



## ARTICLE

### Infrastructure

# Family Medicine's Role in Generating Evidence to Inform Primary Care Payment Reform and New Care Delivery Models

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Given that half of physician office visits are for primary care and family physicians make up 40% of all primary care clinicians in the US, family medicine researchers can play a key role in evaluating and reporting on state and federal innovations to redesign primary care payment and care delivery. We used Dimensions, a comprehensive publications and citations research platform, to measure the impact of family medicine-affiliated scholarship (research articles, letters to the editor, research letters, and editorials) published from 2018 to 2022 in 14 of the highest-impact journals that routinely publish articles on payment and delivery system reform. Among 6212 peer-reviewed articles related to primary care payment and delivery system reform, we found that 519 (8.4%) included at least 1 author with an affiliation with a department of family medicine compared with 1197 articles (19.3%) that had at least 1 author with an affiliation with a department of internal medicine and 504 articles (8.1%) that had at least 1 author affiliated with a department of pediatrics. Taken together, these findings suggest that academic departments of family medicine are lagging in scholarly contributions that evaluate payment and delivery system reform. (J Am Board Fam Med 2024;37:S164–S172.)

**Keywords:** ADFM/NAPCRG Research Summit 2023, Family Medicine, Health Care Reform, Health Policy, Health Services, Organization and Administration, Primary Health Care

## Introduction

Approximately 100 million Americans currently lack a usual source of primary care, a number that has doubled in recent years.<sup>1</sup> Patients unable to get timely appointments with a primary care clinician are at increased risk of hospitalization, especially those with chronic diseases such as cardiovascular disease, diabetes, or asthma.<sup>2</sup> One factor contributing to the

nation's crumbling primary care infrastructure is how it is financed, creating momentum for redesigning payment and care delivery models.<sup>3</sup>

Since the passage of the Affordable Care Act in 2010, more than 50 new payment models have been tested nationally, most with a focus on investing and supporting primary care.<sup>4</sup> New primary care payment models continue to emerge, such as CMS's Making Care Primary (MCP). Launching in 8 states in July 2024, MCP will serve as a pathway for individual practices to transition from fee-for-service to prospective, population-based payments.<sup>5</sup> Some states are not waiting for federal action and have implemented minimum primary care spend mandates<sup>6</sup> to increase investment in the primary care workforce and infrastructure.

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Given that half of physician office visits are for primary care<sup>7</sup> and family physicians make up 40% of all primary care clinicians in the US,<sup>8</sup> family medicine researchers can play a key role in evaluating and reporting on state and federal innovations to redesign primary care payment and care delivery. The objective of this brief report is to describe the contribution of family medicine researchers to impactful primary care payment and delivery system reform scholarship over the past 5 years (2018 to 2022). Our hypothesis is that family medicine researchers have a low participation in impactful scholarship in payment reform relative to the size of the specialty and the number of patient visits they provide.

## Methods

We used Dimensions, a comprehensive publications and citations research platform<sup>9</sup>, to measure the impact of family medicine-affiliated authors on scholarship (research articles, letters to the editor, research letters, and editorials) published from 2018 to 2022 in a purposive sample of 14 journals that routinely publish articles on payment and delivery system reform (Table 1). Dimensions measures trends in scholarship and impact in more

than 141 million publications – including peer-reviewed research articles – with metrics that assess impact, influence, and attention to a particular body of scholarly work among academics, policy makers, and the public. This includes Altmetric, a common measure of impact.<sup>10</sup> An Altmetric score combines a publication’s social media or networking site mentions, comments in blogs or open-source publications, media mentions, and citations and exports to citation management programs (i.e., Zotero). Dimensions also includes the reference data needed for this analysis, including publication year, journal source, authors and author affiliation, and meta-data reference classification (i.e., Medical Subject Headings, or MeSH terms).

We used MeSH terms to identify articles related to primary care and payment and delivery system reform (search terms outlined in eTable 1) to include in our sample, which we then analyzed to determine whether the article included any author, a first author, or a senior author affiliated with a department of family medicine (i.e., author affiliation included “Family Medicine,” “Family and Community Medicine,” “Community and Family Medicine,” and “Family and Preventive Medicine”). We constructed an analogous set of authorship measures to identify authorship

**Table 1. Sample of Impactful Journals Routinely Publishing Primary Care Payment and Delivery System Reform Scholarship**

Journal Title	Impact factor (2022)	All publications included in dimensions database (2018–2022)	All Primary Care Payment and delivery system reform publications (2018–2022)
Cross-disciplinary journals			
New England Journal of Medicine	176.1	7,643	404
JAMA	157.4	8,830	780
JAMA Health Forum	11.5	897	255
Health Affairs	9.0	1,655	831
Milbank Quarterly	6.6	265	142
Medical Care	3.0	990	510
Journal of Health Politics, Policy, and Law	3.0	274	133
Health Services Research	2.7	1,147	521
Family medicine-specific journals			
Annals of Family Medicine	4.4	1,025	304
Journal of the American Board of Family Medicine	3.0	863	336
Internal medicine-specific journals			
Annals of Internal Medicine	39.2	4,196	408
Journal of General Internal Medicine	5.7	3,653	1,086
Pediatrics-specific journals			
JAMA Pediatrics	26.1	2,098	122
Pediatrics	8.0	8,538	380
Total (14 journals)		42,074	6,212

from internal medicine and pediatrics departments to serve as comparisons.

We then examined trends in the percent of primary care payment and delivery system reform articles from 2018 to 2022 authored by individuals from departments of family medicine, compared with those authored by departments of internal medicine or pediatrics for each year. To assess whether there were differences in the presence of family medicine authored studies among especially high-impact articles, we replicated this analysis in the subset of articles that had the highest impact factor (top decile of Altmetric scores) in each year.

## Results

We identified 6212 peer-reviewed articles published from 2018 to 2022 related to primary care payment and delivery system reform (Table 1). Of these articles, 519 (8.4%) included at least 1 author with an affiliation with a department of family medicine, 238 (3.8%) had a first author from a department of family medicine, and just 28 (0.5%) had a senior family medicine author (data in eTable 2). By comparison, 1197 articles (19.3%) had at least 1 author affiliated with a department of medicine and

504 articles (8.1%) had at least 1 author affiliated with a department of pediatrics. The percentage of publications from authors affiliated with these 3 clinical department types remained relatively stable over the study period and together comprised 36% of primary care payment and delivery system reform publications between 2018 to 2022.

In the subset of 566 publications that had the highest impact (top decile Altmetric score) over the study period, 8.8% had any author from a department of family medicine (Table 2). The percentage of impactful publications that included at least 1 family medicine author increased from 7.1% to 13.9% from 2018 to 2022. There was a similar increase in internal medicine-affiliated authors over the study period (17.5% to 25.0%), whereas only a modest increase in the percentage of pediatrics-affiliated authors (11.9% to 13.0%).

## Discussion

Family physicians comprise 40% of the primary care workforce, yet less than 10% of payment and care delivery reform articles included in this study were authored by individuals affiliated with departments of family medicine, which is markedly less

**Table 2. Trends in Authorship of Primary Care Payment and Delivery System Reform Scholarship Among Departments of Family Medicine, Internal Medicine, and Pediatrics-Affiliated Scholars, 2018-2022**

Year	N Articles	All primary care payment and delivery system reform articles						Impactful Primary Care Payment and delivery system reform articles*						
		Any Department of Family Medicine Authors		Any Department of Internal Medicine Authors		Any Department of Pediatrics Authors		Any Department of Family Medicine Authors		Any Department of Internal Medicine Authors		Any Department of Pediatrics Authors		
		N	%	N	%	N	%	N	%	N	%	N	%	
2018	1225	105	8.6%	209	17.1%	104	8.5%	126	9	7.1%	22	17.5%	15	11.9%
2019	1242	96	7.7%	260	20.9%	109	8.8%	106	7	6.6%	32	30.2%	5	4.7%
2020	1318	106	8.0%	231	17.5%	109	8.3%	124	9	7.3%	24	19.4%	9	7.3%
2021	1282	108	8.4%	252	19.7%	105	8.2%	102	10	9.8%	19	18.6%	4	3.9%
2022	1145	104	9.1%	245	21.4%	77	6.7%	108	15	13.9%	27	25.0%	14	13.0%
Total	6212	519	8.4%	1197	19.3%	504	8.1%	566	50	8.8%	124	21.9%	47	8.3%

*Note:* Sample includes articles from impactful clinical and policy journals that routinely publish health policy and delivery system scholarship, including JAMA, JAMA Health Forum, New England Journal of Medicine, Health Services Research, Health Affairs, JHPPL, Medical Care, Milbank Quarterly, Annals of Family Medicine, JABFM, Annals of Internal Medicine, JGIM, JAMA Pediatrics, and Pediatrics. We identified affiliation with individual clinical departments using the Authors' Raw Affiliation included for each article (Family Medicine = any affiliation that included "Family Medicine", "Family and Community Medicine", "Community and Family Medicine", or "Family and Preventive Medicine"; Internal Medicine = any affiliation that included "Department of Medicine", "Internal Medicine", or "General Internal Medicine"; Pediatrics = any affiliation that included "Pediatrics").

\*Impactful refers to publications that were in the top decile of Altmetric scores (calculated by journal-year).

than scholars in internal medicine and pediatrics, relative to the size of the specialty and the volume of primary care provided. Family physicians provide effective, affordable primary care that is foundational to new payment models and care delivery systems that are centered on principles of accessibility, continuity, comprehensiveness, coordination, community engagement, patient-centeredness, and complexity<sup>11</sup>. This wealth of experiential knowledge in the principles of primary care, along with a front line understanding of the inadequacies and perverse incentives of the current payment system, position family physicians to provide practical solutions to payment and practice reform. In addition to direct advocacy or policy, peer reviewed articles in impactful journals are an important avenue through which family physicians can influence future payment models and reforms. Yet academic departments of family medicine are lagging in scholarly contributions that evaluate these evolving changes.

This presents both a challenge and an opportunity for academic family medicine. The opportunity is clear – payment and practice reform will evolve, perhaps dramatically, over the next decade. Evaluation of new models will inform ongoing experimentation and those best positioned for meaningful analyses are those closest to the actual work. The challenge is that few departments of family medicine have the research experience and infrastructure to conduct rigorous, policy-relevant research, a challenge shared with other clinical departments because over the study period most articles (~64%) were published from departments other than family medicine, medicine, and pediatrics.

Our analysis shows a hopeful trend toward more scholarship on payment and practice reform from family medicine researchers. Further analyses can inform the investment needed to sustain and strengthen family medicine departments' research capacity. For example, departments with success in research are likely to support both physician and doctoral (PhD) investigators and encourage them to collaborate. Health services researchers and economists are more likely than physicians to have experience in big data, claims analyses, policy analysis, and other skills needed for effective evaluation and reporting. Departments need financial support from external funders, payors (private and government), and schools of medicine to make these necessary investments.

At the discipline level, family medicine should work toward better establishing its expertise on

practice and payment reform in primary care. Academic departments could share best practices with each other and learn from departments that have established successful research programs.<sup>12</sup>

### Limitations

The study has several limitations. Our purposive sample of journals that routinely publish on primary care payment and delivery system reform likely excluded influential articles authored by family medicine scholars published in journals not included in our analysis. In addition, our sample excluded gray literature, such as issue briefs, white papers, and other policy reports that also inform policy. In addition, there may be family medicine scholars conducting research in the private sector, nonacademic community settings, government, or other sectors that were not captured in our analysis. By including family medicine, internal medicine, and pediatric-specific journals (i.e., *Annals of Family Medicine*, *Annals of Internal Medicine*, *JAMA Pediatrics*), we likely oversample academic family physicians, internists, and pediatricians. As such, our results may represent an upper bound estimate.

### Conclusions

Primary care payment and delivery system reform is essential to the implementation of high-quality primary care. Engaging family medicine researchers and clinicians in scholarship related to primary care payment and delivery system reform has the potential to inform future models and better align new payment models with actual practice. Yet, we found that less than 10% of impactful primary care payment and delivery system reform-related articles published from 2018 to 2022 included any author from a department of family medicine, and scholarship from the clinical primary care disciplines (family medicine, internal medicine, and pediatrics) made up just 34%. Still, our analysis does demonstrate the potential for growth in family-medicine led research in this area, as we found an increasing percentage of the highest impact articles were authored by family medicine scholars over time. Future work can extend this analysis to identify departments of family medicine that have been successful in conducting primary care payment and delivery system reform research to replicate and scale these efforts more broadly in the discipline.

To see this article online, please go to: <http://jabfm.org/content/37/S2/S164.full>.

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## Appendix

**Appendix Table 1. MeSH Search Terms Used to Identify Articles That Were Related to Primary Care Redesign and Payment Reform**

	Terms
1. Primary Care	“primary care” OR “nursing, primary care” OR “physician, primary care” OR “physicians, primary care” OR “primary care nursing”
AND	
2. Care Delivery and Payment Models	“Policy” OR “Health Policy” OR “Delivery of Health Care” OR “Quality of Health Care” OR “Medicare” OR “Medicaid” OR “Payment Model” OR “Payment Methods” OR “Reimbursement” OR “Reimbursement Methods” OR “Fee-For-Service Plans” OR “Fee-for service Reimbursement” OR “Government Programs” OR “Health Expenditures” OR “Health Care Costs” OR “Cost Savings” OR “Cost” OR “Cost Analysis” OR “Investment” OR “ACOs” OR “Accountable Care Organizations” OR “Care organization, accountable” OR “Accountable Health Plans” OR “pay for performance” OR “P4P” OR “Financial Risk Sharing” OR “Risk Sharing, Financial” OR “Capitation Fee” OR “Healthcare Financing” OR “Health Care Reform” OR “Health Care Sector/organization and administration”

**Appendix Table 2. Trends in Authorship of Primary Care Payment and Delivery System Reform Scholarship Among Departments of Family Medicine by Author Position and Role, 2018–2022**

All primary care payment and delivery system reform articles							
Year	N Total Articles	Department of Family Medicine Any Author		Department of Family Medicine First Author		Department of Family Medicine Senior Author	
		N	%	N	%	N	%
2018	1,225	105	8.6%	42	3.4%	4	0.3%
2019	1,242	96	7.7%	45	3.6%	4	0.3%
2020	1,318	106	8.0%	53	4.0%	10	0.8%
2021	1,282	108	8.4%	48	3.7%	4	0.3%
2022	1,145	104	9.1%	50	4.4%	6	0.5%
Total	6,212	519	8.4%	238	3.8%	28	0.5%

  

Impactful primary care payment and delivery system reform articles*							
Year	N High Impact Articles	Department of Family Medicine Any Author		Department of Family Medicine First Author		Department of Family Medicine Senior Author	
		N	%	N	%	N	%
2018	126	9	7.1%	4	3.2%	0	0.0%
2019	106	7	6.6%	4	3.8%	0	0.0%
2020	124	9	7.3%	2	1.6%	0	0.0%
2021	102	10	9.8%	4	3.9%	0	0.0%
2022	108	15	13.9%	6	5.6%	2	1.9%
Total	566	50	8.8%	20	3.5%	2	0.4%

Sample includes articles from impactful clinical and policy journals that routinely publish health policy and delivery system scholarship, including JAMA, JAMA Health Forum, New England Journal of Medicine, Health Services Research, Health Affairs, JHPPL, Medical Care, Milbank Quarterly, Annals of Family Medicine, JABFM, Annals of Internal Medicine, JGIM, JAMA Pediatrics, and Pediatrics. We identified affiliation with individual clinical departments using the Authors' Raw Affiliation included for each article (Family Medicine = any affiliation that included "Family Medicine", "Family and Community Medicine", "Community and Family Medicine", or "Family and Preventive Medicine"; Internal Medicine = any affiliation that included "Department of Medicine", "Internal Medicine", or "General Internal Medicine"; Pediatrics = any affiliation that included "Pediatrics").

\*Impactful refers to publications that were in the top decile of Altmetric scores (calculated by journal-year).

**Appendix Table 3. Trends in Authorship of Primary Care Payment and Delivery System Reform Scholarship Among Departments of Medicine by Author Position and Role, 2018–2022**

All primary care payment and delivery system reform articles							
Year	N Total Articles	Department of Medicine Any Author		Department of Medicine First Author		Department of Medicine Senior Author	
		N	%	N	%	N	%
2018	1,225	209	17.1%	92	7.5%	6	0.5%
2019	1,242	260	20.9%	109	8.8%	4	0.3%
2020	1,318	231	17.5%	80	6.1%	4	0.3%
2021	1,282	252	19.7%	94	7.3%	8	0.6%
2022	1,145	245	21.4%	93	8.1%	3	0.3%
Total	6,212	1,197	19.3%	468	7.5%	25	0.4%

  

Impactful primary care payment and delivery system reform articles*							
Year	N High Impact Articles	Department of Medicine Any Author		Department of Medicine First Author		Department of Medicine Senior Author	
		N	%	N	%	N	%
2018	126	22	17.5%	8	6.3%	0	0.0%
2019	106	32	30.2%	13	12.3%	0	0.0%
2020	124	24	19.4%	12	9.7%	0	0.0%
2021	102	19	18.6%	10	9.8%	1	1.0%
2022	108	27	25.0%	15	13.9%	1	0.9%
Total	566	124	21.9%	58	10.2%	2	0.4%

Sample includes articles from impactful clinical and policy journals that routinely publish health policy and delivery system scholarship, including JAMA, JAMA Health Forum, New England Journal of Medicine, Health Services Research, Health Affairs, JHPPL, Medical Care, and Milbank Quarterly Annals of Family Medicine, JABFM, Annals of Internal Medicine, JGIM, JAMA Pediatrics, and Pediatrics. We identified affiliation with individual clinical departments using the Authors' Raw Affiliation included for each article (Family Medicine = any affiliation that included "Family Medicine", "Family and Community Medicine", "Community and Family Medicine", or "Family and Preventive Medicine"; Internal Medicine = any affiliation that included "Department of Medicine", "Internal Medicine", or "General Internal Medicine"; Pediatrics = any affiliation that included "Pediatrics").

\*Impactful refers to publications that were in the top decile of Altmetric scores (calculated by journal-year).



**Appendix Table 4. Trends in Authorship of Primary Care Payment and Delivery System Reform Scholarship Among Departments of Pediatrics by Author Position and Role, 2018–2022**

All primary care payment and delivery system reform articles							
Year	N Total Articles	Department of Pediatrics Any Author		Department of Pediatrics First Author		Department of Pediatrics Senior Author	
		N	%	N	%	N	%
2018	1,225	104	8.5%	50	4.1%	8	0.7%
2019	1,242	109	8.8%	47	3.8%	5	0.4%
2020	1,318	109	8.3%	59	4.5%	7	0.5%
2021	1,282	105	8.2%	53	4.1%	5	0.4%
2022	1,145	77	6.7%	34	3.0%	1	0.1%
Total	6,212	504	8.1%	243	3.9%	26	0.4%

  

Impactful primary care payment and delivery system reform articles*							
Year	N High Impact Articles	Department of Pediatrics Any Author		Department of Pediatrics First Author		Department of Pediatrics Senior Author	
		N	%	N	%	N	%
2018	126	15	11.9%	5	4.0%	0	0%
2019	106	5	4.7%	1	0.9%	0	0%
2020	124	9	7.3%	4	3.2%	0	0%
2021	102	4	3.9%	2	2.0%	0	0%
2022	108	14	13.0%	6	5.6%	0	0%
Total	566	47	8.3%	18	3.2%	0	0%

Sample includes articles from impactful clinical and policy journals that routinely publish health policy and delivery system scholarship, including JAMA, JAMA Health Forum, New England Journal of Medicine, Health Services Research, Health Affairs, JHPPL, Medical Care, and Milbank Quarterly Annals of Family Medicine, JABFM, Annals of Internal Medicine, JGIM, JAMA Pediatrics, and Pediatrics. We identified affiliation with individual clinical departments using the Authors' Raw Affiliation included for each article (Family Medicine = any affiliation that included "Family Medicine", "Family and Community Medicine", "Community and Family Medicine", or "Family and Preventive Medicine"; Internal Medicine = any affiliation that included "Department of Medicine", "Internal Medicine", or "General Internal Medicine"; Pediatrics = any affiliation that included "Pediatrics").

\*Impactful refers to publications that were in the top decile of Altmetric scores (calculated by journal-year).