

Family Medicine Research in the Community Setting: What Can We Learn from Successful Researchers?

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BACKGROUND. There is little information describing family physician researchers who work outside academic medical centers. This report describes the motivating factors and resources used by community residency faculty and nonfaculty family physicians who perform research.

METHODS. We sent a questionnaire to community residency faculty and nonfaculty family physicians who published at least one paper in the family medicine literature from 1992 through 1994. The survey focused on previous research experience, training, and collaboration with university colleagues, and included an open-ended question about motivations and obstacles to research.

RESULTS. The majority (60%) of community faculty and nonfaculty family physicians surveyed reported previous research experience on the undergraduate, medical school, or residency level. Research training received during residency was evaluated as poor. Sixty-nine percent of the respondents reported being successful at acquiring research funding, and 60% reported receiving funding from foundations. Reported keys to success included mentoring, a supportive infrastructure, and an inherent enjoyment in doing research. These factors did not differ between community residency faculty and nonfaculty physicians.

CONCLUSIONS. For community-based family physicians, success at conducting and publishing research is enhanced by the availability of mentoring, support from local or national foundations, and previous research experience. Respondents identified research training during residency as one area that needs improvement.

KEY WORDS. Physicians, family; community-based research; research; family practice. (*J Fam Pract* 1996; 43:171-176)

One of the issues raised with respect to primary care research is the importance of community-based research in understanding primary care practice.¹⁵ Although many family medicine academicians have extolled the value of community or practice-based research, there is little information regarding what motivates practicing physicians to participate in research and how community physicians find the time and resources to engage in research.

While many previous reports have focused on the successful academic family physician

researcher,⁶⁻¹⁰ little is known about community-based family physician researchers. As practice-based networks and other community research endeavors increase in number and influence, a greater understanding of the motivations, experiences, and barriers faced by successful community-based researchers is needed. To successfully recruit and nurture community physicians interested in research, a better appreciation of the traits and environments that promote successful research is needed.¹¹

This study was conducted to identify successful researchers who were either in practice or faculty members at a community-based residency program and to determine whether any characteristics of their previous research experience and training, current position, or success at generating research support were factors in their success as researchers. For the purposes of this study, we also considered community residency faculty as com-

Submitted, revised, March 19, 1996.

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munity-based researchers. This categorization was based on the rationale that these physicians are not dependent on research productivity for salary support, promotion, or tenure, and that the research effort expended by faculty in these programs differs from that of university faculty.⁶

METHODS

To identify successful community-based researchers, we performed a comprehensive review of all original research published in five family practice journals between January 1, 1992, and December 31, 1994. Articles identified as original research in *The Journal of Family Practice*, *Family Practice Research Journal*, *Family Medicine*, *Journal of the American Board of Family Practice*, and *Archives of Family Medicine* were examined. Based on the addresses and positions of the authors as stated in the published articles, each article was categorized as having been written by a community residency faculty member, nonfaculty family physician, or university-based researchers, or collaboratively by university-based researchers and either a community faculty or nonfaculty family physician.

After excluding papers written solely by non-practice physicians or members of university departments other than family medicine, 68 (12%) of the 546 remaining articles were written by community-based physicians, and another 108 papers (20%) were written by community-based physicians in collaboration with university researchers. We also identified 86 community-based researchers who wrote multiple papers; these researchers were counted only once.

Following the identification of community-based researchers who had been successful at publishing their research findings, we sent a survey to 86 authors. The sample to be surveyed included all community-based authors on papers that represented a collaboration between community- and university-based physicians and to the first author of all papers written solely by community-based family physicians.

Addresses for authors were taken from the published papers and confirmed by review of the 1995 membership directories of the American Academy of Family Physicians, Society of Teachers of Family Medicine, and American Board of Family Practice.

Addresses from the 1995 directories were considered the most recent, and surveys were sent to individuals at these addresses. Even with the use of multiple sources, 12 physicians could not be located. Thus, the sample used in this study included 74 family physicians. Physicians were then categorized according to whether they were listed as working in a private practice (n=40) or in a community-based residency program (n=34).

All 74 physicians received a questionnaire inquiring about their previous training and research experience, success at obtaining funding or collaborating with other researchers, and demographics and practice organization. The questionnaire also included two open-ended questions asking about their motivation for performing research and any obstacles they encountered. Physicians who did not return a questionnaire in 4 weeks were sent an additional questionnaire.

Data were entered into a standard epidemiologic database and tabulated for frequencies. Comparisons between physicians were performed using chi-square, with a *P* value <.05 considered significant.

RESULTS

Fifty-five physicians returned questionnaires, for a response rate of 74%. While the response rate for community faculty (82%) was higher than for nonfaculty family physicians (68%), this difference was not statistically significant (*P*=.14).

The majority of both nonfaculty family physicians and community faculty researchers were male (Table 1). The vast majority of the respondents were residency trained (93%) and board certified (89%). Nineteen (35%) of the respondents had completed a postresidency fellowship, with faculty members being more likely to be fellowship trained (*P*<.01). The mean number of years since graduation was 17, with practicing physicians having graduated slightly earlier than their residency colleagues (*P*=.01).

When we examined practice characteristics of this sample, we found that nearly one half (46%) of the respondents had changed jobs over the past 5 years with no significant difference noted between nonfaculty family physicians and community faculty (Table 1). When we examined sources of income, we found that a straight salary was the most com-

TABLE 1

Demographics and Practice Characteristics of Published Community-based Researchers

Characteristics	Total n=55	Physicians	
		In Practice n=27	On Faculty n=28
% Male sex	82	78	86
% Board certified	89	89	89
% Fellowship trained*	35	19	50
Years since graduation*	5	5	6
% Undergoing change in practice in past 5 years	46	44	46
Compensation structure†			
% With practice income	53	93	14
% With salary plus incentive	47	7	86
Median size of group, n	7	8	7

* $P=.01$ for practicing physicians compared with faculty physicians; in all others, $P>.05$.
†Percentages based on 53 responses; $P<.01$.

mon form of compensation for faculty members, whereas nonfaculty family physicians relied primarily on practice income ($P<.01$). The median group size was seven, which was similar for both nonfaculty family physicians and faculty physicians.

When we examined previous research experience and training, we found that the majority of nonfaculty family physicians and community faculty had participated in a research project during their undergraduate, medical school, residency, or fellowship training (Table 2). When asked to rate the research experience provided by their residency training, the majority of both nonfaculty family physicians and community faculty rated their training as poor or very poor (Table 2). Community faculty were more likely, however, to rate their training positively than were nonfaculty family physicians.

The majority (69%) of respondents also had obtained funding for their research. These funds came most often from local foundations (29% of all respondents), the American Academy of Family Physicians Foundation (29%) or other national foundations (18%), and federal or state government (25%). Other sources providing research funding included local hospitals (n=4 respon-

dents), universities (n=1), and pharmaceutical companies (n=2). Many researchers had received funding from multiple sources. Despite success at securing research funding, only 11 respondents felt that their ability to secure time and resources for research was either easy (n=8) or very easy (n=3). Thirty-five respondents felt that resources and time were either hard or very hard to secure. There were no significant differences between nonfaculty family physicians and community faculty for any variable related to project funding.

We also examined the degree to which community faculty and nonfaculty family physicians have collaborated with their university colleagues. Forty-one researchers (75%) have collaborated with university-based researchers and, of those, 27 (66%) viewed this collaboration as positive. Only 4 of the 41 physicians who had collaborated rated the experience negatively. No differences were noted between nonfaculty family physicians and community residency faculty with respect to frequency or perceived success of their collaboration.

Finally, respondents were asked what motivated them to perform research and what obstacles prevented them from doing so. A variety of responses were received and combined into several categories (Table 3). Common motivating factors included a supportive infrastructure either within the institution or with outside consultants, the availability of mentoring, an intrinsic interest in research as a hobby, and the feeling that research is needed to further the discipline of family medicine. One respondent reported doing research because of "plain stupid determination." Interestingly, nonfaculty family physicians were more likely to ascribe their motivation to furthering the discipline than community faculty ($P<.01$).

The primary obstacles to performing research, as might be expected, were available time, support from others within their organization, and funding. Additionally, respondents cited a lack of expertise with statistical, computer, and other research skills, and one respondent stated that he or she found research "boring."

TABLE 2

Research Experience and Training of Published Community-based Researchers

Experience/Training	Percentage of Physicians		
	Total n=55	In Practice n=27	On Faculty* n=28
Any experience	60	56	64
Experience in			
Undergraduate training	24	26	21
Medical school	24	22	25
Residency	35	41	29
Funding for research	69	74	64
Quality of residency research training [†]			
Positive	13	4	21
Neutral	25	33	18
Negative	58	59	57
Collaborative experience	75	74	75
Rating of collaborative experience [‡]			
Positive	66	65	67
Neutral	24	20	29
Negative	10	15	5

* $P > .05$ for faculty physicians compared with practicing physicians for all variables.

[†] Does not equal 100% because two respondents did not complete residency.

[‡] N=41.

ty-based family physician as an author. Thus, we are far from reaching the goal of making family medicine research "clinician oriented" by involving clinicians in the research process.

These results show that family physicians in practice and in community residency programs who participate in the research efforts of the specialty have many attributes that contribute to their success: (1) a previous interest in academic activities that started in undergraduate or medical school or during residency; (2) success at garnering outside support for projects; and (3) collaborative relationships with university colleagues. An important point raised by these data are that most community faculty and practicing physicians who publish their research do not have extensive formal research training and believe that the training they received was not valuable. Like university-based family medicine researchers,¹³ it appears that an interest in research is the most important factor that drives these successful community researchers.

The responses from these researchers also offer some potential

pathways for community-based faculty and practicing physicians who wish to increase their future research productivity. In our sample, establishing relationships with research mentors was a more powerful factor influencing research activities than was expert research training during residency. These relationships may provide the methodologic skills that community-based researchers may lack as well as providing access to resources that are generally beyond the reach of many community faculty and practicing physicians. Based on our observations, the level of importance these community-based physicians assign to a mentoring relationship with respect to success is similar to that given by residents when queried about factors influencing research activity during training.¹⁴ The mentoring relationship has been described as one of the keys to research productivity in the academic setting.⁷ Our data indicate that the same type of relationship

DISCUSSION

Practicing family physicians can play an important role in research by: (1) validating that the issue under investigation is clinically relevant; (2) ensuring that the results of the study will be applicable to a typical family practice; and (3) providing a "real life" environment for the research that will enhance its external validity. If community-based family physicians are to contribute to the knowledge base of family medicine, it is important that these community-based faculty and nonfaculty family physicians exert their influence on the the research process. Previous research also suggests that, compared with general internists and general pediatricians, practicing family physicians are less likely to participate in research.¹² Our initial selection of articles showed that only 32% of the articles published in the family practice literature include a communi-

is very important for community-based physicians who engage in successful research projects.

For this successful collaborative relationship to continue, university researchers must be amenable to working with community-based physicians and be given the resources to accomplish this task. Evidence suggests that few academic family medicine faculty devote a significant amount of time to research,¹² and most are not scientifically productive themselves.¹⁵ Academic researchers and community-based physicians face the same competing clinical and administrative demands in their pursuit of research activities^{8,9} and similar impediments: limited time, funding, and access to expertise.¹⁶ Current trends in academic settings point to increased clinical and teaching demands on faculty with less time available for scholarship. With academicians having difficulty finding time to engage in research, collaboration with community-based researchers may be an efficient strategy to stretch time and resources.

The second key to success for community-based researchers identified in this study is research funding. This implies that community-based physicians planning to engage in research should place their emphasis on project development and grant-writing skills. Obviously, grant funding is contingent on the project's having high value and the researchers' submitting well-organized grant proposals with sound study methodology. Those with research experience in early phases of training may have already acquired these skills. To elevate the quality of research performed by community-based family physicians, however, efforts in research design and grant assistance may be the best way to invest in successful projects.

Finally, successful community-based researchers must find a way to balance their interest in research with the time constraints of practice and personal life. The group of physicians participating in this study noted that time and financial demands have been the largest obstacles to performing their research. With the evolving changes

in the US health delivery system, clinicians will be forced to become more productive, as have academicians. Activities with little financial bottom-line value, such as research, will likely be squeezed by revenue-generating activities. The encouraging news on this front is that evidence from a 1987 AMA survey shows that primary care physicians who engage in research do not work a substantially greater amount of time than do clinicians who do not participate in research activities.¹² Further, the income of clinicians who engage in research activities is comparable to the income of those who do not do research.¹² Thus, it appears that many community-based physicians have found a way to blend their research interests with their clinical practice in such a way that they remain clinically, financially, and personally satisfied. Further in-depth investigation of how individual practicing physicians and community-based faculty juggle these complicated issues will be useful as models for others who want to combine clinical practice and academics.

The results of this study are also subject to some limitations. While we attempted to generate a sample of successful practice-based researchers, we may have excluded several community-based authors who published their findings in journals

TABLE 3

Factors Encouraging or Discouraging Research

	Percentage of Physicians		
	Total n=55	In Practice n=27	On Faculty n=28
Encouraging factors			
Supportive infrastructure	60	52	68
Mentors/collaborators	42	48	36
Enjoyment of research/hobby	20	15	25
Advancement of discipline*	31	56	21
Prestige of publishing	11	11	11
Quality of training	11	7	14
Discouraging factors			
Lack of time	62	70	54
Lack of support	33	26	39
Lack of funding	18	22	14
Lack of skills	15	19	11

* $P < .01$ between practicing and faculty physicians; all other cases, $P > .05$.

that we did not review. We believe, however, that the journals included in this study are representative of the types of publications in which community-based authors are likely to submit their research products, and thus should not bias the sample. Our findings are also limited by our definition of success, ie, publication in a peer-reviewed journal. Others may argue that presentation of results at research meetings is a less strict measure of success, but we felt that preparation of a product judged to be scientifically valid by the peer-review process was sufficient to indicate that these research results have a measurable impact on medical practice.

Second, we assumed that all authors contributed to the research in a substantial way. While we have no way of validating each author's contribution, the journals under consideration require each author to attest that he or she was a contributor to the research design, data collection, and writing of the article and approved of the final manuscript. Based on this affirmation, we assumed that those listed as authors participated in the project to an extent sufficient to justify including them in our sample.

Finally, the classification of authors was based on their affiliation as cited in the published article. It is possible that some authors could have been misclassified because of the lag time between a project and acceptance of the manuscript by a journal; ie, authors who performed the research in one location may have subsequently moved and cited their new affiliation in the published manuscript. Our data indicated that this group frequently made transitions in their career: 46% of respondents had changed their positions over the past 5 years. Since the survey instrument did not inquire about the respondent's position at the actual time of research, we have no way of gauging how often this occurred.

We found that practicing family physicians and community-residency faculty who were successful at completing and publishing research had previous research experience, were able to secure grants to support their work, and relied on collaboration with academic colleagues as useful strategies. Mentoring relationships, an inherent enjoyment of research, and a supportive infrastructure were

other keys to success. These findings suggest that the most promising way for physicians in community-based practice to include research in their activities is to participate in research early in their career, find academic mentors from whom they can learn technical skills and with whom they can share a sense of enthusiasm for research, and develop strong grant-writing skills.

ACKNOWLEDGMENTS

Support for this work was provided by a grant the American Academy of Family Physicians Foundation and the Robert Wood Johnson Generalist Scholar program.

We would like to acknowledge the assistance of Jocelyn Sykora and Heidi Jarecki in performing the survey and Oua Xiong for reviewing the published articles.

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