

Update on the Impact of the University of Hawai‘i Family Medicine Residency Program on the Family Physician Workforce in Hawai‘i

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Abstract

This study updates the previously-reported impact of the University of Hawai‘i Family Medicine Residency Program (UHFMRP) on the state of Hawai‘i family physician workforce. This study is a retrospective examination of all UHFMRP graduates from the program between 1996 and 2020. Graduate data regarding country or state of medical school, allopathic versus osteopathic training, current clinical practice, zip code of current clinical practice, current board certification, and current fellowship status were recorded between May and July 2020. Overall, 146 UHFMRP graduates completed the program between 1996 and 2020. Currently, 126 UHFMRP graduates have active medical licenses, with 121 graduates (96%, n=126) practicing in the United States, of whom 83 (69%, n=121) are practicing in Hawai‘i. Of the 83 UHFMRP graduates practicing in Hawai‘i, 67 graduates (81%, n=83) practice on O‘ahu. UHFMRP graduates with active medical licenses in Hawai‘i represent 23% (83 of 364) of the entire current family physician workforce in Hawai‘i. The UHFMRP continues to make an impact on the Hawai‘i State family physician workforce, and the retention rate of graduates in Hawai‘i has remained relatively stable since 1996.

Keywords

medical education, Family Physician Workforce, Family Medicine Residency

Abbreviations

DFMCH = Department of Family Medicine and Community Health
UH JABSOM = University of Hawai‘i John A. Burns School of Medicine
UHFMRP = University of Hawai‘i Family Medicine Residency Program

Introduction

Primary care continues to be the area with the most significant shortage in the physician workforce across the state of Hawai‘i, with a current lack of 300 full-time equivalent providers.¹ The University of Hawai‘i John A. Burns School of Medicine (UH JABSOM) Department of Family Medicine and Community Health (DFMCH) has a mission to train family physicians to meet the “needs of Hawai‘i and the Pacific Basin.”² The University of Hawai‘i Family Medicine Residency Program (UHFMRP) aims to “broadly train family physicians to serve the diverse population of Hawai‘i and the Pacific Basin.”³ The UHFMRP was founded in 1994 and graduated its first cohort of family physicians in 1996.³ Numerous changes have occurred within the UHFMRP in the past decade, including a change in primary hospital training site location from Wahiawa General Hospital, Wahiawā, Hawai‘i, to Pali Momi Medical Center, Aiea, Hawai‘i,

in 2016.⁴ Wahiawā is a United States (US) Health Resources & Services Administration designated medically underserved area, an area “having too few primary care providers, high infant mortality, high poverty or a high elderly population,” while Aiea does not have that designation.⁵ The UHFMRP continuity clinic also moved from the Mililani Shopping Center, Mililani, Hawai‘i, to the Pali Momi Outpatient Center, Aiea, Hawai‘i, in 2020.⁶ The UHFMRP class size also increased from 6 residents per year to 7 residents per year in 2017.⁷ Before these program changes, UH JABSOM DFMCH faculty published an article analyzing the impact of the UHFMRP on the family physician workforce in Hawai‘i and the Pacific Basin through 2010.⁸ This study attempts to update the overall impact of the UHFMRP on the state of Hawai‘i family physician workforce in light of the continued primary care physician shortage.

Methods

The UHFMRP has maintained a Microsoft Excel database with all program graduates since 1996. This database includes graduate names, residency completion dates, medical schools, and medical degree types (eg, MD versus DO). Each graduate’s name was queried on the American Board of Family Medicine’s database,⁹ the certifying body for all board-certified family medicine physicians in the US; the US Centers for Medicare and Medicaid Services National Provider Identifier’s database,¹⁰ a database of all physicians that accept Medicare and Medicaid patients in the United States; the State of Hawai‘i’s Professional and Vocational Licensing Division’s database,¹¹ a database listing all currently licensed physicians in Hawai‘i; Doximity,¹² a physician online networking platform; and Google.¹³ Data regarding each graduate’s current medical license status (eg, active versus expired), zip code of practice, current board certification, and current fellowship certification status were recorded between May and July 2020. Board fellowship certifications not monitored by the American Board of Family Medicine were not tracked in this study (eg, sleep medicine and pain medicine). Overall, 20 UHFMRP graduates in fellowship programs, academic work, governmental work, deceased, or retired were excluded from active medical license data analysis. UHFMRP graduate data was also compared against the Hawai‘i Physician Workforce Report, and each included UHFMRP graduate was equated to a single full-time equivalent of direct care to patients.¹ Collected data were preprocessed using Microsoft Excel, version 16.16.25 (Microsoft Corporation, Redmond, WA).

Results

Between 1996 and 2020, 146 UHFMRP graduates completed the residency program. The majority (90%, n=132) of UHFMRP graduates were from allopathic medical schools, and 75 (51%) were graduates from UH JABSOM (Table 1). Overall, 126 (86%) UHFMRP graduates are currently board-certified in family medicine, with 13 (9%) being also board certified in geriatrics and 4 (3%) also being board certified in sports medicine. There are 126 UHFMRP graduates with active medical licenses, with 121 (96%) practicing in the US. Of those practicing in the US, 83 (69%) are practicing in Hawai‘i (Table 2).

Table 1. Academic Characteristics of UHFMRP Graduates, 1996-2020	
Medical Degree Type (n = 146)	n (%)
MD	132 (90%)
DO	14 (10%)
Medical School Location (n = 146)	n (%)
UH JABSOM	75 (51%)
Other United States	54 (37%)
International	17 (12%)
Current Family Medicine Board Certification (n = 146)	n (%)
Additional Geriatric Board Certification ^a	13 (9%)
Additional Sports Medicine Board Certification	4 (3%)
Total Board Certified	126 (86%)

^a One graduate is also board certified in hospice & palliative care.
UHFMRP = University of Hawai‘i Family Medicine Residency Program

Table 2. Clinical Practice Locations of UHFMRP Graduates, 1996-2020 ^a	
Current Clinical Practice	n (%)
United States	121 (96%) ^c
Hawai‘i	83 (69%) ^c
Hawai‘i Island	10 (12%) ^c
Kaua‘i	4 (5%) ^c
Maui	2 (2%) ^c
O‘ahu	67 (81%) ^c
Non-Hawai‘i United States	38 (31%) ^c
Non-United States	5 (4%)^c
Total Board Certified	126 (86%)^b

UHFMRP = University of Hawai‘i Family Medicine Residency Program

^a Excludes 20 UHFMRP graduates that are in fellowship programs, academic medicine, governmental work, deceased, changed specialty, or who have retired.

^b Total of clinically active UHFMRP graduates divided by all UHFMRP graduates, 146.

^c The percentage (%) is compared to the total number per category.

Discussion

This study aimed to update the impact of the UHFMRP on the state of Hawai‘i family physician workforce. Data revealed that the UHFMRP has continued to improve the family physician workforce in Hawai‘i. Roughly two-thirds (69%, n=83) of UHFMRP graduates practicing in the US currently have active clinical licenses and are based in Hawai‘i, representing 23% (83 of 364) of the entire family physician workforce in Hawai‘i.¹ The 2012 report on the impact of the UHFMRP on the family physician workforce in Hawai‘i found that 73% (n=86) of UHFMRP graduates were based in Hawai‘i.⁸ While the previous study did not specify whether the graduates were in clinical practice or not, the retention rate of UHFMRP graduates in Hawai‘i since the program’s inception remains relatively stable, around 70 percent. This trend is likely due to how the UHFMRP curriculum has residents rotate in various community-based settings,⁷ such as Department of Veterans Affairs rotations on neighbor islands, and the high percentage of graduates who attended UH JABSOM for medical school. Of the 146 UHFMRP graduates, the vast majority are allopathic trained (90%, n=132) and graduates of UH JABSOM (51%, n=75), which was expected as UH JABSOM is both an allopathic medical school and the sponsoring institution of the UHFMRP.² Of note, the current DFMCH faculty is entirely allopathic trained and not certified in osteopathic manipulative treatment, likely resulting in fewer osteopathic graduates wishing to train at the program.²

Among the 50 states, Hawai‘i has a relatively low retention rate of physicians (40.6%, 36th out of 50 states) who completed only residency training in Hawai‘i.¹⁴ In comparison, Hawai‘i has the highest retention rate in the US (86.6%, 1st of 50 states) for physicians who completed both in-state medical school and residency.¹⁴ The authors, therefore, expected that most UHFMRP graduates would remain to practice in Hawai‘i after completing residency training, especially since more than half completed medical school at UH JABSOM. Although the UHFMRP class size has increased since 2012, from 6 to 7 residents per year in 2021, this data suggests that only by improving the pipeline of UH JABSOM students entering UHFMRP for residency training will the retention rate of graduates improve. An area of future study includes surveying UHFMRP graduates who completed medical school at UH JABSOM and determining what factors influence their seeking clinical practice outside of Hawai‘i in hopes that the retention rate can be increased further.

UHFMRP graduates primarily work in Honolulu, O‘ahu; however, UHFMRP graduates also work in rural communities such as Lāhainā and Kula on Maui island; Wai‘anae and Hale‘iwa on O‘ahu island; and Līhu‘e and Kapa‘a on Kaua‘i island. Most UHFMRP graduates also practice primary care family medicine, rather than subspecializing in geriatric or sports medicine, which directly impacts the current shortage of primary care physicians in Hawai‘i. O‘ahu continues to have the most

substantial primary care physician shortage in Hawai‘i by 192 providers.¹ Therefore, UHFMRP graduates provide critically needed primary care to areas of the state that need it most.¹

In the decade since the 2012 study on UHFMRP graduates was performed, the overall economic incentives for medical students to enter primary care, such as the Health Resources & Service Administration’s National Health Service Corps scholarship and Loan Repayment Programs and the Hawai‘i State Loan Repayment Program, have not substantially changed. The Association of American Medical Colleges reports that over 70% of medical school students graduated with debt in 2020, with a median debt of \$200,000.¹⁵ Physicians in proceduralist specialties continue to earn more than those in primary care, making primary care, such as family medicine, a less attractive career choice.¹⁵

Although this study focused on the impact of UHFMRP graduates on the family physician workforce in Hawai‘i, UHFMRP graduates also play an essential role in academic medicine in Hawai‘i. For example, UHFMRP graduates serve as faculty physicians at medical school and residency programs throughout Hawai‘i, including UH JABSOM, AT Still University School of Osteopathic Medicine, Tripler Army Medical Center Family Medicine Residency Program, and Hawai‘i Island Family Medicine Residency Program. In addition, UHFMRP graduates also serve as volunteer faculty for non-Hawai‘i-based medical, physician assistant, and nurse practitioner programs, as well as Hawaii-based nurse practitioner programs. These academic endeavors are critical to the health care workforce in Hawai‘i but were excluded from this study.

Limitations

Whether the UHFMRP graduates practice hospital-based inpatient family medicine versus outpatient-based family medicine or both was not differentiated for this study. Individual graduates were not contacted to verify information based on the methodology of this study. UHFMRP graduates who are faculty in residency training programs were not counted as clinically active, though the authors are aware they oversee residents and medical students practicing clinical medicine. These academic physicians have medical licenses and actively practice medicine; however, they do not necessarily have independent patient panels and, therefore, may not be equivalent to full-time clinical practice.

Conclusion

Since its inception in 1994, UHFMRP has continued to impact the family physician workforce in Hawai‘i. Currently, 23% of the entire family physician workforce in Hawai‘i are graduates of UHFMRP.¹ Residency program graduates also remain in Hawai‘i after graduation at a relatively stable rate compared to the prior study on the program’s impact on the family phy-

sician workforce; nevertheless, determining how this rate can be improved upon remains an area of needed research.⁸ UHFMRP is currently developing a community health curriculum in hopes that facilitating relationships between residents and community health centers will improve retention particularly in underserved areas of Hawai‘i. UH JABSOM, through the Area Health Education Center, is also working with the Hawai‘i Physician Shortage Crisis Task Force to improve Medicare and Medicaid reimbursements for physicians to offset the high cost of living in the state.¹⁶ UHFMRP graduates also contribute to the physician and health care training pipeline, which are essential for health care workforce development. Examples of UHFMRP graduate impacts on the training pipeline include clinical faculty appointments at UH JABSOM and AT Still Osteopathic School of Medicine, clinical preceptors for nurse practitioner students, and directors of UH JABSOM programs such as the Native Hawaiian Center of Excellence and Office of Medical Education. Thus, UHFMRP continues to impact the family physician workforce in Hawai‘i positively, but there remains room to improve the overall retention of graduates in the state. Additional opportunities for educational loan forgiveness, financial incentives for rural employment, salaries comparable to the continental US, and opportunities to practice full-spectrum family medicine, including obstetrics, are systematic opportunities to improve family physician retention in Hawai‘i.

Conflict of Interest

We certify that we have no financial affiliation/interest (eg, employment, stock holdings, consultantships, honoraria) in the subject matter, materials, or products mentioned in this manuscript. We have no conflict of interest to report, nor any interests represented with any products discussed or implied.

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