

Hawai'i Physician Workforce Assessment 2016: Improvement in Physician Numbers but Physician Suicides of Concern

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Abstract

Hawai'i's Physician Workforce Assessment project was launched in 2010. Over the past 5 years the State has experienced decreases and increases in physician workforce. This current article describes the status of the physician workforce, past trends and anticipated projections as well as recent insights into why people leave Hawai'i. Survey data, internet searches and direct dialing methodologies were utilized to clarify and elucidate practice location, full time equivalency of time providing patient care and specialty of non-military physicians caring for Hawai'i's population. A proprietary microsimulation modeling methodology from the company the US Health Resources and Services Administration employs is utilized to assess demand. The current shortage of physicians is estimated to be between 455 and 707 full time equivalents with the greatest percentage of shortages on neighbor islands. Numerically the greatest total shortage of physicians is on O'ahu and the specialty in greatest demand is primary care with a shortage of 228 Full Time Equivalents (FTEs). Physician average age in Hawai'i is 54.9 compared to a national average of 51. There was an increase in the number of physicians who report using telehealth, from 2% to 15%.

Initial improvements in the size of Hawai'i's physician workforce are promising, but we note two reported suicides in the intervening year. More attention must be paid to support practicing physicians in addition to our efforts to recruit new physicians.

Keywords

Physician workforce, physician shortage, physician suicide

Introduction

Nationwide estimates of physician demand indicate that there is a current shortage of 25,000 to 35,000 physicians in the United States (US) and an anticipated shortage of 61,700 to 94,700 will occur by 2025 if intervening measures aren't taken.¹ Increasingly complex administrative burdens, electronic medical record incompatibilities, payment penalties, formulary changes, prior authorization rejections, requirements to see more patients, an increased number of billing codes, and in addition to the standard life and death responsibilities that occur in medical practice, are creating a climate of growing frustration in the physician community. As a result, more than half of physicians report being 'burned out' and US statistics indicate that between 300 and 400 physicians commit suicide every year.^{2,3}

As an island state, Hawai'i's ability to recruit physicians is more challenging than in the contiguous states of the US. Until five years ago, Hawai'i was unable to quantify its practicing physician ranks or true shortage numbers. Past Hawai'i Physicians Workforce reports estimated the physician shortage to be 742 in 2013⁴ and estimates of 2020 shortage have been as high as 800 and 1500 physicians.⁵ This article describes the continued assessment of the physician workforce in the state of Hawai'i at this time.

Methods

The estimated supply of physicians in Hawai'i is based on the voluntary responses of physicians to an electronic survey administered at the time of state medical license renewal for physicians who relicense online. If physicians don't license online, or they don't answer the survey, then the survey results are supplemented with queries of local community contacts, internet searches and direct calling of physician offices to confirm location, hours of active patient care and specialty. Questions asked on the 2015 re-licensure survey are included in Table 1.

The demand for physician services is estimated using a model purchased from IHS Global in 2014. IHS Global created a statistical model of each county of Hawai'i based on age, gender, ethnicity mix and health indicators. This model uses data from multiple national data sets to estimate the number of services utilized by a specific population of similar size, age, gender, ethnicity, health and insurance status to the county population. This allows for estimates of physician full time equivalents (FTEs) each county would utilize based on average US utilization of services for the population of that county of Hawai'i.

A modification to the demand model database was made to include Hawai'i's geographic differences compared with the mainland. Two specialties, Emergency Medicine and Critical Care, were adjusted such that there were five of each specialty for each neighbor island hospital using the estimated number of staff needed for around the clock service. Furthermore, because Psychiatry is an area with multiple anecdotal reports of unmet demand, the estimates are increased from the 50th percentile to 75th percentile in the demand model, and when the calculated supply number exceeds demand number, as on O'ahu, the supply number is utilized as the demand number.

Also of note is the absence of a demand category for hospitalists, because it is a newer specialty. Therefore specialties in the "Other" category include hospitalist, pediatric hospitalist, occupational medicine, sleep medicine, complementary and alternative medicine, pain medicine, preventive medicine and radiation oncology. These specialties are represented in the total supply numbers, but not specifically broken down by specialty specific supply/demand.

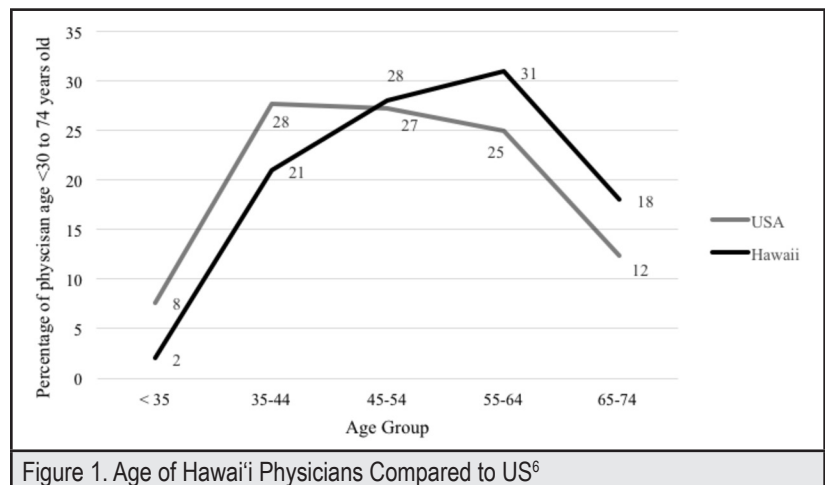
Results

As of August 1, 2016, there were 8,900 physicians licensed in Hawai'i. Of those, 6,600 answered the online survey and 2,833 reported active practice during the November 2015 to January 2017 licensure cycle. Another 860 were found to be practicing through telephone follow up of new and existing licensees for a total of 3,693 physicians.⁶ All report practicing at least 1 hour

Table 1. 2015 Physician Workforce Survey Questions		
1.	Do you provide healthcare to patients in Hawai'i?	Yes No If no, please skip to next page
2.	Do you primarily serve a military or military dependent population?	Yes No
3.	Are you still in training (internship, residency or fellowship)?	Yes No
4.	Are you primarily a hospital based physician? (Anesthesia, Emergency, Hospitalist, etc)?	Yes No
5.	What specialty/specialties do you practice?	
6.	Please tell us about your primary practice environment:	a. Address 1 (Office or Hospital):
		b. City
		c. State
		d. Zip code
		e. Phone number
		f. Email
		g. Hours per week you see patients at this address
6.	If you have more than one practice, please provide information for your second address:	a. Address 2 (Office or Hospital):
		b. City
		c. State
		d. Zip code
		e. Phone number
		f. Email
		g. Hours per week you see patients at this address
7.	Do you have more than 2 practice sites in Hawai'i?	Yes No If yes, how many?
8.	Is a majority of your income a result of being employed by a medical group, hospital, school (faculty) or other entity?	Yes No Name of entity:
9.	What is the size of your practice group (how many partners do you have including yourself)?	1-2 3-5 6-10 11 or more
10.	Do you provide care to Hawai'i patients via telemedicine?	Yes No

a week, providing patient care to patients in Hawai'i (including by telehealth). The total of physician full time equivalents found caring for Hawai'i patients (when the hours of practice were calculated, considering maximum full time work at 40 hours a week) totaled: 2,903 FTEs of practicing physicians.

Of the physicians practicing in Hawai'i at least 1 hour a week, 32% are female. Average age is 54.9 compared to US average age of 51.⁷ The youngest practicing physician in Hawai'i is 29, the oldest is 90 years old. Across the United States, 11% of practicing physicians are between the ages of 65 to 75,⁸ but in Hawai'i, 18% of our physicians are aged 65 to 75 and 3% of our active physicians are over 75 years of age. Across the US, nearly 26% are between age 55 and 64, compared to Hawai'i, where 31% are in that age group. Therefore, 52% of Hawai'i's physicians will be 65 or over within 10 years. See Figure 1.



Of the 2,846 physicians who answered the survey questions regarding practice in Hawai'i, 56% reported being employed and 54% reported working in groups of five or less (down from 58% two years ago). See Table 2.

A total of 435 active providers report practicing telehealth or 15% of providers. Specialties that use telehealth are diverse and include most of the medical specialties in Hawai'i. Specialties that employ telehealth more than others are Primary Care, Radiology and Psychiatry.

The IHS demand model indicates that statewide, the total number of physicians needed to provide the average services seen across the US for physician visits is 3358 FTEs. When the statewide number of physician FTEs compared to the US average physician population is calculated, the shortage is 455 FTEs. When geographic differences are taken into account the shortage is 487 FTEs. When island specific overages in supply by individual specialties are excluded from the calculations (for example if there are more of a certain specialty of physicians calculated in the demand model for an island the excess is zeroed out) the shortage of physicians in Hawai'i is 707 FTEs.

Projections of future supply needs are difficult to assess as there are no clear trends based on the six years of data available. Figure 2 represents a contraction of the workforce shortage if we continue to gain 100 physicians a year. If this occurs, we will only have a shortage of 293 physicians in 2020. However, if we revert to prior year status of no growth in the physician workforce, in 2020 our shortage will be 681 as seen in Figure 3.⁶

The shortages in greatest demand by county are represented in Table 3 below. The table illustrates both the specialties with the greatest percentage shortages and those with the greatest number of unmet needs. In many cases, one physician moving to a rural area will meet the need for that specialty in that area. Similarly, one specialty physician leaving can put that rural area in jeopardy of not having necessary services.

The latest statistics for each of the specialties except "Other" are included in Tables 4-7.⁶ The supply and demand numbers are listed as FTEs, and the percent of shortage is included for each county of Hawai'i.

Group Size	1-2	3-5	6-10	Over 10
Percent of Physicians	39%	15%	10%	36%

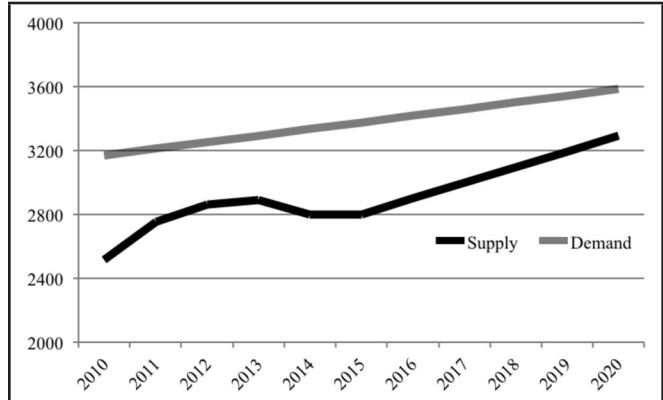


Figure 2. Hawai'i Physician Supply and Demand Estimates with Gain of 100 Physicians a Year

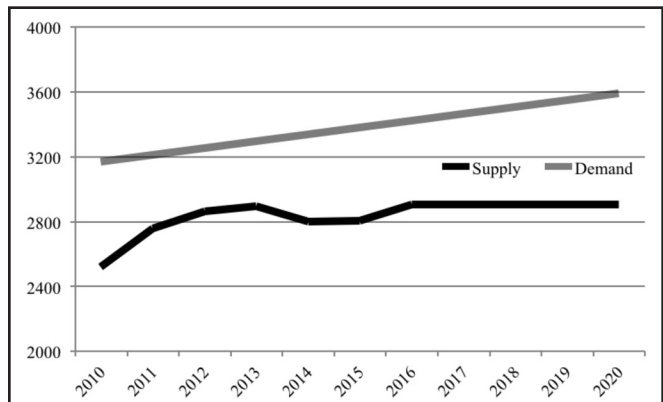


Figure 3. Hawai'i Physician Supply and Demand Estimates with No Gain of Physicians Annually⁶

County	O'ahu	Maui	Kaua'i	Hawai'i
Specialties with Greatest Percentage Shortages	Infectious Disease, Pathology, General Surgery	Allergy, Colorectal, Neurosurgery	Endocrinology, Rheumatology, Infectious Disease, Critical Care, Neonatal, Neurology	Infectious Disease, Neonatology, Colorectal Surgery
Specialties with Greatest Shortage by Full Time Equivalents	Primary care, General Surgery, Pathology	Primary Care, Emergency Medicine, Psychiatry	Primary Care, Obstetrics, Cardiology, Neurology	Primary Care, Anesthesiology, Cardiology, Orthopedic, Pathology

2016 County Statistics	Hawai'i Demand	Hawai'i Supply	Hawai'i Shortage	Percent Shortage
Primary Care	180	143	36	20%
Allergy & Immunology	3	1	2	72%
Anesthesiology	24	13	12	48%
Cardiology	16	6	11	66%
Colorectal Surgery	1	0	1	100%
Critical Care	10*	1	3	87%
Dermatology	7	4	3	42%
Emergency Medicine	32	29	3	10%
Endocrinology	4	1	3	79%
Gastroenterology	9	6	4	39%
General Surgery	17	8	9	54%
Hematology & Oncology	10	3	6	65%
Infectious Disease	6	0	6	100%
Neonatal-perinatal	3	0	3	100%
Nephrology	5	4	1	14%
Neurological Surgery	3	0	3	93%
Neurology	11	2	8	78%
OBGYN	26	18	8	31%
Ophthalmology	12	7	5	43%
Orthopedic Surgery	15	6	10	62%
Otolaryngology	6	3	3	48%
Pathology	12	3	10	80%
Physical Medicine and Rehabilitation	5	2	3	63%
Plastic Surgery	5	2	3	65%
Psychiatry	28	24	4	14%
Pulmonology	8	1	7	87%
Radiology	21	14	7	32%
Rheumatology	3	2	1	46%
Thoracic Surgery	3	0	3	91%
Urology	7	1	5	82%
Vascular Surgery	2	3	0	0%
Other category excluded				

2016 County Statistics	Maui Demand	Maui Supply	Maui Shortage	Percent Shortage
Primary Care	147	112	34	23%
Allergy & Immunology	2	0	2	100%
Anesthesiology	20	17	3	13%
Cardiology	13	11	2	12%
Colorectal Surgery	1	0	1	100%
Critical Care	5*	3	0	13%
Dermatology	5	8	0	0%
Emergency Medicine	26	15	11	43%
Endocrinology	3	1	2	63%
Gastroenterology	7	5	2	33%
General Surgery	14	5	9	63%
Hematology & Oncology	8	5	3	36%
Infectious Disease	5	1	4	87%
Neonatal-perinatal	3	0	2	92%
Nephrology	4	4	0	1%
Neurological Surgery	2	0	2	94%
Neurology	9	6	3	38%
OBGYN	21	16	5	25%
Ophthalmology	10	7	3	28%
Orthopedic Surgery	13	8	5	38%
Otolaryngology	5	5	1	10%
Pathology	10	2	8	79%
Physical Medicine and Rehabilitation	4	3	1	28%
Plastic Surgery	4	2	2	54%
Psychiatry	23	13	10	45%
Pulmonology	6	2	4	68%
Radiology	16	17	0	0%
Rheumatology	2	0	2	88%
Thoracic Surgery	2	1	1	53%
Urology	5	3	2	43%
Vascular Surgery	1	1	1	46%
Other category excluded				

2016 County Statistics	Kaua'i Demand	Kaua'i Supply	Kaua'i Shortage	Percent Shortage
Primary Care	63	48	16	25%
Allergy & Immunology	1	0	1	80%
Anesthesiology	9	9	0	0%
Cardiology	6	2	4	71%
Colorectal Surgery	0	0	0	38%
Critical Care	5*	0	1	100%
Dermatology	2	1	1	57%
Emergency Medicine	15*	13	2	12%
Endocrinology	1	0	1	100%
Gastroenterology	3	1	2	69%
General Surgery	6	5	1	23%
Hematology & Oncology	3	2	1	39%
Infectious Disease	2	0	2	100%
Neonatal-perinatal	1	0	1	100%
Nephrology	2	1	1	35%
Neurological Surgery	1	0	1	91%
Neurology	4	0	4	100%
OBGYN	9	4	5	61%
Ophthalmology	4	5	0	0%
Orthopedic Surgery	5	3	3	52%
Otolaryngology	2	2	0	0%
Pathology	4	1	3	77%
Physical Medicine and Rehabilitation	2	1	1	41%
Plastic Surgery	2	0	2	94%
Psychiatry	10	7	3	26%
Pulmonology	3	1	2	82%
Radiology	7	8	0	0%
Rheumatology	1	0	1	100%
Thoracic Surgery	1	1	1	50%
Urology	2	1	1	48%
Vascular Surgery	1	0	1	93%
Other category excluded				

2016 County Statistics	Honolulu Demand	Honolulu Supply	Honolulu Shortage	Percent Shortage
Primary Care	858	716	142	17%
Allergy & Immunology	14	12	2	16%
Anesthesiology	112	86	25	23%
Cardiology	76	62	15	19%
Colorectal Surgery	5	4	1	19%
Critical Care	18	32	0	0%
Dermatology	31	37	0	0%
Emergency Medicine	105	130	0	0%
Endocrinology	20	18	2	9%
Gastroenterology	42	44	0	0%
General Surgery	79	44	34	44%
Hematology & Oncology	40	33	7	18%
Infectious Disease	27	11	16	59%
Neonatal-perinatal	15	29	0	0%
Nephrology	24	21	3	11%
Neurological Surgery	14	9	6	39%
Neurology	51	37	14	27%
OBGYN	127	128	0	0%
Ophthalmology	57	74	0	0%
Orthopedic Surgery	72	59	14	19%
Otolaryngology	29	27	2	6%
Pathology	58	26	32	56%
Physical Medicine and Rehabilitation	23	26	0	0%
Plastic Surgery	21	24	0	0%
Psychiatry	147**	147	0	0%
Pulmonology	37	22	15	40%
Radiology	90	90	0	0%
Rheumatology	13	13	0	0%
Thoracic Surgery	14	9	5	34%
Urology	31	26	4	14%
Vascular Surgery	9	9	0	0%
Other category excluded				

Discussion

Hawai'i's overall shortage of physicians has decreased since 2015, however some severe shortages persist. The reality of the future of the physician workforce will probably be described as an environment somewhere between the two projections offered in Figures 1 and 2. Medicare penalties for physician payments will go into effect in 2019, so it is likely that many of the physicians who have resisted Electronic Medical Records or conversion to new payment models will receive up to a 9% decrease in pay in 2019, and may be inclined to retire at a rate higher than the historic baseline.

Initial inquiries regarding reasons for leaving patient care in Hawai'i include low and delayed reimbursements, no job for spouse and frustration with insurance companies in Hawai'i (personal interviews and observations by Kelley Withy and Josh Green). Other barriers to recruitment and retention mentioned in past physician focus groups in Hawai'i include the high cost of housing, frustration with school systems, lack of up to date medical facilities, isolation from family on the mainland and lack of medical community support.⁹ While physicians in Hawai'i have not been surveyed regarding their desire to retire, the American Academy of Family Physicians found that 47% of family doctors are considering retiring earlier than planned because of the recent trends in healthcare.¹⁰

Despite a loan repayment program that has served 25 providers since 2012,⁶ expansion of medical school and post graduate training, regular free CME conferences and training, local physician appreciation events, collaboration between recruiters from different groups to assist in attracting physicians and their families to Hawai'i and outreach to rural providers, the growth of the physician workforce is slow and inadequate to keep up with demand. Even more alarming is that in the last year, there have been two reported physician suicides in Hawai'i. Before this past year, no physician suicides were reported in the medical community. These suicides may be unprecedented for the profession in the State of Hawai'i and have raised red flags in our assessment. While the specifics of these events are not known to the authors, even one suicide is too many and anecdotal information suggests extreme financial pressures contributed to one of the fatalities.

It is the authors' position that this is a time for the entire state population to come together to find solutions to meet the growing needs that will ensue with an aging and expanding population. Legislative support for training in specialty shortage areas is vital, as is funding for physician relief efforts such as fair payment, loan repayment, tax breaks, administrative simplification and potentially tort reform. The Hawai'i Physician Recruiters group is working to provide education to all residency programs on how to find jobs in Hawai'i and is reaching out to the Business Roundtable to find work for the spouses of recruited physicians. Medical groups are working to create team settings that can ease the burden on physicians and create a smoother running and lower stress workplace. But there is much more to do. The Hawai'i/Pacific Basin Area Health Education Center (AHEC) hopes to introduce a forum for physicians to share ideas at www.ahec.hawaii.edu.

Dike Drummond, the HappyMD describes both Personal and Organizational Burnout Prevention Measures.¹¹ Personal Burnout Prevention Measures include: self awareness and mindfulness training; appreciative inquiry; narrative medicine; work life balance and healthy boundaries between work and non-work life areas; and lowering stress by a) learning effective leadership skills; exerting control where possible over your work hours; and creating focus where possible on work activities that provide the most meaning. AHEC is working on implementing these for physicians as funding allows. But we need the help of insurers and medical groups to implement the organizational prevention measures described below.

Many of the frustrations in medicine today come from the medical care system. Electronic health records have created additional time burdens and incredible frustration because of the lack of consistency and compatibility. Quality metrics are a new requirement for more reporting that takes away from patient care and is required to get paid in many cases. Medication formularies are always changing and are not transparent. The requirement to get almost any x-ray approved before ordering it is extremely frustrating for patient and physician. Lack of payment for basic screening studies that persists despite Obamacare paired with risk of malpractice if the studies are not covered. Doctors are expected to know what every insurance provides coverage for and how much every test costs because that's what patients need to know. But that information is not available, and a doctor's time is better spent talking with the patient. These are some of the examples of the frustrations doctors face repeatedly every day.

The Happy MD describes activities that can be successfully implemented to ease burnout: State an organizational intention to value, track and support Physician Wellbeing; Institute regular monitoring for physician burnout amongst providers utilizing the Maslach Burnout Inventory (MBI); Create CME programs teaching the Personal Burnout Measures above (AHEC is also working on this); Provide time and funding for physician support meetings; Provide leadership skills training; Support flexibility in work hours; Create specific programs to support physicians suffering from symptomatic burnout.¹¹ The Happy MD authors call on the leaders in Hawai'i's healthcare industry to make physician wellbeing a priority and address these issues.

Study limitations include the fact that despite the persistence of the research team, it is not always possible to locate all practicing physicians in Hawai'i. In addition, the researchers estimate based on past experience studying the physician workforce of Hawai'i that about 20% of physicians in Hawai'i change jobs annually, making the research even more challenging to report in real time. Furthermore, there are at least 80 physicians who live out of state but report providing telehealth services in Hawai'i as well as in other regions nationally. These services are valuable to Hawai'i but are difficult to quantify for this research. Most of these physicians are radiologists, dermatologists, pathologists and primary care providers.

It is important to note that there are challenges involved in creating an ideal demand model. The researchers decided to base demand on what the average utilization of services is in the

US for the population of each county in Hawai'i. Therefore the demand represents a picture of what the utilization patterns are in the US, not what is ideal for Hawai'i. For example, although the estimated demand for physicians in Hawai'i indicates that we need 500 more, there are currently less than 100 job openings. Of course physicians also practice independently outside of the more easily measured employment environment, launching practice periodically as independent physicians, but we note that starting a private practice is less common in Hawai'i than in past generations.

Future research will continue to examine the reasons physicians leave Hawai'i and how to proactively meet the needs of Hawai'i's practicing physicians. This may involve surveys or focus groups with physicians to ask: (1) what are the economic and other shortcomings of medical practice in Hawai'i and how can they be mitigated, (2) are voices being heard and involved in the legislative processes and policy making, and (3) how can we best improve physician practice resiliency? In addition, interventions for burnout and suicide prevention must be implemented and effectiveness assessed.

Conflict of Interest

None if the authors report any conflict of interest.

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