

ARTICLE

Pathways/Mentorship



Putting Trainees at the Center of the Family Medicine Research Workforce of Tomorrow

Bryce Ringwald, MD, Meghan Gilfoyle, PhD, Taylor Bosworth, MD/PhD (c), Ashley Chisholm, PhD (c), Ione Locher, MD, Minika Ohioma, MBBCh, MSc, and on behalf of the NAPCRG Trainee Committee

The Family Medicine Research Summit culminated in a strategic action plan to enhance research in family medicine and expand the primary care research workforce. The strategic plan focuses on infrastructure, mentorship, and funding objectives needed for robust family medicine research. Trainees play a central role in the success of the strategic plan. This commentary outlines how the strategic plan impacts trainees from undergraduate students to postdoctoral research fellows through funding initiatives for research and trainees, fostering curiosity among family medicine clinician trainees, transdisciplinary collaboration, enhancing primary care research knowledge, and mentoring the next generation of researchers. (J Am Board Fam Med 2024;37:S30–S34.)

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Introduction

Family medicine (FM) physicians researchers have relied on specialist colleagues for too long to guide patient care decisions and research agendas. The generalist perspective of FM is undervalued, partly because better-funded, better-trained researchers from other specialties have overshadowed FM

researchers' contributions to the evidence base.^{1,2} Some researchers begin their careers in FM and transition to specialty research due to these funding constraints. FM must galvanize future researchers to fill these gaps. The Family Medicine Research Summit in the Fall of 2023 was a first step to focus efforts on the future of FM and research. The summit focused on infrastructure, mentorship, and funding for FM research culminating in a strategic action plan to create a sustainable FM research workforce.³ A major emphasis, especially within the mentorship subgroup discussions, centered on the role trainees play in building workforce capacity. Trainee experience is diverse, and each stage has opportunities to fortify FM research. The purpose of this commentary is to highlight the action steps developed during the Family Medicine Research Summit strategic planning session and describe how the strategic plan impacts FM research trainees at various levels of training.

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From the Resident physician, OhioHealth Riverside Methodist Hospital Family Medicine Residency Program, Columbus, OH (BR); Postdoctoral Fellow, Women's College Hospital Institute for Health System Solutions and Virtual Care, Toronto, ON, Canada (MG); Tom and Anne Smith MD/PhD student, University of Missouri, Columbia, MO (TB); Senior Research Specialist, Department of Family and Community Medicine, University of Missouri, Columbia, MO (TB); Strategic Advisor, Canadian Medical Association, University of Ottawa, Ottawa, Ontario, Canada (AC); Resident physician, University of Arizona College of Medicine-Phoenix Family Medicine Residency Program, Phoenix, AZ (IL); Consultant Family Physician, Royal Victoria Medical Centre, Abuja, Nigeria (MO).

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Corresponding author: Bryce A. Ringwald, MD, OhioHealth Riverside Methodist Hospital Family Medicine Residency Program, 697 Thomas Lane, Columbus, OH 43214 (E-mail: Bryceringwald@gmail.com).

Postdoctoral Research Fellows

Most proximal to becoming career FM researchers are postdoctoral research fellows. These individuals

are confronted with the harsh reality that FM research funding is limited.^{1–2} As such, primary investigators may not have the capacity to incorporate postdoctoral research fellows into their research groups. In addition, the paucity of established PC-centric funded researchers will need to be addressed to supervise postdoctoral trainees. There are funding opportunities through the NIH such as the F30 grants for physician-scientist students continuing into postdoc positions; institutional training grants through T32 grants; F31 grants and R36 dissertation grants for research doctoral degree students; and K series grants for postdoctoral research fellows.⁴ Underrepresented in medicine students are eligible for the F31-Diversity grant. These awards can be difficult to obtain as a research fellow's principal investigator's NIH funding status greatly impacts student NIH grant applications. These barriers pose distinct challenges for FM research, as FM has one of the lowest grants per active physician ratios for many training, career development, and advanced career grants.¹

The funding pillar of the strategic plan lays out priorities to advocate for the creation of a primary care (PC) agency within the NIH with funding for FM-based research projects as well as maximizing the allocation of Agency for Health care Research and Quality funding to FM research.³ The lack of such an agency forces researchers to tailor grant applications to specialist interests. Rectifying this funding gap could curtail the migration of FM researchers to specialty-specific research agendas allowing funding for generalist inquiry. Other funding opportunities must come from outside organizations, though these funding sources are disparate and often inaccessible. The strategic plan addresses this by calling for a consortium of foundation funders to establish a centralized, accessible grant source for FM research.³ Addressing the funding challenges can best impact the training of postdoctoral research fellows to transition to independent research careers.

Master's and Doctoral Degree Candidates

Another key pathway to enhancing PC research is through graduate training opportunities across interdisciplinary departments such as anthropology, communications, economics, nursing, political science, and sociology. The identity of FM research necessitates a diversity of research domains to create a transdisciplinary field of study. FM research

focuses on patient- and community-centered whole person health, relationships, and care delivery. This purpose is only achieved through the exploration of multiple approaches to a research question creating a robust understanding that translates to real-world clinical care. FM research teams must extend their collaborations beyond the confines of traditional medical departments to extend across academic disciplines. These perspectives can challenge FM physicians to ask questions beyond their normal viewpoint. Therefore an objective of the strategic plan focuses on normalizing a team-science approach by developing cross-disciplinary partnerships among interprofessional groups and community-based organizations.

Two examples provide useful insight into how to incorporate multiple research perspectives to contribute to the strategic plan's goals. The Transdisciplinary Understanding and Training on Research – Primary Health Care (TUTOR-PHC) certificate program in primary health care research^{5–6} focuses on “training a cadre of PHC researchers who are capable of tackling current and future challenges in PHC by leading collaborative interdisciplinary PHC research.”⁵ The TUTOR-PHC provides a unique platform for early career researchers, clinicians, and decision-makers to collaboratively engage in fostering skills trainees would not otherwise be exposed to.⁷ Similarly, the North American Primary Care Research Group (NAPCRG) Trainee Committee composed primarily of trainees from the United States and Canada, with growing international representation, provides a supportive platform for trainees with diverse academic and clinical backgrounds to nurture a community of practice for budding FM researchers worldwide.⁸ This committee delivers year-round virtual programming to ensure a continued platform for ongoing networking, support, and mentorship for trainees. Supporting initiatives like these will be instrumental in enhancing the training pipeline for FM research.

Family Medicine Resident Clinicians

Not all FM residents are researchers, but all engage in scholarly activity. The Accreditation Council for Graduate Medical Education (ACGME) requires FM residents to perform 2 scholarly projects.⁹ One is required to be a quality improvement (QI) project and the second is at the program's discretion. A recent survey found a minority of residents perform research as their second scholarly activity; instead,

residents are engaged in literature reviews, letters to the editor, curricular projects, or population health initiatives.¹⁰ Many FM residents find research intimidating, correlating with engagement in non-research scholarly projects to fulfill graduation requirements.^{10–12} These other forms of scholarship can spark a culture of curiosity among resident trainees. Discussions within the mentorship subgroup at the summit included debates on how to best leverage the ACGME requirements pertaining to scholarly activity. Ultimately, the decision to forgo calls for mandatory research for FM residents was made with a heightened focus on enhancing diverse scholarly pursuits. The aim is to build resident confidence in scholarly activities, while fostering increased enthusiasm, and participation in research endeavors. Due to the variation in what is counted as non-QI scholarly activity, it would be reasonable to set standards on the rigor of these scholarly projects. The goal in having FM residents engage in scholarly activity is to foster a culture of curiosity in clinician trainees. Clinicians are at the forefront of patient- and community-care experiences that build the foundations of FM research questions. The absence of support for this curiosity, such as institutional constrictions and limited FM research funding, leaves important research questions unanswered.

To increase the rigor of FM resident scholarly activity, the strategic plan calls for a standardized residency curriculum to prepare residents to consider a career-long engagement in scholarship. In addition, infrastructure has consistently been identified as a necessary conduit for resident scholarship. The strategic plan advocates for the ACGME to require programs to provide the infrastructure including a qualified research director, to perform high-quality scholarship.

Physician-Scientist Program Students

Students in physician-scientist programs, such as MD/PhD programs, DO/PhD programs, and Medical Scientist Training Programs (MSTP), have unique challenges when pursuing FM research. Most of these programs emphasize basic sciences instead of patient-oriented research.¹³ Advocating for a broader definition of acceptable research within physician-scientist programs is necessary for engaging students in FM research. Funding opportunities greatly impact the doctoral portion, as these are primary investigator-funded (with MSTP being an exception).¹⁴ Often, FM

physician-researchers have medical degrees and may not have adequate institutional support for mentorship, which limits their ability to supervise doctoral studies. Conversely, FM doctoral degree researchers can supervise physician-scientist students but may lack experience in clinical care. Therefore, improving collaboration between FM physicians and researchers provides adequate mentorship for physician-scientist students.

Medical Students

The importance of early exposure to research has been previously articulated.^{15–19} Various training programs,²⁰ mandates,¹⁷ and frameworks²¹ exist to enhance research skills essential to a career in medicine. Many medical students undertake research, but the duration and robustness of these experiences vary significantly. Further, medical student research is not commonly performed within FM departments.²² The strategic plan aims to provide the necessary infrastructure to amplify the culture of curiosity within family medicine, where research is an integral component. Family medicine rotations are mandatory in medical school, but research is frequently overlooked and infrequently incorporated.²³ FM rotations should provide examples of impactful FM-led research that has impacted clinical care. In addition, students should be informed about the diversity and possibilities FM-based research can provide. This research diversity and generalist inquiry incorporates the domains of health services, health policy, practice-based, doctor-patient communication, community-oriented primary care (PC), and evidence-based medicine. Rotation directors can also consider adding a critical appraisal of topic assignment to foster curiosity in the clinical learning environment and practice using primary literature to answer clinical questions. These curricular components are opportunities to incorporate curiosity of, enthusiasm for, and mentorship in FM research.

Undergraduate Students

The Family Medicine Research Summit strategic plan includes early intervention at the undergraduate level. The strategic plan calls for the creation of a mentorship program that is able to connect trainees to FM research experts and the development of curricula and skill building programs emphasizing evidence-based, bidirectional mentorship models between mentors and mentees. Such a program would be available for all levels of trainees as well as

early-career researchers to connect with established research mentors. Mentors should actively aid in connecting mentees to researchers within the mentees geographic area who could provide research experiences and/or hire undergraduate students to be research assistants or coordinators. Both summer and longitudinal experiences can help to spark a passion for FM research among these early scholars.²⁴ Tending to the upstream contributors of FM research through skill acquisition, mentorship, and exposure can enable the future success of this community.

Conclusion

The strategic plan for FM research was crafted with trainees in mind, considering the pathways culminating in a career in FM research. Efforts toward funding FM research and its trainees, collaborating in a transdisciplinary manner, infusing a culture of curiosity, fueling the pipeline of FM researchers, enhancing student knowledge of FM research practices, and mentoring early career researchers are essential to the strategic plan's success. As the next generation of researchers, trainees require each of the 3 pillars of the strategic plan - infrastructure, mentorship/pathways, and funding/advocacy - to support robust FM research. On behalf of the NAPCRG Trainee Committee, we conclude by underscoring that we both endorse and are energized by this strategic plan for FM research. This momentous vision gives us hope, and we strongly encourage the continued collaboration and prioritization of trainees' needs.

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References

- Schlaflly A, Sebro R. Does NIH funding differ between medical specialties? A longitudinal analysis of NIH grant data by specialty and type of grant, 2011-2020. *BMJ Open* 2022;12:e058191.
- An JY, Marchalik RJ, Sherrer RL, Baiocco JA, Rais-Bahrami S. Authorship growth in contemporary medical literature. *SAGE Open Med* 2020; 8:205031212091539.
- Asif I, Weidner A, Elwood S. Toward a unified and collaborative future: creating a strategic plan for family medicine research. *Ann Fam Med* 2023;21:289-91.
- Types of Grant Programs. Grants.NIH.gov. NIH Grants & Funding Website. Accessed December 26, 2023. Available at: https://grants.nih.gov/grants/funding/funding_program.htm.
- Stewart M, Wuite S, Ramsden V, et al. Transdisciplinary understandings and training on research: successfully building research capacity in primary health care. *Can Fam Physician* 2014; 60:581-2.
- Stewart M, Reid G, Brown JB, et al. Development and implementation of training for interdisciplinary research in primary health care. *Acad Med* 2010; 85:974-9.
- Terry AL, Stewart M, Ashcroft R, and the TUTOR-PHC Program Investigators/Mentors, et al. Complex skills are required for new primary health care researchers: a training program responds. *BMC Med Educ* 2022;22:565.
- Chisholm A, Gilfoyle M, Kueper JK, Marzolf B, Wang J, Gebauer S. 50 years of NAPCRG: a nurturing home for primary care researchers. *Ann Fam Med* 2022;20:583-4.
- Accreditation Council for Graduate Medical Education. ACGME Program Requirements for Graduate Medical Education in Family Medicine. June 12, 2022.
- Ringwald B, Taylor M, Seehusen D, Middleton J. Family medicine resident scholarly activity production, dissemination, and infrastructure: a CERA survey. *Annals of Family Medicine*. 2023;21:5624.
- Bammeke F, Liddy C, Hogel M, Archibald D, Chaar Z, MacLaren R. Family medicine residents' barriers to conducting scholarly work. *Can Fam Physician* 2015;61:780-7.
- Crawford P, Seehusen D. Scholarly activity in family medicine residency programs: a national survey. *Fam Med* 2011 May;43:311-7.
- Brass LF, Akabas MH. The national MD-PhD program outcomes study: Relationships between medical specialty, training duration, research effort, and career paths. *J Clin Invest* 2019;4:e133009.
- Chakraverty D, Jeffe DB, Dabney KP, Tai RH. Exploring reasons that U.S. MD-PhD students enter and leave their dual-degree programs. *Int J Dr Stud* 2020;15:461-83.
- Mahomed S, Ross A, Wyk JV. Training and assessing undergraduate medical students' research: learning, engagement and experiences of students and staff. *African Journal of Primary Health Care & Fam Med* 2021;13:2559.
- Chang Y, Ramnanan CJ. A review of literature on medical students and scholarly research: experiences, attitudes, and outcomes. *Academic Medicine* 2015;90:1162-73.
- Murdoch-Eaton D, Drewery S, Elton S, et al. What do medical students understand by research

- and research skills? Identifying research opportunities within undergraduate projects. *Medical teacher* 2010;32:e152-60-e160.
18. Gotterer GS, O'Day D, Miller BM. The emphasis program: a scholarly concentrations program at Vanderbilt University School of Medicine. *Academic Medicine* 2010;85:1717-24.
 19. Mass-Hernández LM, Acevedo-Aguilar LM, Lozada-Martínez ID, et al. Undergraduate research in medicine: a summary of the evidence on problems, solutions and outcomes. *Annals of Medicine and Surgery* 2022;74:103280.
 20. Laskowitz DT, Drucker RP, Parsonnet J, Cross PC, Gesundheit N. Engaging students in dedicated research and scholarship during medical school: the long-term experiences at Duke and Stanford. *Acad Med* 2010;85:419-28.
 21. Frank JR. The CanMEDS 2005 Physician Competency Framework. 2019 Ottawa, Ontario, Canada Royal College of Physicians and Surgeons of Canada.
 22. Chang Y, Ramnanan CJ. A review of literature on medical students and scholarly research: experiences, attitudes, and outcomes. *Acad Med* 2015;90:1162-73.
 23. Worley P, Couper I, Strasser R, Consortium of Longitudinal Integrated Clerkships (CLIC) Research Collaborative, et al. A typology of longitudinal integrated clerkships. *Med Educ* 2016;50:922-32.
 24. Adebisi YA. Undergraduate students' involvement in research: values, benefits, barriers and recommendations. *Annals of Medicine and Surgery* 2022;81:10438.