

Integrating Community Based Research into Residency Training

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Knowledge of and experience in both community medicine and research are important ingredients in the make-up of modern day family physicians. Although most family practice teachers agree with the statement, many remain in a quandary as to how to integrate these topics in the overall curriculum.

This paper presents one possible solution to this dilemma. Two examples are given whereby family practice residents perform community based research projects, thereby fulfilling objectives in both community medicine and research.

Family medicine residency training programs are faced with ever increasing educational demands. Beyond the obvious biomedical training requirements, residents are now expected to assimilate research skills, interviewing skills, and behavioral science skills along with an understanding of patients' sociocultural milieu. These training needs are important, but they are difficult to achieve for several reasons. Time is the most striking limitation. A three-year training period does not include many "free" blocks of elective time. Secondly, many of the above elements are not clearly defined in family medicine curricula. For instance, residents may be strongly encouraged to do research while research skills may be taught either superficially or not at all. Finally, faculty may be unprepared to teach a given set of skills. A faculty member with limited knowledge of medical sociology or anthropology could not be expected

to supervise adequately a resident's project on the folk medical beliefs of an ethnic subculture. The challenge, then, for many residency programs is to integrate realistically the above prioritized nonbiomedical elements into the three years of residency training.

This paper describes two successful attempts to combine research and community medicine objectives into a single package. Studies were designed, based on resident interest and time availability, that encompassed both educational and research benefits. Community medicine and research projects, when combined into one, were found to blend not only easily, but symbiotically.

Background

The family practice residency in which the studies took place is situated within Group Health Cooperative (GHC), a large, community based prepaid health plan in Seattle, Washington. The program has 12 residents, 4 in each year of training. The residency has placed increasing emphasis on both the community medicine and the research curricula. Didactic presentations are offered in both areas. Community medicine lectures and seminars are clustered in four subject areas: community health assessment, occupational and envi-

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ronmental health, the politics of health care, and medical anthropology and sociology. Basic knowledge in planning and conducting research is taught in 8 one-hour seminars. Residents and faculty, in groups of three to five, proceed, with the help of an experienced consultant, step by step through the different phases of a proposed research project using a research workbook by Gordon as a guide.¹

The above "classroom sessions" are integrated into the overall community medicine and research curricula, which include a required active experience of performing a "project." Project requirements include a written plan developed and approved well in advance of the community rotation block and a written and oral report afterward. "Research" is not a formal requirement, but the need for organized, dependable data invariably emerges during the planning phase. The following descriptions are of two such efforts carried out by three residents. The topics for study were in the areas of medical anthropology and sociology, and of occupational medicine, areas of preexisting interest to the three investigators.

The two studies will be summarized along with the planned learning objectives that preceded them. Next, the time requirements of the projects will be elaborated upon. Finally, evaluation of each of the efforts will be presented.

Description of Two Studies

Study Number One

This effort was an exploration of the depth and dimensions of illness behavior. Two residents in their second and third years of training collaborated with one faculty member in all phases of the study. Family practice residency patients were sampled; 104 individuals from 44 households chose to participate. Three research questions were examined: (1) what is the total volume of self-reported and self-perceived health problems occurring in three weeks? (2) what were the varieties of self-treatment administered for the problems? and (3) what meanings did these problems have to the individuals involved?

An open ended health diary was used to ascertain the total number of illnesses. Subjects were asked to record anything and everything that they considered a health related problem. For each

problem, the duration, perceived severity, treatment action, and the individual's name for the problem were acquired. Finally, upon completion of the three-week diary period, in-depth patient explanatory models (EMs)² were obtained on selected problems. The EMs were elicited by having subjects describe, in their own words, what they felt to be the cause, pathogenesis, and prognosis of their ailments.

The 107 persons studied recorded a total of 348 problems for an average of 3.25 episodes per person during the three-week diary period. At least one illness episode was experienced on 49 percent of the study days for the entire study population. Professional medical care was sought for 19 (five percent) of the problems. Finally, the explanatory models revealed an interesting trend. Although biomedical jargon was freely tossed about, a limited understanding of the meanings of medical concepts and terms existed. For instance, the term "virus" was frequently used, but further questioning revealed little comprehension.

Educational objectives of Study Number One follow:

1. Achieving active experience in all phases of a research project
2. Preparing a presentation and write-up of findings
3. Obtaining a sense of the volume and variety of self-care and family care occurring in a sample of family practice patients
4. Viewing the health care seeking process from a nonmedical (lay) perspective
5. Stimulating an appreciation of the overlap and, in some cases, friction between the professional and nonprofessional health sectors

Study Number Two

The second study was a survey of occupation related trauma in a rural Washington family practice. All trauma occurring over a one-month period was documented utilizing a revised form of a previously designed questionnaire.³

The practice was located in an area where the lumbering industry supplies the majority of jobs and where the lifestyle of much of the indigenous population is rugged.

During the study period, 182 trauma related visits transpired, with 73 of the injuries occurring in the work place. Many of the injuries were serious, with five resulting in hospital admissions and

one in death. Much of the physician's time and energy was found to be allocated to the care of trauma, and the general sense of the investigator was that much of the work related trauma was preventable.

The educational objectives of Study Number Two follow:

1. Active experience in all phases of a research project
2. Preparing a presentation and write-up of findings
3. Experiencing how the occupational habits of a community can impact the practice of medicine
4. Observing firsthand, by visiting lumbering operations, the potential work hazards embodied in this occupation
5. Appreciating the preventable nature of occupational injuries

Time Requirements for Conducting the Studies

An unfortunate characteristic of medical training in general and family practice training in particular is its piecemeal nature. Organized as a series of time blocks, the educational process directs residents through a series of rotations and clerkships. Required components of family medicine curricula are even denoted in terms of months.

Community medicine and research efforts that do not neatly conform to such blocks of time are nevertheless expected to do so. The two studies discussed here did conform to the above structure, but each in a different way. The two residents involved in the diary study each took one full month to conduct home interviews, collect health diaries, and obtain explanatory models. Administrative details (logging, coding, etc) and literature review were also handled during that time. The design, research question refinements, instrument development, and the construction of a coding manual were performed during the six months prior to the data collection phase. Three full half-days along with 5 one-hour blocks were allocated to the latter tasks, during which time the faculty member and two residents met together. The half-day and one-hour time slots were scheduled one to two months in advance in place of either specialty rotations or family practice clinic. Three half-days were similarly scheduled after the data collection in order to analyze and discuss the findings. The

writing of study findings and the preparations for presentation were done on the residents' "own time," along with much of the preparatory work such as sampling and obtaining clearance from human subjects experimentation committees.

The study involving occupational injuries was considerably less time consuming. The research question (What is the incidence of occupational injury in a rural practice over a one-month period?) was relatively straightforward. A slightly modified predesigned questionnaire was used, bypassing the development of such a tool. A literature review was available from the author of a related study.⁴ Preparation, then, involved 3 one-hour periods during which time methods for collection of data were discussed. The data were collected during a rural clerkship that was being performed by the resident. Twenty to 30 percent of the clerkship's time was allocated to the collection of data. The summary and tabulation of data occurred during 2 one-hour sessions the month following the clerkship. As with the first study, the write-up and preparation for presentation of results were performed during the resident's "own" (off-work) time.

Incalculable is the time spent planning meetings, tying up "loose ends," and maintaining constant communication lines between the residents and faculty member in a residency training program. Much of this necessary work was undertaken by the faculty member.

Evaluation

The two residents conducting the diary study filled out a written evaluation of the experience upon its completion. An outline of this evaluation is shown in Table 1. The participants were enthusiastic about the experience, both in its educational and research aspects. Each of the two had participated in studies previously, most often as research assistants in basic science research. However, neither had assumed a major active involvement in a study from start to finish, an opportunity that each felt was valuable, and neither had previously been involved in the publication of research (the above study has been published.⁴)

An open ended interview was also conducted in an attempt to assess the project's impact on the residents' clinical practice. As a result of involvement in this study, patient encounters were

Table 1. Summary of Participating Residents' Evaluation of the Diary Study*

Question	Response	Stated Values
What do you consider the most positive aspects of your involvement in the study?	<ol style="list-style-type: none"> 1. Home interviews 2. Involvement in the entire research process 3. Literature review 4. Content analysis of explanatory models (EMs) 5. Utilizing the health diary as a research tool 	<p>Adequate time to explore health beliefs</p> <p>Firsthand appreciation for rewards and work involved</p> <p>Gained a handle on the types of health care seeking research</p> <p>Discussion with faculty member concerning EMs as a research tool</p> <p>A good vehicle for understanding the variations of illness behaviors among individuals</p>
Describe any negative feelings you might have about the project.	<ol style="list-style-type: none"> 1. Time allocation and scheduling conflicts 	<p>Required more time than anticipated in an already busy schedule</p>
What changes would you make in order to improve the experience?	<ol style="list-style-type: none"> 1. Perform the project earlier in the residency 2. "Spread" the project out 3. Schedule more blocks of time for planning and analysis 	<p>This would afford time to apply the learning to clinical practice</p> <p>May help ease the time pressure</p> <p>May ease time pressure</p>

*The participants were in the second and third years of training during the study

viewed with a greater appreciation of the scope of illness behavior. Patients' explanatory models were also elicited more often, and their health beliefs were explored in more depth. The possibility of using the health diary as a clinical tool was also entertained, such as daily monitoring for side effects in patients taking toxic drugs. A more critical approach to medical literature also resulted from the discussion of research principles and the assessment of the literature review articles.

Residents were also asked to rank order, in terms of relative importance, seven family practice training "rotations" along with the diary study or a "comparable experience." The rotations in-

cluded were internal medicine, pediatrics, psychiatry, rheumatology, plastic surgery, ophthalmology, and intensive care. One resident ordered the project fourth in importance behind internal medicine, pediatrics, and psychiatry; the other, fifth behind the above plus intensive care. In essence, the project was perceived as less important than the "required" family medicine rotations and more important than common "elective" rotations.

The second study was evaluated via an informal, open ended interview with the resident participant. Rarely do physicians gain a firsthand appreciation of the true cause of disease. More often, a given disease is perceived as isolated from both the

whole patient and the patient's environment. By actually visiting work sites, interviewing workers and health personnel on those work sites, and inspecting the potential occupational health hazards, the resident gained an in-depth appreciation of the causes and potential "cures" of occupational injuries. An intent was expressed to pursue the interest with further study and community involvement upon beginning practice in rural Michigan.

Discussion

Both community medicine and research objectives can be achieved comfortably during residency training. Certain prerequisites for their achievement, however, are important. Faculty and resident support are essential. Flexibility in scheduling and supervision of projects are necessary. If a strong commitment to such efforts as described in this paper does not exist, the necessary planning and implementation stages simply will not take place. Also important is the availability of knowledgeable, competent, and interested consultants. University based departments of family medicine, schools of public health, and local health departments all serve as potential sources of consultation for questions related to both research and community medicine. Also, growing numbers of family practice fellowships are seeding numerous programs with faculty who are trained in research methods.

The efforts described in this paper were carried out with the total support of both the faculty and the residents. The net result has been a ripple effect, which has perpetuated interests in both research and community medicine. A residency research committee now meets monthly for the purpose of supporting and generating research ideas. Research related seminars also take place monthly in which "works in progress," research techniques, and critique of research articles are presented. All 12 residents are either planning a research project or have already begun one and most encompass the topic of community medicine. In brief, both research and community medicine have made a transition from added burdens on the overall family medicine curriculum to integral and enjoyable elements of the residency.

The specialty of family practice is presently struggling to develop a training format that embodies the essence of family medicine. Teaching physicians community medicine, sensitivity to patient

needs, and the importance of a person's sociocultural milieu are priorities for only some programs, even though most may philosophically agree that these issues are important.⁵⁻⁷ Residencies more often incorporate a series of biomedically oriented rotations, required and elective, which devour the full three-year period of training. The residents themselves often succumb to a panic state of not knowing enough "medicine." The all too common net result is a three-year rotating internship with the addition of a continuous family practice clinic experience.

The above curricular innovation is not intended to apply exclusively to family practice training; a similar approach could take place easily during training in other specialties as well, especially primary care residencies such as those in internal medicine and pediatrics. A need exists for practicing physicians of varied backgrounds to be active in the process of research,⁸ a need that will likely go unmet unless research skills are taught during the training periods of medical school and residency. The skills learned in community medicine can also benefit the students of specialties other than family practice. Most physicians could benefit from increased knowledge of their patients' social, cultural, and economic environments and how these forces influence the health of people. Acquisition of these skills by physicians may well lead to increased satisfaction levels for both physicians and the clients they serve.

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