What Kind of Research in Family Medicine—Further Reflections

Peter Curtis, MD

The article by Gayle Stephens, MD, in the March issue of the *Family Medicine Teacher* reviews some of the beliefs and models of research that are seen to be particularly valuable and specific for family medicine.[1] He concludes that the research should be appropriate to the characteristics of family medicine and that we should be mindful of the social goal of more humane patient care. The article also suggests that research is a recent attribute of family medicine. However, research has always been part of general or family practice, particularly in the area of clinical observation in the 19th and early 20th centuries. It was the advent of biomedical technology and the growth of specialism that thrust general practice into the doldrums 50 years ago.

Background of Research in Family Medicine

In the past, some of the finest clinical and epidemiological research was undertaken by general practitioners such as Edward Jenner, Sir James Mackenzie, and Will Pickles. Their accurate observations, deductions, and interventions occurred at a time when the relationship of symptoms to pathological processes and the natural history of disease were the major areas of investigation for the medical profession. With the advent of biomedical techniques and the increasing sophistication of the basic sciences, observations moved into the hospital and laboratory setting. The belief subsequently developed that research was the province of only certain kinds of scientists.

(Fam Med 2000;32(6):389-92.)

Originally published: Family Medicine Teacher 1980; 12(6):8-11.

From the University of North Carolina at Chapel Hill.

For instance, Sir James Mackenzie noted:

> About 1883, I resolved to do a series of careful observations, entirely for my own improvement, never dreaming of research, for I was under the prevalent belief that medical research could only be undertaken in a laboratory or . . . in a hospital.[2]

This belief is still prevalent among the majority of primary care providers and carries with it a certain fear and antagonism. Eimerl coined the term *organized curiosity* to replace *research,* so that family physicians might not be so apprehensive about it.[3]

In spite of the tremendous growth of biomedical research, the natural history of disease and the recognition of early symptom patterns of disease are still relatively uncharted, particularly since new medical problems have come to the fore in the last 50 years (hypertension, chronic heart disease, arthritis, and the somatic effects of stress and lifestyle).[4]

Many common problems remain unresearched mainly because they occur outside the hospital and are unexciting to highly trained research professionals. In addition, the art of accurate clinical observation has become a rather neglected field of medical training and inquiry. One may then ask why this neglect has occurred? The answer may lie in Dawber's comments:

> The tremendous growth of medical research has created an echelon of professional researchers concentrated in academic institutions . . . . It has had little effect on the solutions of many of the problems in medical practice . . . . There is almost no opportunity for physicians in private practice to participate in the decision-making process [of what should be researchable questions]. Practicing physicians should have a much louder voice in suggesting the direction in which research should go.[5]

Britain has been a front runner in primary care research for the last 30 years, using large numbers of interested general practitioners as data collectors in "sentinel" practices. Some of these studies—for instance,

on the side effects of the birth control pill—have had important international significance.[6]

Four reasons may explain this progressive interest in general practice research in Britain:

- the renaissance of general practice as a discipline
- the encouragement of careful clinical observation by the representative organizations and university departments of general practice
- the open access to research resources, ie, advisors in epidemiology, biostatistics, and research design
- the opportunity to obtain a master's degree while remaining in private practice.

This situation does not generally occur in the United States. Perhaps one of the roles of the university department of family practice should be to give research support for the practicing physician who is anxious to become involved and to provide academic rewards, even to the extent of granting a degree.

Targeted or Basic Research?

There has been much discussion in recent years concerning the need for clinical or social relevance to research efforts, with strong suggestions that more targeted research was needed. This is to some degree reiterated in Dr Stephen's article. However, Comroe and Dripps demonstrated from studies where the clinical and social relevance was not at first realized that the advances in knowledge and clinical application came from basic research rather than from targeted or relevant projects.[7]

It seems, therefore, that basic research should retain an important and major role in any departmental research program. Is this compatible with the concepts and objectives of family medicine?

If one considers the definitions of basic research and key articles identified by Comroe and Dripps as contributing significantly to the advance of knowledge, family medicine fits in as well as any other clinical discipline. Comroe and Dripps define basic research as:

> When the investigator, in addition to observing, describing, or measuring, attempts to determine the mechanisms responsible for the observed effects. This can involve sick or healthy people, animals, tissues, cells, or subcellular components.[7]

This definition is very different from a commonly perceived idea of basic research—the manipulation of molecules or laboratory animals in an experiment whose value to society may be unclear. Basic research, therefore, does not mean that the activity becomes more basic or scientific as the units of inquiry become smaller and smaller.

In addition, the above authors defined a key article as one that:

1. had an important effect in the direction of subsequent research and clinical advances
2. reported new data, new ways of looking at old data, a new method, a new apparatus, or a new technique

The categories of key articles were:

- basic research unrelated to the solution of a clinical problem
- basic research related to a clinical problem
- studies not concerned with biological or physical behaviors, ie, descriptive
- review and critical analysis of published work and synthesis of new concepts
- development or engineering work to create or improve apparatus or a technique for patient care

The Value of Research in Family Medicine

Can family physicians and departments of family medicine undertake research that will develop new knowledge and lead to benefits for the community and the medical profession? The establishment of research capabilities in family medicine should provide the following postulated effects:

1. **Medical students**—provide an awareness of the scope of problems that still require investigation in primary care—encourage curiosity and self-criticism.
2. **Individual physician** (resident, faculty, private practitioner)—develop the capacity to think precisely and logically about a problem—the physician will become less open to the deceptions and the fallacies that exist in the medical literature.
3. Develop research in fields that have been relatively ignored, ie, early diagnosis, illness and health behavior, popular medicine (traditional), decision making in primary care, psychosocial factors in health care, the placebo effect, continuity of care, the family as a unit of care, etc.
4. Improve the research training of physicians entering primary care.
5. Establish new knowledge, synthesize concepts, develop new perspectives on established data.
6. Substantiate the existence of an academic component of family medicine that will be acceptable and equal to that of other disciplines.
7. Develop relationships between family medicine and other disciplines in the research area.
8. Improve health care for the individual and the family.

Research Strategies for Family Medicine

To develop strategies and an effective organization to undertake research in family medicine, certain prerequisites and definitions are needed.

1. Research may be basic or targeted and may occur in the biomedical, management, or behavioral fields. Original creative thought, serendipity, and inductive reasoning are all acceptable and are to be encouraged.
2. Research activity in family medicine consists of two major components:
   A. clinical investigation and observation, hypothesis testing, and critical thinking
   B. training in data collection, investigative methods, data analysis, and writing skills
3. The research laboratory for family practice is located in three main areas:
   A. University medical school setting where resources, teaching, and interdisciplinary activity are possible and desirable
   B. Hospital inpatient services at university and community hospital sites
   C. Ambulatory "practices" involving healthy and unwell people in their homes, communities, and workplaces

Suggested Strategies (Training and Rewards)

Training activities may occur in the following ways:

1. Medical student—research electives or summer assistantship programs in departments of family medicine, community medicine, and epidemiology
   Rewards—financial support, presentations at meetings, publications
2. Residents—courses in epidemiology and primary care research methods
   —involvement in individual or group projects
   Rewards—presentations at meetings, publications, self-esteem, acquisition of special skills
3. Fellows in family medicine—1- or 2-year postgraduate programs containing a major component of research training
   Rewards—acquisition of research skills, publications, presentations at meetings, improved job opportunities in academic medicine
4. Faculty—inservice training—either using resource persons within the department or taking specific courses in research methods
   —faculty development internship, ie, 4–8 week educational and practical programs, using a core curriculum with individual tutoring
   Rewards—acquisition of research skills, improved teaching capability, presentations at meetings, publications, possibility of grant awards, promotion, self-esteem
5. Private practitioners—short continuing education courses in research methods
   —part-time continuous training programs (ie, half day per week)
   —collaboration of project with academic unit
   Rewards—self-esteem, presentations at meetings, publications
   Could a further valuable stimulus to the practitioner be the award of a master's degree, obtained while actively in practice, as is the case of the MD thesis in the United Kingdom?

Characterishcs of Researchers in Family Medicine

It is interesting that the dean of the medical school quoted in Dr Stephens' article felt that the good researcher was one who pursued an area of knowledge over a prolonged period of time and published a great deal about his or her particular field. In contrast, the person who seemed to change direction frequently and write on a broad range of subjects was regarded as a dilettante and consequently rather ineffectual.

I see in this viewpoint some similarity between the perspectives and practice of the subspecialties (in-depth physician) and the family physician who deals with a broad range of problems but never very intensively with any of them (the dilettante). This again has some parallel with the classic discussion regarding the value of deductive reasoning (reductionism) compared to lateral thinking.

I believe there is a place for both kinds of thinking in research in family medicine. By virtue of their environment and personality, it is likely, in my view, that family physicians tend to be lateral thinkers and therefore will tend to move from one area of interest to another, sometimes connected by apparently tenuous logic. In the current phase of family medicine research, this behavior may be reinforced by a lack of resources, which restrict long-term, in-depth studies and promote small innovative projects.

Whatever the thinking processes, the characteristics of the researcher are infinitely variable and include at least the following items:

Research Activity	*Individual Main Attributes*
Data collection	Compulsive—cooperative
Data coordination	Compulsive—organized
Data analysis/ interpretation	Compulsive, mathematical, clarity of thought
Study design	Compulsive, curious, conceptualizes
Distribution of ideas and concepts	Persistence, enthusiasm, writing and speaking skills
Generation of ideas	Curious, creative, lateral thinking
Development of original concepts	Clarity of thought, creative, genius?

One person alone is unlikely to have all these attributes, and most will have only one or two that will be adequately developed. Those setting up research in family medicine need to be aware of these attributes in their coworkers and use this knowledge to develop complementary team collaboration.

These attributes are the cogs of the research and reasoning process that has followed two major patterns in the last 300 years. The first, the Baconian inductive method, consists of the accumulation of large amounts of data that lead to understanding and the development of natural laws and dogma. The second path follows Galileo's use of experience to create a hypothesis developed by an act of imagination. The hypothesis is then tested in controlled conditions.

ln spite of lip service to the hypothesis-testing model, the major proportion of medical research has been aimed at collecting facts and observations on a large scale. Yet, the important advances in knowledge have not come from this accumulation of facts but from the critical testing of hypotheses.

Conclusions

The three areas of family medicine research suggested by Dr Stephens—clinical, whole-person orientation, and illness rather than disease-related problems—are useful baselines to hold on to as reminders that research for its own sake is not often the province of the family physician. That does not mean that technology and the tremendous resources of the biological sciences and the humanities should be regarded with suspicion. Rather, they should be understood and accepted with eclecticism.

Although family medicine may have the opportunity, through its community and family base, to discover new information that is peculiarly its "province," research activity should continue to bridge the world of the medical school and the private practitioner. Further, research in family medicine can be basic, theoretical, targeted, or operational, as in any other specialty. The strategies available for encouraging this activity all require money, but, more importantly, will only succeed if there is curiosity, enthusiasm, and self-esteem among the participants.

Correspondence: Address correspondence to Dr Curtis, University of North Carolina, Department of Family Practice, CB 7595, Manning Drive, Chapel Hill, NC 27599-0001. 919-966-2683. Fax: 919-966-0536. E-mail: fmcurtis@med.unc.edu.

References

1. Stephens G. What kind of research in family practice. Family Medicine Teacher 1980;12(2):8.
2. MacKenzie J. Symptoms and their interpretation, fourth edition. London: Shaw & Sons, 1921.
3. Eimerl TA. Organized curiosity. J R Coll Gen Pract 1960;3:246-52.
4. Mumford E. Selective inattention to some subjects in medical research, Man Med 1976;2:65-70.
5. Dawber RT. Annual discourse—unproved hypothesis. N Engl J Med 1978;299:452-8.
6. The Royal College of General Practitioners. Oral contraceptives and health: an interim report. New York: Pitman Medical, 1974.
7. Comroe H, Dripps RD. Scientific basis for the support of biomedical science. Science 1976;102:105-11.
8. Medawar PB. The art of the soluble. Harmondsworth, Middlesex, England: Penguin Books, Ltd.