

Meeting the Challenge of Research in Family Medicine: Report of The Study Group on Family Medicine Research

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The challenge of research in family medicine is addressed in this paper by describing the rationale for research, appropriate content areas, resources available, and needs for the future. Family medicine has the opportunity to study health and disease in humans within their natural habitat over long periods of time, and to examine the multiple aspects of personal and family health care delivery. Resources for research include large primary care study populations, practitioner and faculty researchers, and technical support systems. The basic needs for the future are to increase the quantity and quality of researchers and to attract more funds designated for research. It is recommended that family medicine practitioners and teachers support research and participate more actively; that family medicine academic units provide their learners more research curricular time and their faculties more research activity time, and that they develop Family Medicine Research Centers; that family medicine professional organizations raise funds to support research, promote research opportunities for their members, and communicate to others the research activities, resources, and needs of family medicine; and that the requirements for residency training be modified to include elective research opportunities.

More than a decade has passed since the establishment of the American Board of Family Practice in 1969. Family practice had its roots in general practice and has continued to build upon

the health care delivery traditions set by its predecessor. The specialty has established educational programs for medical students, residents, and Fellows to define and teach the essentials of the field of study known as family medicine. This process of developing a discipline has made clear the need for a serious research effort to provide the information base required to maintain high-quality ed-

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ucation and medical practice. Whereas general practice relied almost entirely upon other medical disciplines for education and research, family practice has attained a more active and independent role in these domains.

At this point in the evolution of family medicine, there is a need to assess its progress in research. The purpose of this report is to make this evaluation and to address the question, "How can family medicine best contribute to the health of people through research?" By providing recommendations based upon a realistic overview of the family medicine research effort, including both strengths and weaknesses, the report should stimulate the discipline to enhance its research activity in the future.

The report is written by and intended for people working within the discipline of family medicine.* This includes both family physicians and other professionals who deliver health care and teach within this eclectic discipline.

Rationale for Research

Research is the search for answers to questions for which answers are incomplete or as yet undiscovered. Research studies generally contain the following basic components: (1) a research question that the study is designed to answer, (2) a review of the current state of knowledge in the field, (3) a specific research design, (4) a method for data collection, (5) a scheme for summarizing and analyzing data, and (6) logical interpretation of, and conclusions derived from, the data. In addition, many studies, particularly those with an experimental design, have one or more hypotheses to be tested in relationship to the research question.

Modern biomedical research has emphasized the value of the experimental model and the importance of quantitative analysis. Much of this research has been done in the laboratory setting. Research in family medicine is often conducted

in the laboratory of practice: the office, hospital, home, and community. The foci of study are likely to be affected by multiple factors, for which controls are difficult to provide. Therefore, the methods of epidemiology and the social sciences are often useful in family medicine research.

Because of its unique breadth of interest, family medicine has the potential to augment medical knowledge and thereby enhance the quality of people's lives. Many of the questions raised by professionals in family medicine are not addressed adequately by researchers in other disciplines. Family medicine itself should seek answers to the questions it asks. As family medicine research matures, it will be expected to develop an overall research effort that characterizes the discipline.

While it is recognized that not all family medicine professionals desire active participation in research, all should recognize the importance of research in the advancement of the scientific base of their discipline, support research by others, and apply results of research as they practice and teach.

Content Areas for Research

The research conducted within a discipline should reflect the characteristics of that discipline. Family medicine is the field of study that emphasizes the provision of comprehensive health care for people of both sexes and all ages continuously over time and in the context of their personal social support groups in the communities where they live. The uniqueness of the discipline lies primarily in the breadth of its scope and the mission to share with individuals and their families the primary responsibility for their total health care. Family Medicine, as a discipline, has the additional responsibility for education and research pertaining to its field.

Whereas a field of study with an extensive scope might include any type of health related research, certain content areas are especially pertinent to family medicine. Descriptions follow of those areas that attract the highest interest in the discipline and that can be approached from a perspective which differs from that of more restricted disciplines.

Health and Disturbed Health

Family medicine has the opportunity to study humans in their natural habitat over long periods

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of time, observing transitions from health to disease and back to health under the influence of both medical and nonmedical factors.

The emphasis that family medicine places upon health, in addition to the more traditional medical emphasis upon disease, has added to the breadth of the discipline. One of the prime content areas for family medicine research becomes the study of health itself. How can health be measured? What constitutes optimal health? What are the determinants of health?

These issues must be understood more completely before disturbed health can be optimally identified and managed. The natural history of health through the various stages of life becomes crucial to understanding the natural history of disease. The advantageous position of family medicine at the interface of health and disease provides an ideal perspective for studying these natural history phenomena.

The involvement of family medicine with people in the context of their personal social support groups within their own communities is an excellent base for research on individual and group behavioral factors. The "family" component of family medicine is used as an indicator for social groups, which include, but by no means are confined to, the traditional nuclear family. The interactions between individuals and members of their own families or other social support groups have important but poorly understood relationships to health and disease that need to be elucidated.

The social interface between the physician and the patient and family deserves careful study. What is the "art of medicine?" How can it be quantified and included in the "science of medicine?" How does the personal physician become not only an effective medical care provider but also an essential component of the individual's personal social support system?

The influence of physical as well as psychosocial and environmental factors upon health is an important research area for family medicine. Both naturally occurring and human generated health hazards indigenous to the communities in which people live and receive their health care merit research attention.

Health Care Delivery

Research in health care delivery necessitates a basic knowledge of health and disease, with appli-

cations to the needs of individual persons. In its mission of sharing with individuals and their families the primary responsibility for their total health care, family medicine is faced with the challenge of studying the multiple aspects of health care delivery, especially at the personal and family level. How can the results of modern medical research and technology be made available to, and achieve their optimal effect upon, each person who needs them? How can the provision of health care become more scientific, more effective, and more efficient while remaining humane?

Health care delivery begins before medical care delivery. Health maintenance through prevention and early detection of disease and improvement of the quality of life, as reflected in emotional and social well-being, are important components of family medicine research. Which screening tests are appropriate for various individuals, and when should they be done? How often should a well person be examined? What health information does a person need to be an effective participant in his or her own health care? How are the responsibilities for health allocated between the person and the physician? What are the guidelines for physician outreach?

In the search for disease, family medicine has the opportunity for the earliest identification of a new problem. Improved methods for detection of illness in the primary care setting are needed. This means more than just improved technology. It implies careful study of patients' symptoms to make them more determinative in the physician's clinical decision making process. It means research on how to make better use of existing technology, physical diagnostic methods, and behavioral science strategies. Who is well and who is sick? How can this decision be made as quickly and as accurately as possible?

Once a disturbance of health has been identified, the family physician has the responsibility to provide care. Which problems are amenable to medical intervention? Which can be appropriately managed primarily by the family physician, and which require consultation with or referral to providers in other disciplines? Which type of therapy is indicated? Research is needed to develop criteria for the clinical management of the many types of illness encountered. Long- and short-term outcome studies are needed to assess the results of medical interventions, whether they be pharmaco-

logic, surgical, or psychologic. What are their risks, costs, and benefits, considering the individual's total health status and potential? Answering those questions involves a constant, ongoing assessment of the services provided, with the ultimate goal of improved quality of health care.

Health personnel resources and systems of delivery are important in family medicine. Which types of health providers are available in the community? How can each be involved optimally in provision of total health care to individuals and families? Which types of team approaches are appropriate for which types of health problems? To what extent can and should individuals provide care for themselves? What is the cost effectiveness of each approach? Family medicine researchers can contribute in the search for alternate strategies for health care delivery that are the most suitable for individuals in their own communities.

Medical Education

As much of the effort of family medicine for the past decade has been spent developing educational programs for medical students, residents, and Fellows, the discipline has attained considerable experience in medical education. There is a need for research in this area. Are present medical school curricula adequate for teaching future family physicians? Do these curricula address the health needs of individuals, families, and communities? How much training should be within the academic center and how much in community health facilities? How much basic science is essential? How much research training is appropriate? How extensive should exposure to general health care be for students and residents who are not planning to enter family practice? Who should do the teaching? Which teaching strategies are most effective for various content areas? Research in response to these issues is vitally important to expand the knowledge base, skills, and professional perspective of future family physicians and their peers in other disciplines.

Resources for Research

Resources are required for research to be conducted. These resources include study populations, researchers, support systems, and the money needed for funding.

Study Populations

Studies on health, disturbed health, and the delivery of health care for individuals in the population are best conducted with study groups that reflect the characteristics of the general population. Since the majority of people receive their health care in primary care settings and a large portion of primary care is provided by family medicine, this patient population becomes a powerful resource for research. This resource has an especially high potential when used in research by those who work most closely with these people day to day, ie, family medicine health professionals. For many types of research the results obtained in patients' own community settings are more valid than those first obtained in referral hospitals and then extrapolated in an attempt to answer primary care issues. With regard to early manifestations and severity of disease, varied socioeconomic and cultural status, prevalence of wellness, compliance patterns, and feasibility of follow-up, the family medicine patient population differs from referred populations studied in tertiary care centers and from the selected populations in disease-specific specialty clinics.

With the rapid growth of family medicine training programs in the past decade and the use of model family medicine practices at all these sites, an increasing sample of the US and Canadian population is receiving primary health care in facilities with easy access to research expertise. While in 1969 there were 15 family medicine residencies in the United States, in 1980 there were 385. In Canada the number increased from 4 in 1969 to 16 in 1980.

The 1980 Society of Teachers of Family Medicine—North American Primary Care Research Group (STFM-NAPCRG) Survey* elicited responses from 325 US and 12 Canadian family medicine residencies and 28 US family medicine academic programs without residencies. These family medicine training programs serve approx-

*STFM-NAPCRG Survey of Family Medicine Research, 1980. The data reported in the present paper are preliminary results. Further information concerning background and methodology can be obtained from the Research Committee of the Society of Teachers of Family Medicine, 1740 West 92nd Street, Kansas City, MO 64114, and the North American Primary Care Research Group, Medical College of Virginia, PO Box 251, Richmond, VA 23298. Complete results are being prepared for publication.

Table 1. Time Allocated to Research by Family Medicine Faculty with Research Interests in 351 United States Family Medicine Training Programs

	Percent of Time Allocated to Research						Total (%)	
	No.	1-9 (%)	No.	10-50 (%)	No.	More than 50 (%)		
MD and PhD	10	(37)	12	(44)	5	(19)	27	(100)
MD and Masters	16	(42)	18	(47)	4	(11)	38	(100)
MD	334	(70)	112	(23)	34	(7)	480	(100)
Total MD	360	(66)	142	(26)	43	(8)	545	(100)
PhD	49	(36)	61	(45)	25	(19)	135	(100)
Masters	7	(50)	6	(43)	1	(7)	14	(100)
Other	20	(36)	29	(53)	6	(11)	55	(100)
Total Non-MD	76	(37)	96	(47)	32	(16)	204	(100)
Total	436	(58)	238	(32)	75	(10)	749	(100)

Note: Preliminary results of the 1980 STFM-NAPCRG Survey of Family Medicine Research, from 353 US respondent programs. Information on time allocation was incomplete from two respondents

imately 3 million patients with 6 million visits per year. Forty percent of US and 58 percent of Canadian respondents reported current research activity, and most of the others noted an emerging interest in research.

In addition to the patient study populations associated with these training programs, the large numbers of medical students, residents, and Fellows provide study populations of learners for research in medical education.

Researchers

There is an increasing effort to include more independent practices, often located in small towns and rural areas, in research activities. Already large numbers of community based family physicians serve as part-time faculty in residency programs, and their private practice populations were not included in the above STFM-NAPCRG figures for teaching practices. The training programs responding to the survey reported that 1,303 (United States) and 223 (Canadian) of their community faculty are either actively participating (38 percent United States, 69 percent Canadian) or have expressed an interest to participate (62 percent United States, 31 percent Canadian) in research activities.

Of the full-time US faculty, 545 physicians and

204 nonphysicians were listed as active in research. Table 1 indicates the time distribution of their effort, with 34 percent of the physicians and 63 percent of the nonphysicians participating in research 10 percent or more of their professional time. In the respondent Canadian programs, 57 of the 60 faculty with research interests were physicians, 37 percent of whom devote 10 percent or more of their time to research.

The increasing academic involvement of family medicine faculty has facilitated close working relationships in education and research with professionals from other disciplines. Particularly in the United States, many of these individuals have part or full-time faculty appointments in departments or divisions of family medicine. As a new discipline, less bound by traditional training models, family medicine has enlisted the help of educators and researchers from other disciplines in the development of curricula and research programs. The resulting multidisciplinary composition of the discipline has become a powerful research resource.

Research becomes a natural part of the educational program in family medicine. The survey respondents reported research involvement by approximately 800 medical students per year. Residents and Fellows in training are also active in research. Most programs encourage residents to

Table 2. Estimated Annual Family Medicine Research Funding Derived External to the Institution Sponsoring the Training Program in 51 United States and 7 Canadian Programs

Source	United States		Canada	
	\$ (Thousands)	(%)	\$ (Thousands)	(%)
Government	2,608	(75)	498	(61)
Foundations	305	(9)	292	(36)
Pharmaceutical industry	353	(10)	20	(2)
Other	219	(6)	12	(1)
Total	\$3,485	(100)	\$822	(100)

Note: Preliminary results of the 1980 STFM-NAPCRG Survey of Family Medicine Research, from 353 US and 12 Canadian respondent programs. No external research funding was received by 302 US and 5 Canadian programs. The amounts shown do not include funding from training grants

participate in research activities, with 20 percent of the US and 17 percent of the Canadian programs requiring performance of research projects. Formal research seminars are conducted in 31 percent of the US and 42 percent of the Canadian residencies. Block research rotations are available in 27 percent of the US and 17 percent of the Canadian programs. Of the 38 US programs which conduct fellowships, 34 percent encourage and 52 percent require research projects of their trainees. The three Canadian fellowships reported in the survey require research.

Support Systems

Further resources for research reported in the STFM-NAPCRG survey include support systems available in family medicine training programs or their affiliated academic institutions. Assistance with library searches, computer programming, data entry, data analysis, grant and manuscript writing, and research project management have become available in more than 60 percent of US and Canadian respondent programs.

In addition, many family medicine training sites have developed ongoing data collection systems to monitor their practice activities. Systems for collecting data on age and sex composition, morbidity, medical procedures, and patient visit frequency are available in more than one half of the respondent programs. Systems for monitoring laboratory data, race, socioeconomic status, and referral information are operational for more than

one half of the US and up to 45 percent of the Canadian programs. Computer systems to support research have become available in 47 percent of US and 58 percent of Canadian programs in the survey.

Funding

Funds specifically allocated for research have been very limited. Preliminary results from the STFM-NAPCRG survey indicate sources and amounts of recent funding (Table 2). Fifty-one of the 353 US programs (14 percent) and 7 of the 12 Canadian programs (58 percent) received research monies. Awards to the US programs totaled \$3,485,000 and those to the Canadian programs were \$822,000, estimated on an annual basis. These figures for both countries are very small compared with the total amounts budgeted for health research. For example, in fiscal year 1979, 4.4 billion dollars were allocated for health research by the US Department of Health, Education, and Welfare (now the Department of Health and Human Services).¹ In Canada for the same period \$76 million was budgeted for health research by governmental agencies.²

While governmental funds represent the largest source of family medicine research support in both countries (75 percent in the United States, 61 percent in Canada), foundations contribute a much higher proportion of funding in Canada (36 percent) than in the United States (9 percent). On the other hand, the pharmaceutical industry provides

a higher proportion of funds in the United States (10 percent) than in Canada (2 percent), according to the survey data.

Funding for most research activity in the United States has derived from residency training grants, faculty development grants, and other sources not specifically designated for research. There has been considerable interest in preparing faculty members for academic careers, as evidenced by grants awarded by the Robert Wood Johnson Foundation and W. K. Kellogg Foundation. A large portion of this funding is for fellowship programs that include training in teaching and research skills. An important new source of funding for US family medicine research activities is the Family Health Foundation of America, which supports multiple research efforts within the discipline.

Professional Organizations

Encouragement and peer support for research has been offered by professional organizations. The North American Primary Care Research Group (NAPCRG) was organized in 1972 for the purpose of fostering research by providing a forum for presentation of research results. The number of papers presented at the annual meetings has increased from 6 initially to 120 at the 1981 meeting. The Society of Teachers of Family Medicine (STFM), organized in 1967, has been active in both education and research, as reflected by presentations at its annual meetings. The STFM Research Committee conducts research training workshops, reviews papers submitted for presentation, and identifies research funding sources. STFM joined with NAPCRG to sponsor the 1980 Survey of Family Medicine Research, the preliminary results of which are reported here, and organized the Study Group on Family Medicine Research, which produced this report.

The American Academy of General Practice (AAGP) was organized in 1947 and became the American Academy of Family Physicians (AAFP) in 1971. The AAFP has encouraged research through its Research Committee, whose activities have included mobilizing a large panel of practicing physicians to participate in collaborative research, conducting research concerning AAFP membership and family medicine training programs, and providing financial support for research projects by individual family physicians. At present, the

AAFP is sponsoring a major study on the cost effectiveness of health care delivery. In addition, state chapters of the AAFP support local research activities, both through research committees and small foundations.

The College of Family Physicians of Canada, organized in 1954, has supported research by establishing a National Research Committee, which conducts field studies, encourages scholarly activities, and plans research workshops for family physicians and residents. In addition, Canadian family medicine researchers and educators have been active in both NAPCRG and STFM.

Journals

Three major journals serve the discipline of family medicine in North America (*The Journal of Family Practice*, *The American Family Physician*, and *The Canadian Family Physician*). Of these, *The Journal of Family Practice* is the principal journal for dissemination of reports by family medicine researchers. Its editorial review process constitutes a resource for constant improvement in the quality of research papers being published. More recently the journal *Family Medicine* has been established by the STFM and is publishing original research as well as information to promote research activity.

Needs for the Future

An excellent start has been made in family medicine research during the past decade, but much remains to be done. In the recent STFM-NAPCRG research survey, some of the impediments to research were identified (Table 3). The problem most frequently cited was the lack of faculty time for research, reported by 78 percent of US and 100 of Canadian programs. Faculty are principally occupied with patient care, teaching, and administrative activities, with little time remaining for research. Only 22 percent of US and 17 percent of Canadian programs reported lack of faculty interest as an impediment. The interest is there; it needs only to be nourished and developed.

The basic need for the future is to progressively increase the quantity and quality of researchers active within the discipline. This conclusion is supported in the survey by the reported paucity of faculty research skills and lack of role models in research (Table 3). The logical sites for training the

Table 3. Impediments to Research in Family Medicine Training Programs as Reported by 325 United States and 12 Canadian Programs

Inadequate Area	Percent of Programs in which the Inadequate Area is a Major Impediment	
	United States (N=325)	Canada (N=12)
Faculty time for research	78	100
Funding for faculty time for research	61	75
Funding for staff, equipment, supplies	48	67
Faculty research skills	45	67
Researcher role models	43	50
Rewards for research	29	50
Faculty interest in research	22	17
Institutional support such as data processing, library, consultants, grant writing	17	8

Note: Preliminary results of the 1980 STFM-NAPCRG Survey of Family Medicine Research, from 353 US and 12 Canadian respondent programs. Information on impediments to research was incomplete for 28 US respondents

needed family medicine researchers are those academic centers that already have faculty with research expertise and support systems to facilitate their work. Also, these centers are most capable of facilitating research projects conducted in training programs and practice sites with heavy practice loads and limited research capabilities.

Of course, basic to any type of research activity is the necessary funding. Lack of funding for faculty research time was reported as an impediment by a majority of US and Canadian programs, and inadequate funding for staff, equipment, and supplies was cited as a significant problem area. The time has come when more monies granted specifically for research must be forthcoming if family medicine is to make its optimal contribution to the health of people through research. Family medicine professional organizations should assume a major role in seeking research funding, both within the discipline and from foundations, corporations, and governmental agencies. Those groups involved in the allocation of research funds must be made aware of the potential contributions of family medicine research and be convinced that the application of knowledge in which the discipline excels is essential to the improved health of the people.

Recommendations

The challenge of research in family medicine must be met principally by the discipline of family medicine itself. Therefore, the following recommendations are directed toward those persons who constitute the work force of family medicine, the academic institutions in which they are educated, and the organizations that represent their professional interests. While the recommendations do not describe all the activities necessary to meet the challenge of research in family medicine, they serve to highlight actions critical to achieving this goal.

To Individual Practitioners and Teachers of Family Medicine, it is recommended:

1. That full-time practicing family physicians use the problem solving skills they have developed in confronting patient care problems to seek solutions for these problems by conducting research in their own practices
2. That family medicine teachers conduct research themselves and assist full-time practicing family physicians in their practice based research

3. That all persons who practice and/or teach family medicine recognize the importance of research in augmenting the scientific base of their discipline and in improving patient care, support research by others, and apply the results of research as they practice and teach

To Family Medicine Academic Units: Divisions, Departments, and Residency Training Programs, it is recommended:

1. That family medicine curricula provide elective time for research activities by students, residents, and Fellows
2. That family medicine faculty be given protected time for research activities
3. That Family Medicine Research Centers be developed, based upon the demonstrated ability to provide a critical mass of researchers whose principal activity is conducting, teaching, and facilitating research
4. That the Family Medicine Research Centers provide for professionals who practice and/or teach family medicine the following educational and supportive resources:
 - A. Training sessions in research methods at introductory, intermediate, and advanced levels
 - B. Research fellowships for periods ranging from three months to three years
 - C. Teams of health professionals with research expertise, including practicing family physicians, to assist in research activities conducted in practice and teaching sites
 - D. Leadership for active collaboration in research activity between professionals in academic centers and full-time practicing family physicians

To Family Medicine Professional Organizations, it is recommended:

1. That family medicine professional organizations perform the following functions:
 - A. Raise funds to support the Family Medicine Research Centers and other research endeavors in family medicine, both internally from their own membership and externally from other foundations, corporations, and governmental agencies
 - B. Provide opportunities for their members to

train for the participation in and the evaluation and rational application of research

- C. Establish mechanisms to provide family medicine researchers ready access to information pertinent to their research, both from the literature and directly from colleagues with like research interests
 - D. Provide forums for presentation and critique of research as well as peer support and personal interaction between novice and experienced researchers
 - E. Communicate to other health organizations and constituencies the research activities, resources, and needs of family medicine
2. That the requirements for residency training in family medicine in the United States³ be modified to require that training programs offer elective opportunities in family medicine research, either directly by each program or through cooperative arrangements with other organizations
 3. That the educational objectives for certification in family medicine in Canada⁴ be modified to include objectives appropriate for training residents to conduct and/or participate in research studies

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