

ARTICLE



Funding & Advocacy

Family Medicine: Finding Its Way on the Federal Research Roadmap

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Introduction: Challenges persist in securing substantial funding for the Family Medicine (FM) research enterprise, particularly from major sources like the National Institutes of Health (NIH). Analyses from a decade ago revealed stagnant funding levels, prompting further investigation into the subsequent years.

Methods: To elucidate funding trends over the most recent decade, the NIH RePORTER database was queried for grants awarded to departments identified as “Family Medicine” from 2014 to 2023. Data encompassed awards from various federal agencies, predominantly including the US National Institutes of Health and others. We also explored the relationship between funding success and multidisciplinaryity, examining whether Departments of FM (DFMs) incorporating diverse disciplines in their names exhibited higher chances of securing research funding.

Results: The investigation identified 73 funded DFMs in the NIH RePORTER database out of a total of 131 DFMs at Liaison Committee on Medical Education (LCME) accredited schools. Despite notable increases in both the total funding and percentage of funding allocated to DFMs over the decade, FM still accounted for less than 1% of total NIH awards. Multidisciplinary departments displayed a higher likelihood of securing research funding compared with their counterparts identified solely as DFMs.

Discussion: While the study reveals a mild upward trend in funding levels for DFMs, challenges persist in securing a more substantial share of federal research funding. Despite limitations, including the exclusion of non-NIH funding sources, the study provides valuable insights into the current state of federal funding for Family Medicine research, urging sustained efforts for further progress in the field. (J Am Board Fam Med 2024;37:S85–S91.)

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Introduction

Initiatives to expand the research profile for departments of Family Medicine (DFMs) in the United States have been underway for decades¹ and continues today.² As a number of studies have noted in

the past, DFMs have been described as lying “off the roadmap”^{3,4} for major funding sources, particularly the National Institutes of Health (NIH). The observation that awards to DFMs amounted to only 0.33% of all NIH awards made in 2006 – despite the fact that more than 35% of all health care visits are to primary care physicians⁵ – led to calls for greater Family Medicine presence within NIH, which Lucan and others have pointed out to be advantageous both to Family Medicine (FM) as a

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specialty but also to the NIH research mission and ultimately to patients.^{6,7} In addition, there have been numerous and repeated recommendations to prioritize investment in primary care and health services research, including creating a better national infrastructure, such as the specific recommendation to create an Office of Primary Care at the NIH.^{8–10} However, to date, these recommendations have not yet moved forward; analyses conducted a decade later indicated that funding levels (in terms of both dollars and awards) stagnated at roughly the same levels¹¹ and furthermore were concentrated at a limited number of institutions.¹²

A variety of strategies and mechanisms to improve the funding profile of the Family Medicine research enterprise exist. Funding from other agencies, such as the Health Resources and Services Administration, as one example, were used to enhance and build research infrastructure by some departments.¹³ There has been hope that Clinical and Translational Science Awards (CTSAs)¹⁴ or new funding streams from the Patient-Centered Outcomes Research Institute (PCORI)^{15,16} would also offer opportunities for DFMs to seek research funding, given the synergy between primary care research, and research methods that are practice-based and patient-centered. In addition, specific programs have been introduced by the discipline in the past decade, including the Building Research Capacity¹⁷ initiative supported by multiple FM organizations. Since 2016, this initiative has worked to develop the capacity for research within departments of family medicine and residency programs, through learning workshops at national family medicine meetings, a customized consultation service for departments and programs, and a fellowship program to train research leaders to develop and implement a strategic plan for research capacity building within their own departments.^{18,19} Enhancing FM research was a facet of the Family Medicine for American's Health (FMA Health) initiative in the 2010s, which involved broad collaboration across all US FM organizations,²⁰ and led to a variety of deeper explorations into where the discipline was at in terms of research success and output.^{2,21,22} This subsequently led to continued conversations around how to better collaborate to move further, faster.²⁰ Advocacy efforts, such as those conducted by the Academic FM Advocacy Committee, have also attempted to move FM research forward, by pursuing better levels of support from NIH, the Agency for Health care Research and Quality, and other potential funders.²³ Periodic

research summits have been held as well, with decade-spanning strategies developed through broad stakeholder engagement across the specialty.²⁴ Finally, through multiple decades of focus by different subconstituencies within FM, it is also apparent that moving forward requires FM, as a specialty, to collaborate. Many peer-reviewed journal articles coauthored by FM physicians are published in non-FM focused journals,²² and collaborations between FM and non-FM researchers is demonstrably associated with higher citation and funding rates.²⁵

Given both the dedication of resources, and the growing body of scholarly research dedicated to advancing the FM research enterprise, it is important to monitor trends in research funding, as done in the 2000s³ and again in the 2010s.¹¹ To do so, we sought to explore and describe federal US funding trends to DFMs locatable in the NIH Reporter public database²⁶ over the most recent decade (2014 to 2023). Given the importance of collaboration noted by Liaw, Jiang, and others, we also sought to examine funded versus nonfunded DFMs by name, exploring whether DFMs that have other disciplines implied in their names (eg, “Department of Family and. . .”) are more likely to be funded than those that are solely identified as Departments of Family Medicine.

Methods

To explore trends in funding to DFMs, we queried the NIH RePORTER database for all grants made to departments identified as “Family Medicine,” by year, between 2014 and 2023. The level of analysis was the award, with year, funding total, and home institution captured along with other incidental variables. This would theoretically capture all NIH awards to DFMs identified as DFMs (and not by a different disciplinary name), as well as awards from the Administration for Children and Families (ACF), Agency for Health care Research and Quality (AHRQ), Centers for Disease Control and Prevention (CDC), Health Resources and Services Administration (HRSA), US Food and Drug Administration (FDA), and Veterans Affairs (VA). From these data, we calculated the total number of projects recorded by year to DFMs, the total funds (in dollars) awarded, and the average number of awards per included institution. We compared the number of awards and amount of funding to the total number of awards and funding to all recipients in the database, and calculated the percentage of funding that went to DFMs. We also identified all departments with more

than 100 awards over the past 10 years, and visually graphed the trends in funding versus percentage of funding. For comparison, we also collected funding levels for the same time range for Internal Medicine and for Pediatrics departments, calculating the total funding per year recorded in NIH RePORTER, and calculating the percentage of total award funding per year for each of those other primary care specialties.

Not all DFMs in the US are represented in NIH RePORTER; only departments that receive funding are in the database. It is therefore not possible to use only NIH RePORTER data as a numerator, versus the denominator of all US DFMs. We separately captured all DFMs identified at institutions accredited by the Liaison Committee on Medical Education (LCME), cross-checked with the Association of Departments of Family Medicine's (ADFM) database and internet searches, and noted those with funding recorded in NIH RePORTER, versus those without. We grouped DFMs solely identifying as "Department of Family Medicine" and those identifying as something including FM and other disciplines or areas of work (Community, Preventive, Public Health, etc.) in the department name recorded in the ADFM database – departments listed as "Department of Family Medicine" only were coded as FM-only, and departments with additional disciplines or focuses represented in their names were coded as multi-disciplinary. We then tested the hypothesis that multi-disciplinary departments are more likely to appear in NIH RePORTER as a primary departmental home for a federal award, than those departments solely identified as a DFM, via cross-tabulation, with χ^2 calculation. Departments or other entities in the ADFM database that are not DFMs at LCME-accredited schools and do not feature "Family Medicine" in the name (eg, "Department of Clinical Sciences") or are not departments (such as Centers) were excluded from this analysis.

Results

A total of 73 unique, funded departments were identified in the NIH RePORTER database, representing 55.7% of 131 departments identified at LCME schools. The 73 DFMs who have funding recorded in NIH RePORTER received between 0.26% and 0.41% of all awards from NIH and other agencies captured in NIH RePORTER, and between 0.24% and 0.32% of total funding (see Table 1). For comparison, total funding to Internal

Table 1. Federal Grants Awarded to Departments of Family Medicine (DFMs) from 2014 to 2023, as Reported in NIH RePORTER. Percentage Calculations Use Number and Total Funding of All Projects in NIH RePORTER as Denominators. Internal Medicine and Pediatrics Total Funding in Billions, and Percentage of Total Funding, Included for Comparison

| Fiscal Year | All Projects | Projects to DFMs (%) | Total Funding DFMs | Total Federal Funding | DFM Funding (%) | Internal Medicine (Total Funding in Billions (% of Total)) | Pediatrics (Total Funding in Billions (% of Total)) |
|-------------|--------------|----------------------|--------------------|-----------------------|-----------------|--|---|
| 2014 | 64762 | 0.30% | \$79,753,100 | \$32,645,233,914 | 0.24% | \$3.35 (10.27%) | \$0.74 (2.27%) |
| 2015 | 62100 | 0.33% | \$92,439,910 | \$32,662,514,743 | 0.28% | \$3.22 (9.85%) | \$0.77 (2.37%) |
| 2016 | 61325 | 0.30% | \$89,292,165 | \$31,919,173,492 | 0.28% | \$3.4 (10.64%) | \$0.76 (2.40%) |
| 2017 | 61735 | 0.28% | \$80,922,039 | \$31,528,502,237 | 0.26% | \$3.55 (11.26%) | \$0.73 (2.32%) |
| 2018 | 61649 | 0.26% | \$83,892,324 | \$33,684,275,078 | 0.25% | \$3.73 (11.08%) | \$0.77 (2.30%) |
| 2019 | 62947 | 0.30% | \$61,540,142 | \$36,293,275,228 | 0.25% | \$4.16 (11.46%) | \$0.84 (2.33%) |
| 2020 | 70299 | 0.31% | \$105,744,113 | \$40,488,996,745 | 0.26% | \$4.87 (12.02%) | \$1 (2.46%) |
| 2021 | 71265 | 0.31% | \$107,975,115 | \$42,004,195,254 | 0.26% | \$5.19 (12.37%) | \$1.17 (2.78%) |
| 2022 | 72539 | 0.33% | \$123,624,912 | \$43,117,780,811 | 0.29% | \$5.07 (11.75%) | \$1.11 (2.57%) |
| 2023 | 73230 | 0.41% | \$141,251,767 | \$44,505,086,908 | 0.32% | \$5.14 (11.55%) | \$1.18 (2.66%) |

Medicine departments ranged from \$3.22 to \$5.19 billion per year and 9.85%–12.37% of total funding per year for 2014 to 2023; Pediatrics ranged from \$0.73 to \$1.18 billion and 2.27% to 2.78% of total funding per year for 2014 to 2023. Both the total funding and the percentage of funding to DFMs has increased over time, as displayed in Figure 1.

Only 37.0% of DFMs that do not include other disciplines in their departmental names had any awards included in NIH RePORTER, whereas 53.4% of DFMs that included other disciplines in their names (eg, Department of Family and: Community Health, Preventive Medicine, Public Health, Rural Health, etc.) had awards included in NIH RePORTER (see Table 2). The difference in percentage of FM-only vs multidisciplinary departments having ever received an award recorded in NIH RePORTER approached significance at the $P = .05$ level ($P = .061$).

The top 5 DFMs, in terms of total funding across the 10-year span, account for about 40.40% of all funding awarded to DFMs across the time period. The mean total funding per DFM was \$13,649,803 over the 10-year period (S.D. = \$22,805,095). Thirteen of the 73 recorded under \$1 million in funding over the time period. The top 5 institutions, with total 10-year funding and percentage of total, are listed in Table 3.

Discussion

Funding to DFMs over the past decade has not deviated substantially from levels reported in 2008 or 2016, with Family Medicine still receiving far less than 1% of total funding, or total awards, from NIH

Table 2. Comparison of Departments of Family Medicine Only versus Departments of Family Medicine plus Other Disciplines (as Indicated by Department Name), by Funding Status (Any Federal Funding Recorded in NIH RePORTER, 2014–2023)

| | Funded | Non-Funded | p |
|--|------------|------------|------|
| Family Medicine | 27 (37.0%) | 46 (63.0%) | 0.06 |
| Family Medicine Plus Other disciplines | 31 (53.4%) | 27 (37.0%) | |

and other common federal sources of research funding. However, overall funding levels, the percentage of funding, and the percentage of awards, are all increasing. Whether this is the result of concerted efforts on the part of FM organizations, initiatives, and advocacy, or whether it is attributable to other contextual factors, is not answerable by this study, but the increasing trend does run parallel to temporally associated efforts to improve the funding profile of the FM research enterprise. For comparison, funding to DFMs is far lower than other primary care disciplines. Pediatrics departments received roughly 8 to 10 times as much funding, and Internal Medicine 36–48 times the funding, that goes to DFMs. While both Internal Medicine and Pediatrics departments tend to be much larger than DFMs, anecdotally, the fact remains that funding to those specialties is measured in billions, as opposed to millions.

In addition, departmental multidisciplinary (as determined by name) seems to be a factor in many cases of research funding success. We believe this report adds to findings, observed through very different methods, that DFMs benefit when their

Figure 1. Total percentage of funding and total amount of funding awarded to departments of family medicine from 2014 to 2023.

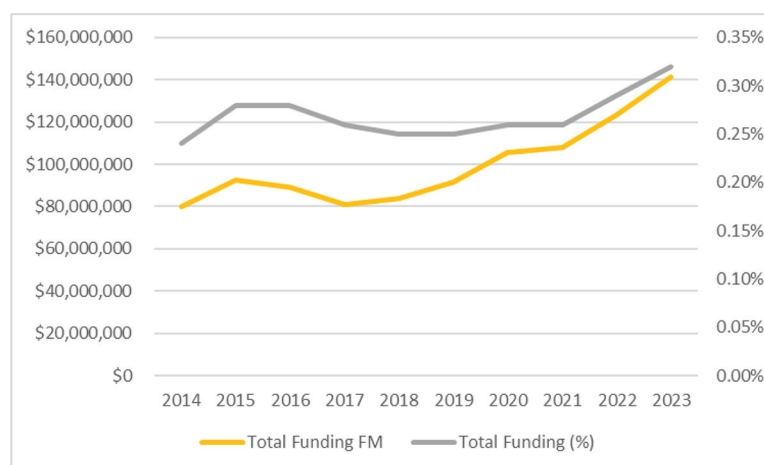


Table 3. Departments of Family Medicine (DFMs) Awarded the Most Amount of Funding (Top 5, of 73) from 2014 to 2023

| Family Medicine Department | Sum of Total Awarded Funding (2014–2023) | Percentage of Total Funding out of All DFMs Funding |
|--------------------------------------|--|---|
| University of California, San Diego | \$158,371,748 | 15.89% |
| University of Minnesota | \$75,211,983 | 7.55% |
| University of Utah | \$71,633,249 | 7.19% |
| Oregon Health & Science University | \$58,947,574 | 5.92% |
| University of California Los Angeles | \$38,367,018 | 3.85% |

faculty researchers collaborate with other disciplines. In many cases, this may require reaching outside of the DFM to establish such collaborations, but the fact that DFMs that include other disciplines within their departmental borders tend to see more success in obtaining research funding, combined with observations by Jiang²⁵ and Liaw,²² suggests that DFMs interested in increasing their own research portfolio should incorporate dedicated researchers into their own faculty, potentially alongside development of metrics to track the success rate of manuscripts becoming publications.²⁷

Notably, there is clearly a large range of funding across institutions, with 5 institutions accounting for over 40% of the total funding to DFMs across the 10 year period, and a wide dispersion in total funding across the 73 institutions included in our analysis. A possible intervention point could be to enhance the ability of DFMs who are on the low end of funding; these departments may have some intrinsic and existing capacity to pursue federal funding that could lend a foundation for growth.

There are a number of limitations to this study. The first is that we have only used data available in NIH RePORTER, which is nonexhaustive. Funding from nonprofit organizations, such as PCORI, Robert Wood Johnson Foundation, or other health foundations, state or local grants, or philanthropic gifts and endowments, are not included. In addition, we did not have access to the number of submissions, nor to the quality of submissions, so this study cannot answer whether the increase in funding is due to increased or better-quality submissions over time, nor can we directly tie our observed results to specific initiatives or programs. We also cannot account for departments that are not recorded as “Family Medicine” departments in NIH RePORTER, and so could not include primary care centers, departments that include but do not center around Family Medicine, or other

iterations of Family Medicine units, that were not clearly recorded as DFMs in LCME-accredited institutions. We also have not explored whether the teams or the proposals that were funded would meet any definition of multidisciplinary. The current study looked only at the department level, and only determined multidisciplinary at the potentially superficial level of departmental name. A deeper, more intensive phenomenological study of departmental interdisciplinarity would be warranted, but this was beyond the scope of the current resource-limited project.

There are a number of areas for future research that would augment this study, as well as the rest of the existing literature. A true examination of research team composition would be informative. In addition, examining the clustering of research within regions, institutions, diseases or topics, and from specific funding sources, would all be useful additional studies that were beyond the scope and resources available for the current study.

Despite these limitations, we have used similar methods as employed in prior decades⁴ to offer an update to the field on trends in federal funding to NIH, and can report that there is an upward trend. However, given that the overall percentages of funding and awards made to DFMs out of the total NIH RePORTER database are only slightly higher, and roughly similar, to what they have been for decades, current advocacy and programmatic efforts should continue, if Family Medicine hopes to continue the mild upward trend we have reported here. The new NIH Director has expressed interest in supporting primary care research, including creating a new funding opportunity for research networks in primary care settings;^{28,29} this holds promise for moving the needle on DFM engagement in NIH funding mechanisms and DFMs should be ready to position themselves to participate when these opportunities arise. In addition, DFMs should

fully embrace multi-disciplinarity, particularly within their own departmental borders, if we hope to see strong improvements in the Family Medicine research enterprise going forward. This suggests a specific opportunity for peer sharing among ADFM members about what has worked well and what opportunities may exist for other DFMs in multi-disciplinary partnerships.

To see this article online, please go to: <http://jabfm.org/content/37/S2/S85.full>.

References

1. Bowman MA, Lucan SC, Rosenthal TC, Mainous AG, James PA. Family medicine research in the United States from the late 1960s into the future. *Fam Med* 2017;49:289–95.
2. Weidner A, Peterson LE, Mainous AG, Datta A, Ewigman B. The current state of research capacity in US family medicine departments. *Fam Med* 2019;51:112–9.
3. Lucan SC, Phillips RL, Bazemore AW. Off the roadmap? Family medicine's grant funding and committee representation at NIH. *Ann Fam Med* 2008;6:534–42.
4. Lucan SC, Barg FK, Bazemore AW, Phillips RL. Family medicine, the NIH, and the medical-research roadmap: perspectives from inside the NIH. *Fam Med* 2009;41:188–96.
5. Johansen ME, Kircher SM, Huerta TR. Reexamining the ecology of medical care. *N Engl J Med* 2016;374:495–6.
6. Lucan SC, Bazemore AW, Phillips RL, Xierali I, Petterson SM, Teevan B. Greater family medicine presence at NIH can improve research relevance and reach. *Am Fam Physician* 2010;81:1213.
7. Lucan SC, Bazemore AW, Xierali I, Phillips RL, Petterson SM, Teevan B. Greater NIH investment in family medicine would help both achieve their missions. *Am Fam Physician* 2010;81:704.
8. Mendel P, Gidengil CA, Tomoaia-Cotisel A, et al. Health services and primary care research study: comprehensive report. *Rand Health Q* 2022;9:26.
9. National Academies of Sciences, Engineering, and Medicine; Health and Medicine Division; Board on Health Care Services; Committee on Implementing High-Quality Primary Care. *Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care*. (Robinson SK, Meisner M, Phillips RL, McCauley L, eds.). National Academies Press (US); 2021. Accessed June 1, 2024. Available at: <http://www.ncbi.nlm.nih.gov/books/NBK571810/>.
10. National Academy of Medicine. *The Future of Health Services Research: Advancing Health Systems Research and Practice in the United States*. (Simpson L, Siddiqi S, Rosengren K, Whicher D, eds.). National Academies Press (US); 2018. Accessed June 1, 2024. Available at: <http://www.ncbi.nlm.nih.gov/books/NBK596223/>.
11. Cameron BJ, Bazemore AW, Morley CP. Lost in translation: NIH funding for family medicine research remains limited. *J Am Board Fam Med J Am Board Fam Med* 2016;29:528–30.
12. Cameron BJ, Bazemore AW, Morley CP. Federal research funding for family medicine: highly concentrated, with decreasing new investigator awards. *J Am Board Fam Med J Am Board Fam Med* 2016;29:531–2.
13. Morley CP, Cameron BJ, Bazemore AW. The impact of administrative academic units (AAU) grants on the family medicine research enterprise in the United States. *Fam Med* 2016;48:452–8.
14. Ewigman B, North American Primary Care Research Group. CTSAs and family medicine research—time to get connected. *Ann Fam Med* 2008;6:181–2.
15. Balster A, Mazur S, Bazemore A, Merenstein DJ. How well does the patient-centered outcomes research institute fund primary care and comparative effectiveness research? *J Gen Intern Med* 2019;34:1680–1.
16. Mazur S, Bazemore A, Merenstein D. Characteristics of early recipients of patient-centered outcomes research institute funding. *Acad Med J Med* 2016;91:491–6.
17. Ewigman B, Davis A, Vansaghi T, et al. Building research & scholarship capacity in departments of family medicine: a new joint ADFM-NAPCRG initiative. *Ann Fam Med* 2016;14:82–3.
18. Building Research Capacity (BRC). Accessed May 30, 2024. Available at: <https://adfm.org/programs/building-research-capacity-brc/>.
19. Seidenberg P, Shokar N, Vera J, Weidner A, Sutter J, BRC Steering Committee. A 5-year update on the Building Research Capacity initiative. *Ann Fam Med* 2021;19:471–2.
20. Hester CM, Jiang V, Bartlett-Esquillant G, et al. Supporting family medicine research capacity: the critical role and current contributions of US family medicine organizations. *Fam Med* 2019;51:120–8.
21. Liaw W, Eden A, Coffman M, Nagaraj M, Bazemore A. Factors associated with successful research departments a qualitative analysis of family medicine research bright spots. *Fam Med* 2019;51:87–102.
22. Liaw W, Petterson S, Jiang V, et al. The scholarly output of faculty in family medicine departments. *Fam Med* 2019;51:103–11.
23. Westfall JM, Wittenberg HR, Liaw W. Time to invest in primary care research—commentary on findings from an independent congressionally mandated study. *J Gen Intern Med* 2021;36:2117–20.
24. Weidner A, Asif I. Shaping the future of family medicine research: the 2023 National Family Medicine Research Summit. *Ann Fam Med* 2024;22:72–4.
25. Jiang V, Petterson S, Wilkinson E, et al. United States family medicine research collaborations

- associated with higher citation and funding rates. *J Prim Health Care* 2021;13:238–48.
26. NIH. RePORT › RePORTER. Accessed March 6, 2024. Available at: <https://reporter.nih.gov/>.
27. Slattengren AH, Finstad D, Pitt MB. Personal manuscript acceptance rates: metrics for self-assessment in scholarship. *Primer Leawood PRiMER* 2019;3:25.
28. Council of Councils > April 5, 2024 | DPCPSI. Accessed June 1, 2024. Available at: <https://dpcpsi.nih.gov/council/april-5-2024-agenda>.
29. Research opportunity announcement | NIH Common Fund. Accessed June 1, 2024. Available at: <https://commonfund.nih.gov/clinical-research-primary-care/Primary-care-research-network-Research-Opportunity-Announcement-FY24>.