

Strategies for Funding Research in Family Medicine

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In the early history of academic family medicine, the development of a research base remained at a relatively low priority while academic departments and residency programs wrestled with the more immediate problems of providing patient care and establishing teaching programs. Recently, there has been a burgeoning of interest in research, although few programs have so far mounted even moderate research efforts. Therefore, what is known about strategies for funding research is limited by experience with small-scale projects and by the results of first attempts to seek major research funding.

To date no one in family medicine has attempted a rigorous cost accounting of research efforts or described a comprehensive approach to research funding. Concerted attempts to fund research at the University of Washington Department of Family Medicine began only in 1978. This paper describes the approaches of the University of Washington Department of Family Medicine and its affiliated residencies to the support of projects in three different categories: (1) small, resident initiated research projects, (2) developmental, faculty initiated research projects, and (3) larger, externally funded research projects.

Funding of Small, Resident Initiated Research Projects

Several residency programs fund resident research through an extremely simple strategy. Since the percentage of residents who voluntarily take on a research project is small and the amounts of support required are generally no more than a

few hundred dollars, residents can be encouraged to request research funds or other organizational resources directly from program directors, just as they might for any other one-time expenditure. Directors can often find small amounts of discretionary funding. This avoids formal review and administration and, therefore, conserves faculty time when resident research requests are infrequent. Such an approach, however, neither strongly encourages residents to apply for such funds, nor generates new sources of funding for resident research.

To encourage resident research, the Department of Family Medicine initiated a more directed strategy in 1976. A portion of residency training funds awarded by a private foundation was set aside as a small internal grant program for residents who wished to pursue research projects. Since then, interested residents have submitted brief proposals with budgets. Proposals are reviewed by a faculty-resident research committee. Following critique and consultation, funds are awarded for approved projects. These awards never cover faculty or resident salaries; they are intended to cover such costs as clerical help, supplies, equipment, printing, local travel, and computer time. As an incentive to complete projects, residents whose papers or exhibits are accepted for scientific meetings may be awarded travel funds to attend and present their work.

The development of a formal program of resident research proposal development, guidance, scientific and administrative review, and periodic follow-up is intended to simulate the peer review process and emphasize the educational value of the project. The steps a resident must take to obtain such support assure the resident of a scientifically sound project and the commitment of adequate time and other resources needed to accomplish the project.

Under most circumstances residents with limited needs prefer to make a direct appeal to the

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residency program director. This is the least complicated approach for the resident and is often appropriate for small, straightforward projects. Approximately one half of the resident projects are funded in this way. Thus, it is usually the larger, more complicated, or more expensive projects that find their way to the internal grants program.

Over the past five years, 27 projects have been approved through this formal resident grant program, with budgets ranging in size from \$50 to \$1,000, with most falling in the \$200 to \$400 range. Residents have been able to conserve this fund by seeking other resources through drug companies and hospital laboratories. Since research has not been required in any of the residency programs, the total number of projects and the annual cost for this program has been very low. The University of Iowa residency, which requires a research project of each resident, allocates approximately \$200 per resident plus some institutional resources for data analysis.¹

The costs accounted for in the proposed budgets for resident projects are insignificant, however, when compared to the major costs of resident and faculty time. There is no accurate account of the time spent on research projects, but a simple and widely used rule of thumb for projecting research time for small individual projects is first to estimate the amount of time each component of the project will take and then to double each estimate. For studies involving more than one investigator, time estimates for any component requiring discussion among investigators should be multiplied by the number of coinvestigators. That such formulas are common among researchers makes the point that virtually every novice in research seriously underestimates the amount of time a research project will take.

The problems of finding and paying for the time devoted to research are major hindrances demanding serious consideration and resolution if research is to be included in the curriculum of family medicine residents. Wilson and Redman report that "too few faculty" is the most frequently cited reason for lack of emphasis on resident research in family medicine.²

Some innovative solutions to the time problem are beginning to emerge, however. One successful option has been found by linking research to community medicine curricular time. In one of the affiliated community based residency programs,

two faculty and one fellow with an interest in community medicine revitalized a month-long community medicine rotation by requiring adequate written goals and plans to be made by the resident well in advance of the rotation and a written product and oral presentation afterwards.³ The community medicine project is not necessarily a research project, but several have turned out that way. This approach has legitimized up to a full month of time for research in the residency curriculum, but additional time is required. In order to make the community medicine project a success, there must also be faculty who persistently encourage residents to define their interests in the community, meet for three to ten hours in advance planning sessions prior to each field experience, and follow through with additional time and assistance in preparing written and oral reports. With a sizeable commitment of faculty energy and time, residents have responded very positively. Recognizing the need for a more balanced understanding of research, the residents requested a ten-hour seminar series on the planning and conduct of research. The lesson learned from this project is that even when large blocks of resident educational time can be used for research, faculty must be prepared to offer additional hours of planning, teaching, and assistance.

Funding of Faculty Initiated Developmental Research Projects

Like resident initiated research projects, small faculty initiated projects are typically supported out of operating budgets of academic departments or residency programs. The sources are usually quite limited in both amounts available and the legitimate uses that can be made of these funds.

One strategy for improving the availability of such funds for research is to budget for strong evaluation components in any patient care or education program grants being submitted. With forethought, a portion of training grant funds earmarked for program evaluation can be used simultaneously to advance research. For example, one expected outcome of a funded behavioral science training program might be improved patient satisfaction. It is entirely legitimate to accomplish research aims in the measurement and improvement of patient satisfaction while evaluating the effec-

tiveness of the behavioral science program in terms of improved patient satisfaction. Similarly, a clinic designed and funded to meet community needs would benefit from research in the epidemiology of community needs.

Once a moderate amount of internal support is found for a research idea, further growth will often depend on the success of the investigator in locating and using creatively other nearby sources. In general, funding sources that are closer at hand tend to require shorter lead times and less demanding proposal and reporting requirements. The strategy for seeking such highly desirable resources includes developing a network of relationships with individuals and organizations that are interested in the research ideas. It is usually easier for such people and organizations to provide in-kind support rather than funding. In the Department of Family Medicine, faculty have in this way used the supplies, services, and equipment of state health agencies, biomedical research centers, a private research institute, a labor union, drug companies, an insurance company, and the public schools. In all cases, arrangements were relatively informal and reporting requirements were minimal.

While many of the locally available resources are idiosyncratic to the particular research project, some local resources can be organized into programs of research support. The research support strategy at the Department of Family Medicine includes the following programs.

Undergraduate Research Course

A variable-credit independent study course in family medicine research is now open to qualified university students. To date, all interested students have been fourth and fifth year premedical students and first and second year medical students. They meet by appointment with the course coordinator, who explores the student's interests and reviews brief descriptions of current research projects prepared by the department faculty who desire student help. The coordinator arranges appointments between students and selected faculty and helps to negotiate an equitable and stimulating educational experience for the student. Over the past ten quarters, 20 students have enrolled for a total of 61 credit hours of research training under the supervision of family medicine faculty. Each credit hour is equivalent to three hours of research assistance.

Work-Study Program

Work-study is a form of financial aid in which qualified students may work up to 19.5 hours per week to defray tuition expenses. Wages range from \$3.35 to \$5.24 per hour, with 80 percent of the cost assumed by federal or state financial aid programs. Thus, large blocks of student time can be found for about a dollar an hour. Since there are many potential employers at these favorable rates, faculty with research projects must actively seek and cultivate relationships with such students in order to compete for their services. To date, the Department of Family Medicine has involved three such students for periods of one to three terms. To encourage such arrangements, the department has determined that any faculty member who can obtain a work-study student for a project will be awarded the funds.

Medical Student Research Stipends

The current national trend of diminishing numbers of physician researchers has stimulated the National Institutes of Health to make available stipends to fund medical students interested in research. Such a program was included in a grant to the Department of Family Medicine, and additional stipends have been made available through the Office of the Dean at the School of Medicine. Twelve full-time, 12-week stipends have been awarded through these programs to students supervised by family medicine faculty in the past two years. Approximately one half of these students have continued their involvement at some level following these experiences.

Graduate Student Thesis Projects

Graduate students in the social, behavioral, and health sciences are encouraged to seek family medicine faculty with similar interests and to complete thesis projects in the context of family medicine. In these projects, family medicine faculty serve as advisors and help students gain access to family medicine's special resources of patients, health providers, and health-related organizations. The projects that result properly belong to the student rather than the family medicine faculty, but faculty often fall heir to methods, instruments, data, relationships, and administrative structures, all of which can advance their own research programs greatly.

Fellowship Programs

The Robert Wood Johnson Foundation, the Kellogg Foundation, and the federal government have all supported fellowship programs in family medicine. These programs vary widely in scope and intent, but departments with an interest in fostering research have in most cases found ways to incorporate research support into these grants. The fellowship at the Department of Family Medicine, University of Washington, is supported by the Robert Wood Johnson Foundation and is specifically intended to emphasize research training of fellows and to establish departmental resources conducive to accomplishing research. This program has been the single most important resource in this department's strategy to build a research capacity. Indications are that after the current funding cycles are completed, funding for fellowships will diminish. Therefore, fellowship programs may not be a realistic part of the future research funding strategies.

The five programs mentioned above provide available research personnel at no financial cost or at wages far below their market value. Since personnel costs usually represent the bulk of research costs, none of these resources should be overlooked in an overall funding strategy. The keys to attracting such people include an organized recruiting and support program and a small amount of money for supplies, local travel, small pieces of equipment, and secretarial backup. Sources for such discretionary funds include local foundations, local corporations, banks, insurance companies, and seed grant programs, all of which are usually part of the funding strategy of research oriented universities and hospitals. A Syntex Corporation executive reported recently that corporate philanthropy doubled during the decade of the 1970s and may increase at an even faster rate in the 1980s.⁴ In approaching such potential funders, it is wise to demonstrate to them how small amounts of research funding can be used to attract resources many times their value in the accomplishment of worthwhile projects.

Small amounts of funding from local sources can often be used with relatively broad discretion. One such gift from a private individual for research purposes has on many occasions permitted the Department of Family Medicine to make timely commitments and later substitute other

funding for small new research projects, thereby retaining the original grant. A portion of these funds is currently providing small internal seed grants to family medicine academic and clinical faculty for beginning research projects. Such grants, if properly invested, can have a strong multiplier effect. For example, one such grant, which was used to purchase some technical help and a used refrigerator for cultures, permitted the family medicine study to successfully link to a larger, previously funded project, thereby making available to the family medicine study an exceptional group of consultants and many thousands of dollars worth of laboratory tests and services. In other examples, such seed grants are expected to demonstrate the promise of new lines of inquiry that may be fundable in the near future. Recently, the Family Health Foundation of America has announced its intention to initiate a family practice research stimulation program. Details of this program are not yet available.

Funding Through Major Research Grants

Family medicine departments and residency programs have relied heavily on large training grants from government agencies and private foundations to support their activities. With anticipated reductions in these start-up funds and greater competition within family medicine, the need to seek grants from other sources coincides with the need to develop a firmer research base.

It is clear that academic programs in other medical specialties depend upon major research grants as a significant component of their funding structure. The National Institutes of Health fund the majority of health related grants in the United States. In 1980, the National Institutes of Health (NIH) was allocated \$3.4 billion for its research programs. Extramural research grants, the largest and fastest growing of NIH budget categories, increased from \$700 million to \$2.1 billion in the period from 1971 to 1980.⁵ The steady increase over the past decade represents growth of 200 percent, which outpaced inflation in biomedical research and development by 59 percent over the decade. Even under a conservative administration, biomedical research appears to be a relatively stable source of federal funding into the foreseeable future. The health research programs of private foundations are also expected to con-

tinue, although the relative contributions of foundations to the support of health research may be eroding.

Under these conditions, it would seem that a greater reliance on federally sponsored research programs is inevitable, at least for many university based departments of family medicine.

Currently there are very few examples of large-scale research projects funded by government agencies or private foundations in family medicine. At the University of Washington, competition for such grants and contracts has begun only in the last two years. Limited experience has already demonstrated that large-scale research projects involve costs of an entirely different order of magnitude than smaller projects supported by the institution. This is so for several reasons. First, large funded projects almost always require the development of formal grant or contract proposals that require extensive preparation time and usually carry elaborate administrative and reporting requirements. Second, faculty and staff time must be realistically accounted for in such proposals. Third, budgets for large, funded projects must acknowledge the institution's overhead expenses, which pay for many of the "free" resources such as libraries, computers, space, and energy consumed not paid for by small informally supported projects.

Major research support requires first and foremost a fundable idea. Beyond this requirement, however, such awards are usually made only to researchers who demonstrate that they have already developed an infrastructure of relationships and resources which will assure the funding agency that the applicants have the capacity to turn a sound idea into a successfully completed research project.

There appear to be two basic strategies toward the development of this infrastructure, which can be called the organic strategy and the hothouse strategy. Both require the sponsoring department or residency program to make a substantial initial investment in research from its own resources.

In an organic strategy, an organization encourages a promising line of research first with appropriately small amounts of support for pilot and feasibility studies. Some of these studies may lead to publication, involvement by more people, the maturing of ideas, improvements in techniques, links to other organizations, easier access to spe-

cialized resources, and the development of relationships with researchers in other disciplines who have complementary interests. By necessity, an administrative structure will evolve, and more faculty and staff time will be consumed to accomplish the growing number of research tasks and new projects spawned by the mix of people, ideas, and resources.

In the organic development of such an infrastructure, the investigators may locate small amounts of institutional funding and may gain access to other local resources. This kind of development typically takes place over a span of years, eventually resulting in a structure that permits successful competition for major research funding.

In the hothouse strategy, an organization may set its sights on a particular area of research in which faculty have interest and experience and then commit time and other resources to the rapid development of the targeted area. This development is necessarily more contrived, more goal directed, and perhaps more expensive than the organic approach. If it is successful, it can lead to a relatively rapid development of major research funding. It is a risky approach, however, in that a very large initial investment of the organization's resources is required over a brief span of time, and the failure of such a highly visible endeavor can have strong repercussions for those involved.

In the University of Washington Department of Family Medicine, there are examples of both types of development. An organically developed project on rural hospitals grew out of one individual's administrative position in the National Health Service Corps, his subsequent involvement in the Washington, Alaska, Montana, Idaho (WAMI) program of regionalized medical education in the Northwest, and several rural health projects. These administrative and service related activities led to a series of studies in collaboration with faculty of the School of Public Health. A \$5,000 seed grant awarded by the American Academy of Family Physicians several years ago made possible the hiring of student helpers and the collection of data on hospitalization practices in rural areas. Ideas, relationships, and plans in this area have matured for more than five years and have recently resulted in submission of a major research proposal to a private foundation.

A hothouse approach was taken when department faculty decided to respond to a National In-

stitutes of Health program announcement calling for behavioral studies in diabetes mellitus. As the proposal was developed, it became clear that unlike training activities, the new research project could not be plugged in to a familiar structure of relationships and resources. There was very little of the infrastructure required to successfully run a large research project. In the nine months before the National Institutes of Health proposal was submitted, the costs to the department included at least 225 planning hours contributed by five faculty and an equivalent number of support staff hours. In the course of these planning activities, personal and institutional links were established to at least six different research oriented groups within the university and the community, pilot studies were conducted, including both physician and patient subjects, and students were recruited who have worked for modest training stipends and for course credit. In short, the nine months of proposal preparation forced the establishment of an infrastructure on an accelerated schedule. Since this proposal was submitted, work has continued in the form of additional pilot studies, additional proposals, and continued building of a network of research relationships and resources. Funding was awarded thirteen months after the proposal submission deadline.

Strategies for Managing Research Funds

The first major research awards are just being received. With this funding comes the need for another set of strategies for the continued funding of research. Two basic approaches to research management are available. In some departments, individual faculty act as independent entrepreneurs with nearly exclusive control over individual budgets and nearly complete autonomy over the direction of their research. Other departments run their research programs under a more collective and directed philosophy.

The Department of Family Medicine continuously struggles with the balance between an independent and a collective philosophy but has currently settled on a strategy which is hoped will promote stable future research funding. A team of professionals, administrators, technicians, and support staff within the department is organized to devote a portion of their time to research proposal development and processing. These services

are available to all department faculty and have dramatically increased the ability to submit competitive proposals on short notice. As incoming grants expand the resources of this team, it is hoped that continuing employment will be provided for people skilled in grant writing, budget management, programming, interviewing, and other frequently needed research services. These individuals are to be supported by current grants but will also be available to staff the unfunded pilot projects upon which new grants will be based.

Conclusions

As with the funding of patient care and educational programs in family medicine, the funding of research will be a complex patchwork with contributions from various funding sources. It can be expected that some departments and residency programs will develop major research programs and others will engage in research at more modest levels. Perhaps the most important conclusion about the funding of research is that external support requires an initial investment of departmental and residency program resources. In the Department of Family Medicine these investments have taken the following forms: (1) a clear policy allocating significant faculty time to research, (2) assignment of overall responsibility for developing the department's research resources, (3) allocation of specific departmental funds for research along with procedures for obtaining these funds, (4) establishing programs to make maximal use of local resources for research, and (5) recruiting of individuals with specialized knowledge and skills in research. Whatever the initial investment, the long-term goal is to develop a line of research with quality and importance sufficient to justify its external support.

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