



Increasing Residency Research Output While Cultivating Community Research Collaborations

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BACKGROUND AND OBJECTIVES: Having a research curriculum in addition to hosting a resident research day stimulates research activity in residency programs. Research collaborations outside an individual residency program may also promote research in residency. This paper describes a community-wide health research forum that engages faculty and residents in research while bringing together potential research collaborators from the community.

METHODS: A yearly research forum has been held at a large community-based family medicine residency program for the past 10 years. This forum invites both residency faculty and residents to present scholarly works, and also invites researchers from the community to present health-related research. Presenters outside the residency come from hospital systems, the local university, other residency programs, and community private physicians.

RESULTS: Peer-reviewed research publications have increased greatly since the advent of the research forum in 2006, with six publications from 1997-2006 and 26 from 2007-2016. Greater increases in numbers of peer reviewed presentations were also seen. Collaborative research has occurred between residency faculty and multiple departments at the local university including the business school, social work, public health, physiology, and statistics. There are now 28 collaborative projects completed or in progress.

CONCLUSIONS: Development and implementation of a regional health research event has been a success in increasing faculty and resident research productivity. The even greater success however, is the progress made in advancing research collaborations between the local university and the residency program.

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Promoting intellectual curiosity and encouraging research are important roles for residency programs across all disciplines. Increasing research understanding and output are vital to family medicine to show evidence of best practices centered on the whole person, not just based upon disease. Family medicine as a discipline has called for its

trainees to understand research, including comprehending the need for and benefits of systematic investigation.¹ To meet this charge, residencies must have scholarly engagement embedded in their infrastructure. Simply having a research curriculum encourages the formation of such infrastructure and helps programs fulfill scholarly activity expectations.²⁻⁵

Not surprisingly, programs that are successful in research have more faculty involved in research and typically have a strong and supportive infrastructure.^{2,3,6,7} Having a resident research day or similar opportunity stimulates research activity within residency programs.^{2,4,5,8-15} Integrating nonmedical researchers into residency research can also stimulate research activity. Calls for more collaborative research efforts between family medicine and other disciplines as a way to promote residency research are found in the literature, but few research collaboration opportunities actually exist outside of medicine.¹⁵⁻¹⁹

Residents and faculty at our community-based family medicine residency program have historically performed little research and had limited opportunities to present research. Moreover, little communication or collaboration with the broader community regarding health-associated research has occurred. The aim of this study is to describe an innovative platform that has generated substantial growth in research production within a community-based family medicine residency program while forming enduring research collaborations in the broader community.

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Methods

The Waco, Texas, Family Medicine Residency Program Community Health Research Forum has been held every spring since 2007. There are 36 residents in the program and 12 core faculty, numbers that have been stable for the past 20 years. About 3 months prior to the Research Forum, a call for poster abstracts is circulated within the organization and sent to science and health-related departments at Baylor University, other local family medicine residency programs, and three local hospital systems. Residents within the program are not required, but are encouraged, to submit poster abstracts. Abstracts in the categories of clinical research and case reports with systematic reviews are accepted from undergraduate students, graduate students, medical students, residents, fellows, and faculty-level personnel. The submissions are reviewed by members of a residency research committee. The event is also publicized to the same groups from whom abstracts are solicited. Anyone may attend the event but reservations for our lunch program are requested as a meal is provided. Funding for this research day is provided by the residency program, the local chapter of the Texas Academy of Family Physicians and the county medical society. Expenses run around \$800 per year depending on costs incurred for bringing in an outside speaker.

The Research Forum begins with an hour-long lunchtime presentation from an invited doctoral-level researcher chosen by a research committee. After this there is a dedicated 1.5-hour poster session for

researchers to discuss their projects in a one-on-one format. Following the poster session, four to five researchers give 15-20-minute presentations. These speakers are local nonmedical, health-related researchers (public health, human physiology, social work, etc), as well as residency faculty and residents. Posters are judged using a structured evaluation form with two to three judges from outside the residency program invited to critique posters each year. First and second place prizes in two categories (clinical research and case reports) are awarded. This project was deemed IRB exempt.

Results

Since the Research Forum began in 2007, research and scholarly activity within our program has dramatically increased (Table 1). The Research Forum has also fostered the development of local research collaborations through this unique opportunity for interaction between physician and nonphysician researchers. Collaborations developed or nurtured through the Research Forum include projects with local Baylor University professors in the following areas: school of business, social work, public health, physiology, psychology and neuroscience, pre-health programs, family and consumer science, and statistics (Table 2). Through 2016, these collaborations have resulted in 18 published manuscripts, three grants, one national award, one regional award, and 29 peer-reviewed national and/or international presentations coauthored by residency faculty and outside researchers.

Discussion

The Research Forum was initially started to encourage research and show residency faculty and residents that research can be appealing and stimulating. To that end, the Research Forum has generated more interest in research within our residency and has also provided residents and faculty an opportunity to present in a regional format. Leaving the insular setting of an in-house only research day and offering this research presentation option to the community has helped residents and faculty gain a greater appreciation for health research. Opening the Research Forum to the larger community has also resulted in the development of more relationships with researchers outside of medicine and produced numerous research project collaborations.

This form of community collaboration is one innovative method that residency programs with weak research infrastructure may use to begin to lay the groundwork for a strong infrastructure. Local and regional universities have many junior faculty striving to gain tenure who need research partners, and more senior university faculty with research expertise that may benefit a residency program. Since both time and money are significant barriers to research in residency programs,^{7,13,17-20} partnering with researchers outside our residency programs makes sense. We can capitalize on the supported time many university faculty members have along with their imperative to publish.

One limitation to the project is that it was developed and conducted in a single family medicine

Table 1: Research Forum Scholarly Activity, 1997-2016

Year	Peer-Reviewed Publications	Case Report Publications	Grants	Research Awards	Peer-Reviewed Presentations and Posters	External Research Collaborations
1997-2006	6*	1	3	0	21	0
2007-2016	26	4	6	6	51	28

*All six papers were from just two (of 12) residency faculty. After 2006, ten residency faculty accounted for the greatly increased number of peer-reviewed publications/presentations.

Table 2: External Collaborations

Year	Research Topic	Department/Specialty	Degree(s)	Number of Peer-Reviewed Publications	Number of Peer-Reviewed Presentations	Grants	Ongoing Project
2007	Vitamin D deficiency in elderly black women	Rheumatology	MD	1	2		
2009	Cholesterol as a disease marker	HHPR renal	PhD MD	1			
2011	Group visits for families with obese children	HHPR FCS	PhD PhD, RD	1	3	X	
2012	Fish oil effects on inflammation	HHPR renal	PhD MD	3	6		
2012	Allopurinol effect on metabolic syndrome	HHPR renal	PhD MD	2			
2012	Research engagement for prehealth undergraduates	Office of prehealth studies	PhD				X
2012	Exercise, health & fitness assessments/cardiac treadmill stress testing	HHPR	PhD				X
2013	Health care utilization with job stress/support factors	School of business	PhD PhD	In progress	3	X	X
2013	Master of public health intern program	HHPR/public health	PhD				X
2013	Spanish linguistics in medicine/medical research	Modern languages & cultures	PhD	1			X
2014	Big data EHR analysis of BMI in young children	HHPR/public health FCS	PhD PhD, RD	Submitted	3	X	X
2014	Public health curricular collaboration	HHPR/public health	PhD PhD	In progress	3		X
2014	Duplicate research presentations in Family Medicine	Statistics	BS	1	2		
2014	SES risk factors for hospital readmission	HHPR/public health	Predoctoral PhD	1	2		
2014	Assessment of resident physician fitness/burnout	HHPR	PhD				X
2014	Operationalizing person-centered medicine	Philosophy medical ethics	PhD MD	1			
2015	CERA study on residency use of hospitalists	Statistics	PhD	1	2		
2015	Integrated behavioral health & care management collaboration	School of social work	PhD LCSW	In progress			X
2015	Hypnotic relaxation patient recruitment	Psychology & neuroscience	PhD	1			
2015	Creating academic and health care partnerships	HHPR/public health	PhD PhD	1			
2015	Health anxiety in a health care setting	Psychology & neuroscience	PhD	2	1		X
2016	Analysis of Spanish interpreted medical interviews	Modern languages & cultures	Master's degree student		1		

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Table 2, continued

Year	Research Topic	Department/Specialty	Degree(s)	Number of Peer-Reviewed Publications	Number of Peer-Reviewed Presentations	Grants	Ongoing Project
2016	Integrated clinical exercise program for clinic staff and chronic care patients	HHPR HHPR/public health	PhD PhD PhD	In progress			X
2016	Measurement invariance among primary care ethnic groups	Psychology & neuroscience	PhD	1			
2016	Prescription produce	HHPR/public health local non-profit farm	PhD PhD				X
2016	Health literacy in a community health center	HHPR/public health	PhD PhD	Submitted	1		X
2016	Maternity care outcomes	Business/economics	PhD PhD				X
2016	Integrated Behavioral Health Certificate program	School of social work	PhD LCSW				X

Department/specialty=Baylor University department or physician's medical specialty; Degree(s)=professional degree(s) of collaborators; HHPR=Health, Human Performance and Recreation Department (houses physiology and public health program); FCS =Family and Community Studies Department (houses the registered dietician program); RD=registered dietician; EHR=electronic health records; BMI=body mass index; SES=socioeconomic status; CERA=CAFM Educational Research Alliance; LCSW-S=licensed clinical social worker.

residency program, and other residency programs may not have the same resources (eg, space, money, local academic entities). However, a similar format could be successful at many locations if there is wide enough outreach into the greater community. Another limitation is that such a project relies on a champion, a leader who starts the ball rolling and keeps it in motion from year to year. Such a champion could be a research director, a program director, or simply a faculty member with the mandate and/or motivation to create a successful research forum.

Development and implementation of a regional health research event has been a success in exposing residency faculty and residents to health-related research in the broader community. The even greater success however, is the progress made in advancing research collaborations between the local university and the residency program resulting in increased residency research output. The creation and successful implementation of a regional health research forum is within the grasp of many residency programs and

should be considered as an effective method for encouraging and supporting research as well as developing research collaborations.

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