group to expand community welcoming of providers and increase ability for spouses to find jobs.
- Medical Malpractice Reform was introduced in 2013 and the impact is being studied. Dr. Withy regularly recruits additional physicians to participate in the Medical Inquiry and Conciliation Panels.
- The AHEC.hawaii.edu website advertises job opportunities in Hawai‘i to providers interested in practice and disseminates information. This includes searching the web for all available postings and working with recruiters to post their jobs.
- In addition to these activities, Dr. Withy serves on the Hawai‘i Health Workforce Advisory Board, is assisting with Health Professional Shortage Area designations for additional areas of Hawai‘i and has provided over 3 informational sessions on workforce shortage, as well as provided de-identified data to 7 inquirers during 2019.

Next Steps

The Physician Workforce Research Team will continue to conduct the research and implement the solutions described above. In addition, annual Health Workforce Summits are planned, emphasizing systems and payment reforms and other factors that will improve provider recruitment and career satisfaction. These are anticipated to be held on the Saturday after Labor Day every year.

New initiatives include an expanded educational pipeline to health careers. The Hawai‘i Health Career Academy will provide the skills needed for eighth grade through undergraduate students from economically and/or educationally disadvantaged backgrounds to successfully pursue careers in health professions. Students will receive certification and training in Health Information Portability and Accountability Act procedures, Cardio Pulmonary Resuscitation, First Aid, Youth Mental Health First Aid and Occupational Safety Administration, as well as training in science, technology, engineering, and mathematics real life applications, public speaking, leadership, research literacy, teamwork abilities, interview skills, professionalism, time management, and financial planning methods.

A second initiative includes a mentoring pipeline to provide knowledge of and connection to practice opportunities across the State. The Bridge to Practice initiative encourages residents in primary care graduate medical education programs to be mentored by and explore work opportunities in independent practices across Hawai‘i, in hopes of their practicing there upon graduation, however no residents have expressed interest. A new program has been implemented as well, a “Young Doctor’s Hui” with regular social and professional activities on a quarterly basis, for collegial contact and potential educational opportunities associated with career networking for young physicians.

AHEC is instrumental in implementing the Hawai‘i Health Preceptor Tax Credit for preceptors offering professional instruction, training, and supervision to students and residents in medicine, nursing and pharmacy. In June, 2018, a new law was signed to allow these vital preceptors to receive an annual tax credit, which applies to taxable years after December 31, 2018. Currently 225 physicians have qualified for the credit and more will be reviewed before the end of the year.

AHEC continues to support Local Area Consortia to promote careers locally and generate support for providers and upcoming health professionals. Three Local Area Consortia have been formed for mental health providers on Maui, Moloka‘i and East Hawai‘i. These Mental Health Huis will also advance networking and educational interchange. Support and implementation of the health preceptor tax credit will also allow preceptors to offer professional instruction, training, and supervision to students and residents in medicine, nursing and pharmacy. As a result of a new law signed in June, preceptors will be able to receive an annual tax credit to taxable years after December 31, 2018.

AHEC is currently in the process of hiring a Hawai‘i Physician Recruiter who will work closely with the Hawai‘i Physician Recruiter Group to match program graduates and interested physicians with open positions, assist with finding young doctors to take over practices of retiring physicians, and set up eight unique physician connection groups including Young Doctors groups and Mental Health Huis on all islands. This person will monitor job openings and

update the Doc Jobs website weekly, as well as be available to address new ideas such as reaching out to Hawai'i high school graduates who are at mainland colleges.

AHEC is working to support development of a neighbor island teaching hub for interprofessional students and residents by applying for grant funding and supporting legislative efforts to expand neighbor island training. To meet the specific needs of neighbor islands, Hawai'i must invest in the growth of the medical school and residency program activities on the neighbor islands. A proposal to create a year-round teaching hub on Maui Island is going to the Hawai'i state legislature in 2020. Given the shrinking number of students from rural areas matriculating into medical school in the nation, it is incumbent upon Hawai'i to create its own opportunities for neighbor island students. Training in such environments will enhance ultimate practice on the neighbor islands and educational programs based on the neighbor islands will contribute to optimal clinical care on those islands.

AHEC is currently working with the Healthcare Association of Hawai'i to bolster non-physician health professions in order to lighten the load on the physicians by maximizing teamwork and collaboration and assisting with Oahu and Maui Health Sector Partnership activities increase students pursuing health careers.

Finally, AHEC is assisting in development of JABSOM medical school scholarships that require pay back of time practicing in Hawai'i to expand the Hawai'i physician workforce.

More information on ongoing and upcoming activities is available at the AHEC website: www.ahec.hawaii.edu. The AHEC office number is 808-692-1060 and Dr. Withy's direct office line at JABSOM is 808-692-1070 and email is wthy@hawaii.edu.