

Research Management in Family Medicine Residency Programs

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In order to increase the efficiency of family medicine research programs, principles of research management are discussed. Research management is a process concerned with the optimum use of human and other resources, the management of which includes planning, organizing, facilitating, and controlling. Each of the activities must be integrated into a unified system of people, resources, and information. The role of the research director is reviewed with special attention devoted to management style as it affects leadership.

It is proposed that adoption of a research management system will offer distinct benefits to both individuals and the entire family medicine program. Practical suggestions are offered to facilitate implementation of a research management system.

In recent issues of *The Journal of Family Practice* several excellent position papers and review articles have appeared which document the need for and importance of research in the domain of family medicine.¹⁻⁴ Tracing the evolution of family medicine as a recognized, viable discipline in medical education, these papers have focused attention on the difficulties and opportunities involved in implementing research programs, identifying relevant research themes, and developing research experiences.

The purpose of this paper is to build upon these important contributions by commenting further on the framework for their logical extension: research management. It is assumed that family physicians are competent to do research, but a limiting factor on its conduct is a lack of research management expertise. This lack of management expertise is

not at all peculiar to the family physician, but it must be recognized and addressed as it affects the development of departmental research programs and specific projects in the educational setting. Without question, research that is carried out by the seat of one's pants is bound to be frustrating as well as inefficient.

Research management is far more than grants management, although grant procurement is certainly a part of research management. Research management is a formal, holistic activity directed toward the establishment and subsequent achievement of objectives set for a research program. Research management is a means, therefore, of managing human and other resources, the management of which includes elements of facilitating, organizing, controlling, and planning.⁵

Why Research Management?

It is appropriate to ask why a formal research management system should be considered. A number of criticisms and qualifications immediately come to mind which argue against this

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philosophy: first, research management takes time, effort, and resources that a family medicine program does not have to spare. Secondly, research is a creative, spontaneous process, which is difficult to plan or manage on a schedule. Finally, research management is a new development for family medicine, and since it is a departure from "business as usual," it is hard to justify its adoption.

Each of these points is well taken, but each is valid only to an extent. For the first, it is true that research management requires both the attainment of systems knowledge and the commitment to making a system work. Initially, time will be required in developing research management expertise, but once the process is working, resources will be more efficiently utilized, and one can expect that research will be facilitated and not hindered by this system. Time constraints are also relevant concerns, but the "time trap" can be avoided so that there is sufficient time for the family physician to participate both in the conduct of individual research and the research process of a larger group. Additionally, while this discussion is directed at the family medicine departmental level, the principles are applicable to the management of an individual's specific research project. Consequently, the time savings outcome of a research management system has implications for individual investigators.

The second criticism leveled against the research management philosophy which argues that creativity cannot be managed or planned is not valid based on examples drawn from other disciplines. Research management has a long history in fields such as Engineering Research and Development as well as in other high technology industries. From these experiences it has been learned that, while it is true that bureaucracies can stifle creativity, a less centralized organizational structure can stimulate an individual's creativity through information exchange and participation in group discussions.⁶ It should also be remembered that a creative person is not necessarily a productive person and vice versa. In turn, a sound research management system might serve to increase both the productivity and the creativity of its participants.

Finally, it is recognized that the concept of research management is a relatively new experience for family physicians and, naturally, uncertainty

hinders its acceptance. While research within an institution may be progressing to the point that a management system appears unnecessary, experience shows that research organization of this type will ultimately be limited without such a system. At some point in time, the research team and its individuals cannot grow because they have exceeded their resources and expertise.

Advantages

Consequently, there are numerous advantages of the research management philosophy to a department of family practice. Comment on some of the advantages follows.

Visibility

A research management system will direct attention to the program from persons both internal and external to the institution. Generally, a critical mass of people and resources will be identified as a source with whom others may interact in the development of research projects.

Information and Innovation Diffusion

A sine qua non to a good management system is information. Creation of a good network by which information is transmitted can stimulate inquiry and facilitate the conduct of research.

Synergism

Another benefit of the research management philosophy is that the output of research endeavors can be greater through participation in a team effort than output which could be accomplished by investigators working in isolation. In essence, through effecting a division of labor, productivity can greatly increase.

Group Development

As suggested, an outcome of a management system is the creation of groups or research teams. As a result, enthusiasm for research increases, and persons with special interest and expertise in an area are able to develop these areas of inquiry.

Multidisciplinary Research

Closely related to group development is the likelihood that research management can stimulate multidisciplinary research. Persons of diverse

backgrounds can be identified and brought together in the research process. Through eclectic decision making, improvements in the quality and scope of research projects can result.

Research Efficiency

A sound management system can shorten the time required to conduct research, use resources more efficiently, reduce investigators' frustrations, and prevent unfortunate delays in completing projects.

Grant Development and Procurement

Through proper organization and planning, grant development can be facilitated by identifying potential funding sources and their grant interests and requirements, expediting the grant writing process, and documenting the ability and resources of the research team to conduct funded research.

Faculty and Resident Recruitment

The provision of research opportunities can be a plus to the family medicine program in the recruitment of faculty and residents. As research becomes more common in family medicine residencies, a program with established, well-managed research efforts will have an advantage over other programs.

Again, a successful management system can come about if the physicians are committed to this concept. As indicated, the products and byproducts of a good management system offer profuse benefits to both the team and its members.

Disadvantages

Because of the commitment required to develop a research management system, it is entirely possible for problems to occur. Comment on some of the disadvantages follows.

Unrealized Expectations

While it is true that proper organization of people and resources can create a rise in expectations, it is also likely that unless results are forthcoming, morale can suffer when expectations are not met. Frustrations can occur, leading to apathy and inertia.

Conflict

Another disadvantage of the research management process is the potential conflict between the individual's research goals and the goals of the program. Unless resolution occurs, disenchantment can result in a member's dropping out of the system due to friction.

Lack of Mission

Frequently, research committees are created by an institution without its giving thought and direction as to the mission of the committee. A lack of mission for a group or committee is a sure path to failure. Not only must an institution recognize and reward research, but it must also define the degree of responsibility, purpose, and authority in the development of a management system.

Formation of Cliques

Should a successful group form which operates with a research plan, there is always the possibility of this group's developing an elitist attitude. The visibility factor, therefore, has the potential of excluding other persons from the inner circle, and, consequently, may be a disadvantage to a department.

Resources

Not only does the development of a management system require time and effort, but this time and effort requires resources, the amount of which may be substantial. Support personnel as well as basic equipment are required. Results will not immediately occur; hence long-term commitment of administrative support is necessary.

Principles of Management

Management has been defined as an activity consisting of four elements: facilitating, organizing, planning, and controlling. Each of these elements requires special consideration because ignorance of any one element and failure to incorporate it into the total system will work against the development of a research program.

Although it has not been mentioned, it is obvious that one person assumes responsibility and authority for initiating the adoption of a research management system. Whether or not this person is

the residency director, department chairman, or some other person in the family medicine program, the key issue is that this person is a leader and is recognized as such by his/her peers. To a great extent, management is an art. In a later section on management style, it will be shown how important it is for the research director to be an effective leader.

Facilitating

The facilitating activity of management reflects the highly personal nature of management. Facilitating is a process of making things possible. Examples of the facilitating activity include motivating, leading, providing feedback, and actuating. This activity requires knowledge on the manager's part about what motivates people, how to communicate with peers and subordinates, and, in general, knowledge of basic human behavior as it affects organizational development.

Organizing

Organizing is the process of creating a structure within which research is conducted. The type of structure established for a research program depends on factors such as the number of full-time faculty, the number of residents, the environment of the department's parent institution (health science complex, residency sites, ambulatory care center), the number of other specialists associated with the program, and, of course, the prerogatives of the dean and the department chairman. Excellent examples of organizational structures for research programs in three programs are reviewed by Wood, Stewart, and Brown.¹ Rather than advocate one organizational structure over another, this discussion is aimed at presenting the general process involved in organizing a research program.

First, the key person in setting up the organization of the research program is the Research Director (or equivalent title). This person has the immediate choice of selecting either a centralized organizational structure or a decentralized one. A centralized structure is one where virtually all authority is vested with the Research Director. A decentralized system is preferable when dealing with "professional" workers. This is because "professional" workers, by their education and training, are independent, authoritarian, and moti-

vated by personal goals. This type of person is loyal to a group only to a point and is much more likely to resist pressures from the organization to conform to its goals and objectives.⁶

The organizing function at the departmental level should be built around at least two basic activities: research development and the procurement of funding. It must not be directed at the assignment of research topics to faculty and residents. This runs counter to basic tenets of academic freedom and individual inquiry. Instead, the department should direct its organizing function at creating a structure by which assistance can be given to an investigator in the development of a specific research project from the germination of an idea or question. Additionally, the structure should include information on intramural and extramural sources of funding for the research project. It is almost an understatement today that research must pay its own way. Institutions expect (and reward) this activity.

A natural inclination of industry, government, and academe is to immediately create a committee for such purposes. Admittedly, committees can (and often do) serve a useful purpose. Probably the most important consideration in establishing a research committee is the authority which it has. Most likely, research committees should be expected to have limited authority in the research management system. This does not mean they are impotent; rather, their role is one of advising persons in the organizational structure. Ideally, this committee should contain persons with some experience in research and grant development processes. Additionally, the committee should be as small as possible, perhaps no more than five persons.

It is also most important that the structure be designed for optimum participation by all persons in the department. This cannot be overemphasized, because professionals, it is said, are not a homogenous stereotype; rather, they are unique individuals. Participation in the management functions is necessary, in turn, to reduce friction in the organization. Therefore, the members of an organization, such as a research advisory committee, must know other persons in the organization and actively solicit their input. Naturally, one would also actively solicit input from the residents, both as individuals and as an association.

Outside of the formation of an advisory commit-

tee, it is important in the organizational structure to encourage the formation of study groups that can focus attention on particular research themes, such as clinical research, epidemiology, and the like. Without elaborating on the actual mechanism of their operation, "think tanks" and journal clubs can be used for this purpose. Additionally, resources from other clinical departments must be tapped, as should resources from the larger academic community. Nonphysician research personnel (eg, statisticians, operations researchers, economists) have much to offer the research program in family medicine.

Finally, the organizational structure should include a mechanism for the facilitation of grant and contract development. To an extent, colleges and universities generally provide this type of information, but the information network is often not sufficiently well developed to deliver the information to the investigator in time to submit a proposal. In setting up the organization, proper attention must be devoted to this issue, and strategies should be planned to improve the existing process where necessary.

Controlling

Controlling is the element of management concerned with assuring that what has been organized, planned, and implemented is carried out and is being conducted in a manner so that objectives are being met. Controlling is essentially nothing more than evaluation and application of remedial corrective measures, if needed. Regardless of the activity, controlling requires information on what is being done; information on what is expected; and courses of action to remedy deficiencies, if found.

Performance measures of the research process are indeed difficult to set. Some examples of performance measures from research administration in other settings that may be transferable to medical research include: (1) percent of faculty and residents involved in funded research; (2) number of proposals submitted for extramural support; (3) length of time required to prepare grant proposals; (4) percent of faculty involved in unfunded research; and (5) number of publications generated by faculty and residents.

Evaluation of the research management system must be carefully linked to the size of the research program, prior research experience of the depart-

ment, and the value system of the members of the department engaged in research. This is a tough job, but objective, realistic criteria need to be established to monitor the progress of the system.

There is a natural tendency for people to draw on the experiences of other disciplines and adopt a system such as Management by Objectives. Unfortunately, this does not universally work, and there are almost as many failures as successes with this type of program. In any event, the control function must be fairly and uniformly applied. Additionally, it is necessary that information (feedback) be regularly provided.

Planning

Planning is that management activity that requires most of the manager's time and attention. Planning is the *raison d'être* of management, and its importance cannot be overstated.

Planning is a continuous process of rationally selecting appropriate courses of action in order to maximize the organization's chances of achieving its goals. Obviously, planning requires knowledge of the past, present, and probable future developments so that courses of action can be identified and selected in relation to goals.

Goals are essential to the planning process because they indicate the purpose and direction of an organization. From general goals one can identify and establish a number of objectives, which are activities that must be accomplished in order to realize goals. As opposed to goals, objectives are specific, measurable states of affairs that should be obtained in a specified period of time.

After an objective set has been developed for each goal, it is appropriate to develop strategies that will accomplish the objectives. If there be only one course of action, the problem's solution becomes simple. This is rarely the case, however, since most objectives can be accomplished by several means. It then becomes necessary to identify the optimum strategy that will accomplish an objective.

Once the most appropriate strategy is selected, it becomes necessary to develop what is known as a functional plan, or work program. A functional plan is a step-by-step sequential work program that delegates responsibilities and activities to departmental personnel. A functional plan consists of all the elements of generic planning with the exception of scope.

A planning document with all of its goals, objectives, strategies, and functional work plans is totally worthless unless the plans are implemented. This, unfortunately, is a shortcoming of the experiences with the planning process. It is most important, therefore, to delegate responsibility and authority to departmental personnel for various work programs in the overall plan. Although there may be a research director who is ultimately accountable for the program, this person cannot carry out the total process alone.

A plan and its work programs must be evaluated. This evaluation should be based on whether or not the goals and objectives previously set are being accomplished. Revision of the total plan or any of its elements can occur anywhere in the planning process. Change occurs with the passing of time; hence, not only must the plan be examined as to the accomplishment of goals and objectives, but the goals and objectives must also be reexamined in light of change.

As indicated, planning is continuous; it never ends. Therefore, planning requires administrative commitment and willingness to follow through. Planning offers the advantage of providing not only direction but also the means of accomplishing what is desired. Unfortunately, action-oriented people are uncomfortable with this process; its success depends on the research director's ability to motivate, coordinate, and influence the behavior of others.

Management Styles

In this review the elements of management have been related to the framework by which research can be managed. As indicated, this process will ultimately be under the responsibility of a research director. Regardless of the particular management system chosen for a department's program, the managerial style of the director will be a major determinant of the success or failure of the system. One of the more widely accepted theories of management style is that of McGregor, who identified two management types, bipolar in nature.⁷

Applied to a research program in family medicine, the Theory X research manager would view the staff of a family medicine program as follows: Family physicians are believed to dislike research, will work as little as possible, and will resist attempts to change their behavior. Also, they must be rewarded, punished, cajoled, and con-

trolled into modifying their behavior. Additionally, they must have direct supervision supplied by the research director.

In contrast to the Theory X manager, the Theory Y manager believes that the family physician does not inherently dislike research, and that most family medicine physicians would be willing to participate in research provided they are aware of the mechanism for doing so. Additionally, family physicians want to satisfy personal, social, and other needs in the best way they see fit.

It would be difficult to advocate that Theory X could work in the family practice setting (or any setting, for that manner). Job satisfaction from research must come from individual achievement. Indeed, achievement is said to lead to motivation. The research director using the concepts of Theory Y management, therefore, must be aware that research cannot be mandated to the staff. Rather, he should devote his managerial efforts so that the individual's satisfaction from participating in research is maximized.

Summary

It is proposed that research programs, whether at the departmental level or at the individual investigator's level, can be managed. In actuality, an ideal system does not exist. Nevertheless, by judiciously incorporating the four elements of management into a unified, integrated system of people, information, and other resources, efficiency of the research process can be increased.

Given the increasing pressure for research development in family medicine, it is most important to use scarce resources in their most efficient manner. While this has been discussed in rather broad generalities, it is hoped that this discussion will stimulate consideration of the research management philosophy in the development of research programs in family medicine.

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