SPECIAL COMMUNICATION

Building Family Medicine Research Through Community Engagement: Leveraging Federal Awards to Develop Infrastructure

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Many academic departments and programs struggle with the challenge of how to begin a meaningful research program. A useful place to start is with the work they already are doing in communities. Using work in practices and other clinical venues as a springboard can build helpful relationships that can catalyze research and build infrastructure that matters to family medicine clinicians, researchers, and the communities they serve. (J Am Board Fam Med 2024;00:000–000.)

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There is a need to build family medicine research in the US The National Academies of Science, Engineering and Medicine Report *Implementing High-Quality Primary Care*[1] highlighted this need, citing that though more than one-quarter of all ambulatory visits across the US health care system were provided by family medicine as a clinical specialty from 2002 to 2014, family medicine research receives a mere 0.2% of National Institutes of Health (NIH) funding.[1,2] Yet, there is much evidence that family medicine academic departments and residency programs contribute greatly to the well-being and health of the communities they serve.[3,4] The presence of family medicine practitioners in communities has been shown to significantly engender reductions in population mortality and morbidity while reducing health disparities.[5,6] Leveraging community relationships to catalyze the development of family medicine research centers of excellence is an opportunity to contribute to both the future of the discipline and the well-being of populations served. We tell the story of research development in our department translating the narrative into suggestions for useful steps that departments and programs can take to grow research in their environments. Our story illustrates that significant research can emerge from very limited, modest resources, and grow incrementally to serve populations. Our story demonstrates that all departments and programs possess the capacity to evolve research, and we firmly believe that research is a part of family medicine's 'DNA' as a discipline. While recognizing that every department's starting point may be different, here is 1 story of how it can be expressed over time starting from scratch.

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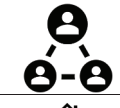
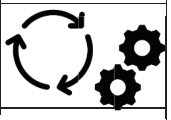
Our department, like many departments and programs in family medicine, has a long history of building strong academic-community partnerships generated by clinical activity and educational need, particularly for undergraduate and graduate medical education. Our first research efforts 40 years ago grew out of the medical school and residency education need of seeking real world community-based experiences for our learners.[7] These early academic-community partnerships fostered long-term relationships that nurtured our research development and growth. In addition, as experience with research grew, new collaborations led to studies that answered pressing questions about the things we were doing both clinically in communities and in medical education. These led to research article awards that further promoted growth in research within the department.[8] While our research journey was emergent, meaning it developed organically based on the conditions we encountered locally at the start and along the way, we outline in Figure 1 a series of our first steps that others may find useful in starting their research 'engines' and following a Plan-Do-Study-Act (PDSA) cycle. A word about funding: at this initial stage, no funds existed to support research in the department. The primary support came from small individual time contributions of faculty to foster research.

The positive feedback that faculty received from getting their stories in print led to desires to answer questions beyond our clinical practice necessitating growing our department's work in communities. To do this successfully, greater sources of data were required, and this fostered our developing the New Jersey Primary Care Research Network (NJPCRN), an Agency for Healthcare Research and Quality (AHRQ) recognized Practice Based Research Network (PBRN) that has been operational since the mid 2000s, consisting of nearly 120 primary care practices in all 21 NJ counties in a variety of urban, suburban and semirural settings. As in the first steps outlined in Figure 1, the development of this PBRN was leveraged by building on community-based educational relationships that many if not most departments/programs have. We had built relationships with community practices throughout the state who accepted medical students for clerkship and other undergraduate medical educational experiences. We offered these practices the opportunity to engage in research to answer clinical questions they deemed important, thus nurturing an implicit curiosity that most clinicians have. We also offered small perks such as continuing medical education credits and university library access, as well as recognition at the annual NJ Academy of Family Physicians (NJAFP) meetings for the individuals participating. An Advisory Board, consisting of 7 community family physicians, 3 academic

Figure 1. Early steps to build research.

Figure 1: Early Steps to Build Research	
Affirm the historic value of Family Medicine research. Highlight important observational and qualitative studies that led to pragmatic, interventional solutions that benefited communities and populations.	
Harness clinical curiosity. Look around your department/program: what are the faculty/learner teams you can create? Organize these individuals in study and writing groups.	
Use Community Oriented Primary Care methods to map your clinical practices' populations and services against any unmet community healthcare needs. EHR data can be used to define your practice. Review and use available public data to describe health needs in the community.	
Identify and engage community collaborative partner(s) to seek ways to meet unmet needs – describe the problem and try an intervention that simultaneously serves a program educational need. Keep a diary of what you have done.	
Have an early publishing success. Pick a journal and audience and tell your story. Reflect on what worked in the process of doing the research and how you overcame any impediments. Most importantly, celebrate publication successes and use them to develop more engagements, stories, and possibly derive external resources.	

program leaders, and a representative from the NJAFP, assisted in strategic planning, identification of research topics, and reviewing projects. This symbiotic relationship between community practices and the department fostered grant submissions targeting external funding to answer research questions that emerged from the community practices. Starting out, we had no internal sources of support for the participating practices, but any grant submissions from the department always included some financial support for the PBRN, which fostered its evolution incrementally. Other parts of the university, such as our Cancer Institute of New Jersey, became interested in supporting the PBRN as a useful laboratory for community-based efficacy research, which further helped to cover costs for our NJPCRN. The lesson we learned here is to build incrementally, have strong input from community participants (including governance), and opportunistically using mutually beneficial prior community-based relationships with practices.

This community-based PBRN "laboratory" subsequently has been the vehicle for community engagement, enabling 8 NIH funded R01 and other R mechanism studies in the Department of Family Medicine and Community Health from 2002 to 2023, facilitating more than $30 million of externally funded research in communities that reflected the full diversity of NJ, including special needs and minority populations[9,10] and generating more than 150 peer reviewed scientific publications. The good news is that a wealth of online resources now exists outlining the 'how to' of developing PBRNs for departments/programs interested in creating these laboratories locally. Moreover, national family medicine PBRNs, such as the American Academy of Family Physicians National Research Network, now exist to facilitate developing and refining research questions and serving as laboratories to answer them. The experience of PBRNs provides a useful framework for understanding community-academic opportunities in generating research ideas and projects.[11] Engaging community stakeholders in defining family medicine research can strengthen the bond between family medicine and the communities they serve while providing opportunities for patient-oriented outcomes defined by communities. Trust, relevance, and relationships that matter can foster research that leads to better health and help validate the value of science across all communities and populations.

Leveraging our rich history of promoting a patient and person-centered research approach that is engaged in principles of health equity and community engagement positioned our family medicine department for the next stage of our research journey. Our successes in engaging communities in participatory research gave us the opportunity to be seen as the natural home for development of the Community Engagement Core of the New Jersey Alliance of Clinical and Translational Science (NJ ACTS), a 2018 Clinical and Translational Science Award (CTSA) led by Rutgers University, Princeton University and the New Jersey Institute for Technology (UL1TR003017). This led to further opportunities in community-based research. An example of where the beneficial effects of engaging communities in research is illustrated by the story of **N**ew **J**ersey **Health care E**ssential Wo**R**ker **O**utreach and **E**ducation **S**tudy-**T**esting **O**verlooked **O**ccupations (NJ HEROES TOO),[12–15] a recent example of a research outgrowth of our department's work in the community as part of NJ ACTS. During the COVID-19 pandemic, we saw an unequal impact on disadvantaged communities and the importance of cultivating relationships with community partners. Academic institutions were challenged to use community-engaged approaches to help address these issues. The NIH Rapid Acceleration of Diagnostics - Underserved Populations (RADx-UP) program promoted collaborative research and interventions as optimal strategies to engage communities in alleviating barriers to COVID-19 testing. In June 2020, in the throes of the recent COVID pandemic, our department, working with long-standing community partners, identified a very acute need in the community. Health care workers, particularly those from minority backgrounds with low socioeconomic status, who were often overlooked, but absolutely essential to providing care, became the focus of an intervention designed to improve testing rates for themselves and their loved ones. Working with several key partners in the community statewide, we collaborated on studies about workers, their families' and their communities' needs,[13,14] and subsequently developed an intervention designed to improve testing rates for both workers and their families. This study, known as NJ HEROES TOO[12] became a great success.

The results were gratifying for us as a department, led by our research division chief, members of the faculty, and members of various community organizations throughout the state with which we

had grown relationships. Because the study grew out of our academic-community partnerships, it was relevant to communities. In addition, the community participated in promoting the intervention, which had widespread positive outcomes. And the study, which was reviewed for federal funding, ultimately was supported with a $5 million supplement to our university's CTSA structure (UL1TR003017-02S2). This garnered positive feedback from the university, the NIH, the communities and populations served, and further enhanced the stature of research in the department and school. The point is that work in the community can lead to big research successes for departments and the populations we serve. Not only that, another upshot, in addition to being beneficial for patients and the department faculty, has been to set the stage for more community engagement research and research focused on developing pragmatic studies focused on understanding and enhancing primary care within the context of a learning health system (LHS).

LHS research takes advantage of clinical work being done in academic health systems and focuses research observations and interventions on continuously improving the care and outcomes of their patients and organizational structures, processes and culture. Family Medicine departments, because of our relationships with patients and efforts in communities, are particularly well placed to inform and implement LHS effectiveness research, that is, studies of what works in diverse populations, as opposed to efficacy research, what works in controlled conditions with stringent inclusion and exclusion criteria. In December 2022, the AHRQ issued a RFA for Learning Health System Embedded Scientist Training and Research (LHS E-STaR) Centers (P30) to support institutions to train the next cadre of embedded Learning Health System (LHS) scientists to develop skills to conduct, apply, and implement patient-centered outcomes research (https://grants.nih.gov/grants/guide/rfa-files/RFA-HS-23-001.html). Priority research topics in the call included health equity, primary care, patient centeredness and science of patient and stakeholder engagement areas. A researcher from our department is leading the Rutgers award through this mechanism *Learning Health System Scientist Training And Research in New Jersey (LHS STAR NJ) Center* (P30HS029759).

Building on clinical outreach to the communities served can provide multiple rich research opportunities.[16,17] Establishing vehicles for community engagement and participation draws on family medicine physicians' and researchers' knowledge of communities served and community needs. Many patient-centered clinical practices have patient councils that provide feedback to the practice clinicians on how the practice is performing. Using these to generate questions is a first step to developing research questions of mutual interest. In addition, much of the data needed is often already being collected by the many clinical record systems now in place and are ripe to analysis within a LHS context. In addition, these data can be enhanced by qualitative information gathered by building on established trusted relationships with patients and their families. Even better, inviting and involving communities to participate in developing and interpreting research findings can help to build research programs that are well poised to solve contemporary problems facing populations. Engaging communities in research can foster many mutual benefits and support for research as collaborative, mutually beneficial research agenda is built.

Historically, family medicine has played a major role in science by documenting observations of relationships between environmental and other factors contributing to health and disease. Family physicians have also reported interventions that

Table 1. Building Research: Lessons Learned

Start small by assessing the research potential of work you are currently doing in other mission areas (e.g. education, clinical)
Examine and organize the human resources internal in department/program, and in the communities served
Mobilize around a project that serves multiple needs, perhaps educational and clinical
Gradually expand your community 'laboratory' mixing and matching funding and interests to create mutual 'wins'
Seek external funding from local sources, graduating to state and federal sources as you experience successes
Reflect on, celebrate, and communicate the value of the research both internally and externally to stakeholders and funders
Grow incrementally using serendipity and opportunism as your friends

have benefited not only individuals but also the health of populations in communities served.[18] Building on this history of community derived scientific contributions is an opportunity all departments and educational programs can emulate to grow family medicine research. Relying on other disciplines and entities to tell the story of family medicine and its contributions to health care in the United States has not been successful and shortchanges both patients and clinicians who have participated in this story. While NIH and other funding sources have lagged in their support, there are some indications that family medicine research agendas are well aligned with several new initiatives coming from federal funding sources. The bottom line is departments and residencies can benefit from relationships and the work they do in communities that can help launch research of benefit to both the family medicine and the populations served. Our research story illustrates several lessons learned, as described in Table 1. The process, as in our case, need not be linear; be open and opportunistic to the different possible steps along the way. Reflect and share learning. The results will be both gratifying and beneficial to all who participate and contribute to a renaissance in family medicine research.

To see this article online, please go to: http://jabfm.org/content/00/00/000.full.

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