

Family Medicine Training in The US and Delaware:

Opportunities and Growth in Primary Care Workforce

Omar A. Khan, MD, MHS, FAAFP;¹ Erin M. Kavanaugh, MD, FAAFP;² Robert A. Monteleone, MD;³ Brintha Vasagar, MD, MPH, FAAFP;⁴ Joyce F. Robert, MD, FAAFP⁵

1. President & CEO, Delaware Health Sciences Alliance
2. Chair, Department of Family & Community Medicine & Physician Executive, Complex and Community Care, ChristianaCare
3. Program Director, Family Medicine Residency, Saint Francis Hospital
4. Program Director, Family Medicine Residency, Bayhealth
5. Founding Program Director, Family Medicine Residency, Beebe Healthcare

Introduction

In 2023, 5288 Post-Graduate Year 1 (PGY-1) slots in Family Medicine were offered in the US, including the District of Columbia (DC) & Puerto Rico. With a fill rate of around 90%, the demand for family medicine training remains high, commensurate with the primary care needs of the United States.

For the purposes of this commentary, a primary care field is defined the way most Americans seeking care and the National Academy of Medicine define it: “From this perspective, it seems clear that those trained in family medicine, general internal medicine, general pediatrics, many nurse practitioners, and physician assistants are trained in and are generally most likely to practice primary care.”¹

The field of family medicine continues to supply the most primary care physicians per resident in the United States. Other specialties offering primary care as an option (internal medicine and pediatrics) are seeing increasing numbers of their residents choosing to specialize via a fellowship pathway or to choose a non-primary care career such as hospital medicine.²

Similar to most of the United States, physician shortages in Delaware are both present and anticipated. The presence of a well-trained primary care workforce is thus essential. This pipeline is established through robust pre-medical education, medical school (undergraduate medical education, or UME), and residency training (graduate medical education, or GME). A more complete analysis of Delaware’s healthcare workforce is beyond the scope of this paper but is available online.³ While Delaware is ostensibly among four states in the country without an in-state medical school, it enjoys a robust partnership with two Philadelphia medical schools through the Delaware Institute for Medical Education and Research (DIMER) program. DIMER is described more fully elsewhere, providing medical school slots to qualified Delawareans.⁴ The two medical schools have also established branch campuses in Delaware, in partnership with the state’s hospital systems, to train third- and fourth-year medical students entirely within the state of Delaware.^{4,5}

Delaware Demographics

Delaware’s approximately 1 million population is mostly in the northernmost county (New Castle). The state capital of Dover is located in the middle county, Kent; while the southernmost county (Sussex) is both the largest by area and has shown the most influx of late. Between 2010 and 2020, Sussex County had a growth of 20.4% compared to New Castle County (6%) and Kent County (12%). More recent data

shows a population percent change of 7.8% from April 1, 2020 to July 1, 2022 in Sussex County compared to the state as a whole at 2.9%, Kent at 2.8% and New Castle at 0.8%.⁶

The statewide census also shows a growth of 40% in between the 2010 and 2020 census in the number of Delawareans who identified as Hispanic or Latino. That population growth was very evident in Sussex County which saw a 58% increase of Delawareans identifying as Hispanic or Latino. Thus, an increasing number of entering FM residents are bilingual; 50% of this year's entering classes at Beebe (Sussex County) and 33% of current residents at Saint Francis (New Castle County) are bilingual in English and Spanish.

The 'silver tsunami' (i.e., growth in the geriatric population in the state) continues to rise as well, reflecting a nationwide trend. As of July 1, 2022, nearly a third (29.8%) of Sussex County residents were over 65 years of age, compared with Kent County at 17.9% and New Castle at 6.6%.

Family Medicine Training in Delaware

For the first time in several decades, the last three years have seen growth in PGY-1 Family Medicine training slots in Delaware. The first family medicine residency program in Delaware was established in 1971 at The Medical Center of Delaware which became Christiana Care in 1985. The program has a current complement of nine categorical FM residents and three emergency medicine/family medicine (EM/FM) residents in each PGY year, making their way to a complement of 42 residents. Saint Francis Hospital started training family medicine residents in 1979 and has 18 residents (six in each post-graduate year). Bayhealth started FM training in 2021 with 8 PGY-1 slots, and Beebe Healthcare initiated its first class of PGY-1 FM residents in 2023 with 4 residency slots.

It is noteworthy that Delaware now has Family Medicine residency programs in each of its three counties. Nearly every other program is in the singular (e.g. one Pediatrics program, one Ob/Gyn program, with Internal Medicine being offered at two sites). Family Medicine is currently the highest represented training program with four available institutions, and the only specialty with a residency site in each of Delaware's three counties. This is appropriate given that the broadest base and diversity of the population pyramid is generally served by this specialty.

The Four GME Sites for Family Medicine in Delaware

ChristianaCare's Family Medicine Residency Program, located in New Castle County, was the first in Delaware, and has a particular focus on ambulatory training and community medicine. Meeting the needs of the community is a key goal and long-term aspiration. Recently enhanced areas of curriculum include substance use disorder and Hepatitis C in primary care, comprehensive contraception access, including medication abortions, and gender wellness. Existing areas of focus include training for academic and community roles, global health, and quality improvement training. The program has retained close to 50% of their graduating classes in the community and health system, many of whom are DIMER grads. This year, four of the seven of the graduating class of 2023 are staying within the state, and six of seven are staying within the community. One of the two combined Emergency Medicine-Family Medicine (EM-FM) graduates are staying in the state/system/community as well. The ChristianaCare program matched three DIMER students to be members of the Family Medicine residency class of 2026, indicating a commitment to the Delaware community and longitudinal pipeline of physicians.

The Saint Francis Family Medicine Residency Program was established in 1979 in Wilmington, Delaware (New Castle County) with the objective to train outstanding physicians to care for patients in

this community. Saint Francis Hospital, founded by the Sisters of Saint Francis of Philadelphia in 1924, heeds a particular call to serve those in need. Over 100 of the approximately 250 past graduates still practice in the Delaware region. Two of six graduates from the 2023 class will be practicing outpatient family medicine with Trinity Health Mid-Atlantic here in Delaware and five of six will be practicing in the region. The training at Saint Francis has historically been strong in preparing residents for full spectrum family medicine, including obstetrics and newborn care. Many current residents are bilingual, with a third being fluent in Spanish. The residency prides itself on attracting residents to best serve the diverse patient population of Delaware.

The Bayhealth Family Medicine Residency Program was the first residency program in Kent and Sussex counties. Given that both counties are health professional shortage areas, defined as less than one physician for every 2,000 people, the residency program was an intentional strategy by the health system to create a pipeline for bringing new physicians to Delaware. The program focuses on physician leadership and advocacy, with a particular interest in health equity and service to the underserved. Residents spend three years building social capital by partnering with groups already working to improve the health of the community. Improving access to care, the new ambulatory practice adds over 30,000 visits to the community each year. Here, residents work in interdisciplinary teams to improve the biggest healthcare needs in the state of Delaware: mental health, addiction, and obesity.⁷

Beebe Healthcare’s Family Medicine Residency program recently joined the ranks of the three established FM programs in the state of Delaware. It holds the distinction of being the first program in the first town (Lewes) of the first state. The program received initial accreditation from the ACGME in November 2022, subsequently matching four inaugural Family Medicine interns. The program’s focus is a strong commitment to the Sussex county community (the quickest growing county in the state); collaboration with Beebe’s population health department including a new mobile unit for outreach; and an innovative leadership curriculum. Beebe is also a Core Clinical Campus with the Philadelphia College of Osteopathic Medicine (PCOM) since July 2022 with 50% of the inaugural residency class from that school. One of those PCOM students is also a DIMER student from Delaware.

Results from Family Medicine Residency Workforce

Several factors make it essential to grow and sustain effective primary care in the United States, and those factors are mirrored in Delaware. Each of the three counties has its distinct character and needs. They share in common a need for well-trained family physicians to treat, diagnose, refer; and also take an increasing role in population health, prevention, and health care reform. This need is most acute in areas already underserved, which makes it more challenging to recruit and retain physicians.⁸

We analyzed data for all PGY-1 Family Medicine slots offered across the United States, and compared it with the population of each state (table 1). The median statistic of population served was 63,301 people per Family Medicine PGY-1 resident (lower numbers indicate improved access). The recent (last 3 years) expansion in family medicine GME slots in Delaware has effectively doubled the number of FM residencies in the state. Thus, Delaware’s statistic is now 36,664 people per FM resident, which means it ranks third from the top in the United States for lowest population per FM PGY-1 resident. This indicates a likely improvement in patient access to family medicine in the coming years.

Table 1. Family Medicine Residencies in the United States⁹⁻¹¹

State	PGY-1 FM Residents	State Population	Population per resident
-------	--------------------	------------------	-------------------------

Pennsylvania	543	13,002,700	23946.04052
North Dakota	28	779,094	27824.78571
Delaware	30	989,948	32998.26667
Arkansas	91	3,011,524	33093.67033
South Carolina	136	5,118,425	37635.47794
Wyoming	15	576,851	38456.73333
Idaho	47	1,839,106	39129.91489
Michigan	252	10,077,331	39989.40873
Maine	34	1,362,359	40069.38235
West Virginia	41	1,793,716	43749.17073
Washington	170	7,705,281	45325.18235
Oklahoma	87	3,959,353	45509.8046
Alabama	107	5,024,279	46955.8785
Wisconsin	119	5,893,718	49527.04202
South Dakota	17	886,667	52156.88235
Nebraska	37	1,961,504	53013.62162
Ohio	222	11,799,448	53150.66667
Illinois	237	12,812,508	54061.21519
Montana	20	1,084,225	54211.25
Iowa	58	3,190,369	55006.36207
Mississippi	52	2,961,279	56947.67308
Indiana	116	6,785,528	58495.93103
DC	12	712,816	59401.33333
New Mexico	35	2,117,522	60500.62857
Alaska	12	733,391	61115.91667
All US	2518	106,178,942	42167.96743
Kansas	44	2,937,880	66770
New Jersey	133	9,288,994	69842.06015
Colorado	82	5,773,714	70411.14634
Louisiana	66	4,657,757	70572.07576
California	560	39,538,223	70603.96964
Minnesota	80	5,706,494	71331.175
Missouri	86	6,154,913	71568.75581
Oregon	58	4,237,256	73056.13793
Virginia	118	8,631,393	73147.39831
Rhode Island	15	1,097,379	73158.6
New York	274	20,201,249	73727.18613
North Carolina	136	10,439,388	76760.20588
Nevada	38	3,104,614	81700.36842
Arizona	87	7,151,502	82201.17241
Tennessee	83	6,910,840	83263.13253
Kentucky	54	4,505,836	83441.40741
Texas	341	29,145,505	85470.68915

New Hampshire	16	1,377,529	86095.5625
Georgia	116	10,711,908	92344.03448
Florida	221	21,538,187	97457.85973
Vermont	6	643,077	107179.5
Hawaii	13	1,455,271	111943.9231
Utah	29	3,271,616	112814.3448
Massachusetts	53	7,029,917	132639.9434
Connecticut	25	3,605,944	144237.76
Maryland	31	6,177,224	199265.2903
Puerto Rico	8	3,264,000	408000

This measure, along with county-wide representation of Family Medicine residencies, indicates that Delaware's GME program in primary care is robust and is poised to lead in providing access to trained family physicians for the state (table 2). In the next two years, all four FM programs in the state will have graduated a full class of FM residents into attending physicians. The retention of several of these physicians in Delaware will be an important factor in alleviating workforce shortages and access shortfalls in the state. Programs like the federal Student Loan Repayment Program (SLRP) have recently been supplemented by the DIMER group's efforts to create a Delaware-specific Health Care Professional Loan Repayment Program (HCPLRP).^{12,13} This program aims to attract DIMER graduates and even non-Delawareans back to the state to serve for a number of years, while repaying their medical student loans essentially in full.

Table 2. Delaware Residency Programs

Residency Program	Number of PGY-1 (1 st year) Slots	Health System Characteristics	Geographic Location
Bayhealth	8 Categorical PGY1	2 Community Hospitals with ambulatory sites	Kent and Sussex County
Beebe	4 Categorical PGY1	1 Community Hospital with ambulatory sites	Sussex County
ChristianaCare	9 Categorical PGY-1 3 EM-FM PGY-1	2 hospitals in DE, 1 community hospital in MD, ambulatory sites statewide in DE, and in PA, NJ, MD.	New Castle County
Saint Francis	6 Categorical PGY1	1 Community Hospital with ambulatory sites	New Castle County

Conclusion

Challenges for the future include the long-term retention of these trained residents as practicing physicians within the state. There are also increasing areas of need within certain populations in Delaware, such as geriatrics, gynecological care, and pediatric care. These areas are part of the scope of general family medicine and can also represent (in the case of geriatrics and women's health) areas of FM specialization. There also exists a growing need to serve rural communities in the state, for which an emphasis on retention in the more rural counties will be essential. The growth of primary care training opportunities in Delaware is an encouraging trend. Collaboration among the programs, including the

four programs in Family Medicine, as well as those in other primary care-providing specialties, will be essential to create and sustain a stable pipeline of well-qualified physicians caring for the residents of the state of Delaware.

Acknowledgments

The support of the Board of the Delaware Health Sciences Alliance (DHSA, www.dhsa.org), DIMER, and the State of Delaware Health Care Commission, for medical education and workforce in the region is gratefully appreciated.

The State of Delaware Healthcare Workforce report referenced herein is available in full-text here: <https://djph.org/focus-on-delawares-workforce/>. The analytical work of Mr. Timothy Gibbs, MPH, and Dr. Kate Smith of the Delaware Academy of Medicine/Delaware Public Health Association is gratefully acknowledged.

The authors may be contacted at okhan@dhsa.org (Dr. Khan), ekavanaugh@christianacare.org (Dr. Kavanaugh), Robert.monteleone@che-east.org (Dr. Monteleone), brintha_vasagar@bayhealth.org (Dr. Vasagar), and jrobert@beebehealthcare.org (Dr. Robert).

References

1. Institute of Medicine (US) Committee on the Future of Primary Care. Donaldson, M. S., Yordy, K. D., Lohr, K. N., & Vanselow, N. A. (Eds.). (1996). Primary care: America's health in a new era. National Academies Press (US).
2. Deutchman, M., Macaluso, F., Chao, J., Duffrin, C., & Hanna, K. Avery, D.M., ..., James, K.A. (2020). Contributions of US medical schools to primary care (2003-2014): determining and predicting who really goes into primary care. *Fam Med*, 52(7), 483-490. <https://journals.stfm.org/familymedicine/2020/july-august/deutchman-2020-0065/>
3. Khan, O. A., & Gibbs, T. (2022). Focus on Delaware's healthcare workforce. *Delaware Journal of Public Health*, 8(5), 3. Retrieved from <https://djph.org/focus-on-delawares-workforce/> [PubMedhttps://doi.org/10.32481/djph.2022.12.001](https://doi.org/10.32481/djph.2022.12.001)
4. Townsend, S. L., & Khan, O. (2020, April 17). DIMER at 50: Delaware's best value for medical education. *Delaware Journal of Public Health*, 6(1), 62–63. [PubMedhttps://doi.org/10.32481/djph.2020.04.014](https://doi.org/10.32481/djph.2020.04.014)
5. Delaware Institute for Medical Education and Research. (2019). DIMER Anniversary Report. Retrieved from: https://dhss.delaware.gov/dhcc/files/dimer50annrpt_2020.pdf
6. U.S. Census Bureau. (n.d.). QuickFacts: Kent County, Delaware; New Castle City, Delaware; New Castle County, Delaware; Sussex County, Delaware; Delaware. Retrieved from: <https://www.census.gov/quickfacts/fact/table/kentcountydelaware,newcastlecitydelaware,newcastlecountydelaware,sussexcountydelaware,DE/PST120222>
7. America's Health Rankings. (2021). 2021 annual report. United Health Foundation & American Public Health Association. <https://www.americashealthrankings.org/learn/reports/2021-annual-report>
8. Malayala, S. V., Vasireddy, D., Atluri, P., & Alur, R. S. (2021, January-December). Primary care shortage in medically underserved and health provider shortage areas: Lessons from Delaware,

USA. *Journal of Primary Care & Community Health*, 12(Jan-Dec), 2150132721994018.
[PubMedhttps://doi.org/10.1177/2150132721994018](https://doi.org/10.1177/2150132721994018)

9. American Medical Association. (n.d.). FREIDA, the AMA residency and fellowship database. <https://www.ama-assn.org/amaone/freida-membership>
10. US Census Bureau. (n.d.). State populations. <https://data.census.gov>
11. Residency Programs List. (n.d.). Family medicine residency. <https://www.residencyprogramslist.com/family-medicine>
12. State of Delaware. Dept. of Health & Social Services. (n.d.). Delaware state loan repayment program (SLRP). <https://dhss.delaware.gov/dhss/dhcc/slrp.html>
13. State of Delaware. Dept. of Health & Social Services. (n.d.). Delaware health care provider loan repayment program (DE HCPLRP). <https://dhss.delaware.gov/dhss/dhcc/loanrepaymentnew.html>

Copyright (c) 2023 Delaware Academy of Medicine / Delaware Public Health Association.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc-nd/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.