A Curricular Model for a Rural Family Practice Clerkship

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MATHEMATICAL PROJECTIONS of the supply of and the requirements for health manpower are not the kinds of items picked up by the popular press. An exception was the 1980 report (*1*) of the Graduate Medical Education National Advisory Committee (GMENAC). Newspapers nationwide headlined GMENAC's conclusion that there will be a surplus of physicians by 1990 and that medical school enrollment should be cut by 17 percent.

In the ensuing controversy over possible reductions in funding for medical education, another GMENAC finding was ignored. Even in the face of an overall surplus, GMENAC asserted, there will be a persistent maldistribution of health manpower, geographically and by specialty. The committee recommended exploration of the role of medical schools in remedying the geographic imbalance. Its recommendation for correcting specialty maldistribution was even more cautious: the specialty mix in graduate medical education should be held constant (within the range of a 20 percent variation in the enrollments of residents in any given specialty) from 1979 to 1986, and "medical school graduates in the 1980s should be strongly encouraged to enter those specialties where a shortage of physicians is expected . . . or to enter training in general pediatrics, general internal medicine, and family practice" (*1*).

GMENAC's projection that an overall surplus of physicians will not ease shortages in certain specialties and in certain geographic areas implies that a version of the trickle-down theory does not fully apply to the distribution of medical manpower. The theory, fairly popular in the 1960's when the need for expanding medical school enrollments was a commonly debated topic, held that once the more lucrative and attractive practice opportunities in the suburbs and in the subspecialties were filled, new physicians would migrate toward the underserved rural and inner-city areas and toward what was then called general practice. Medical manpower would trickle down to meet the needs of the underserved regions and professions.

The validity of the trickle-down theory of medical manpower distribution is a topic of long-standing debate. The issue, essentially, is whether the market for medical manpower functions in accordance with the laws of supply and demand, so that surpluses in overserved professions and geographic areas will depress physicians' earnings in those fields and force a manpower redistribution. Based on persistent regional disparities in the physician to population ratio, as between the mid-Atlantic and Rocky Mountain States, Petersdorf, for example, proclaimed in 1975 that "The law of supply and demand does not apply to physicians. Even in areas that are patently overcrowded, there always seems to be room for at least one more competent doctor" (*2*). On the other side of the debate, Schwartz and co-workers (*3*) reported the results of a Rand Corporation study of the changing geographic distribution of board-certified physicians and concluded that the influence of market forces con-

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stitutes an adequate explanation of the observed increase between 1960 and 1977 in the numbers of specialists in small towns.

In projecting continuing maldistribution by specialty and by region, it appears that the long-laboring group of experts in GMENAC has come down on the side of the skeptics in this debate. Like Petersdorf, GMENAC apparently has concluded that the market for medical manpower has a strong built-in resistance to the influence of supply and demand.

If the medical manpower market will not correct itself, what is to be done? As in any economic situation, the alternative to *laissez faire* is public intervention. The range of feasible interventions is narrowing, however. The current Administration has been backing off from the strong intervention entailed in the National Health Service Corps scholarship program (no new scholarships), in the National Health Service Corps itself (emphasis on the private practice option for physicians with service obligations), and in the Community Health Centers and Rural Health Initiative projects where many Corps physicians have been placed (reduction in Federal funding and phased devolution to States). It should be noted that the National Health Service Corps scholarship program has had a definite and admitted tilt toward family practice and the other primary care specialties of general pediatrics and general internal medicine. Recipients of the scholarships are required to begin their tour of service no longer than 3 years after the completion of medical school, a timespan sufficient for the completion of a residency in family practice but not in surgery or a subspecialty.

It appears that the medical schools will, by default, be expected to play a more prominent role in influencing physicians to select the professions and the places where the need for them is greatest. No miracles should be expected. Most medical schools are oriented toward goals other than training physicians to serve the medically underserved or to enter the understaffed professions. In fact, one reason for GMENAC's prediction of 1990 surpluses of 150 percent and more above requirements in pulmonary internal medicine, neurosurgery, endocrinology, cardiology, rheumatology, nephrology, general surgery, and allergy-immunology is that many medical schools, by virtue of the kinds of role models to whom they expose their students, are oriented toward training specialists in these fields.

With the graduation of the class of 1982, the Department of Family Practice in the College of Human Medicine at Michigan State University attained its goal of having the proportion of our medical school graduates who go into family practice at least meet the 25 percent target set for all medical schools by the American Academy of Family Physicians. The principal strategy pursued by the department toward that goal has been to enhance the role of family physician faculty in two clerkships, a required block-time clerkship taken at the beginning of the third year and a required half-day-per-week ambulatory care clerkship taken in the third and fourth years. Neither of these principal strategies is discussed further here. In this paper, we report a secondary strategy that directly influences fewer medical students but appears to have a deeper impact upon each medical student who participates. The Rural Family Practice Clerkship is an example of how a medical school can attempt to influence students toward selecting a career in family practice, or at least in a primary care specialty, in a medically underserved area.

Rural Clerkship Curriculum

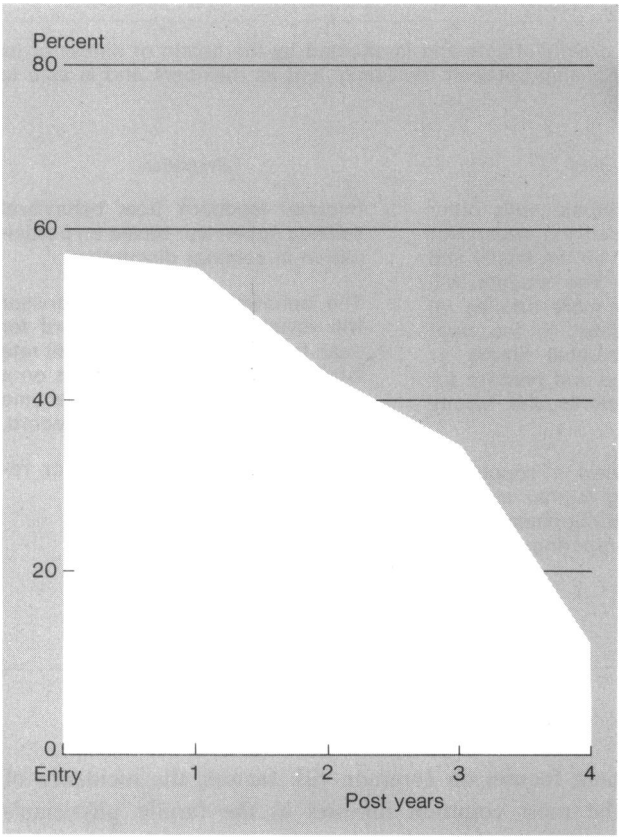
The Rural Family Practice Clerkship is offered as an elective to third- and fourth-year medical students in the College of Human Medicine. Placement of this clerkship within the curriculum, as an offering for third- and fourth-year students rather than for first- and second-year students, was deliberate. As shown in the chart, the rate of attrition from family practice in the college has been highest during the third year, when students are taking their required clerkships in medicine, surgery, pediatrics, psychiatry, and obstetrics-gynecology in the community hospitals with which the college is affiliated.

Anecdotal reports from medical students support the view that a more prominent role for family physicians is required in the clinical years if students are to retain their commitment to family practice. For example, a student about to graduate said:

> In the first two years MSU supports primary care and family practice. There is an integrated curriculum, and the focal problems as they are written are supportive of family practice. Many of the teachers are family physicians. But as soon as you get into the clinical years your mentors change. They become obstetricians, internists, and other specialists in the hospitals in the community campuses. They look down on family practice, and they let the students know it.

Research by Eagleson and Tobolic (*4*) reinforces the argument for vigorous participation by family physicians in clinical instruction. They found, from a survey of 27 Wayne State University graduates who had entered family practice residencies, that while 21 of the 27 residents had first considered family practice at the premedical stage, 19 had definitely decided on a career in family practice during their third and fourth years of medical school. The factor rated by the family practice residents as the most influential in their career decision was their participation in the third-year pri-

Composite trend of commitment to family practice for the 1978 to 1981 graduating classes of the College of Human Medicine[1]



[1]Each data point represents an average of the percent of students in each of the four classes who stated that family practice was their highest ranked career choice at each of the five stages (entry, post year 1, post year 2, post year 3, post year 4) of their medical education. Data are from the Michigan Longitudinal Study of Medical Student Career Choice, with the exception of post year 4, which is the average of the actual yield of medical students selecting family practice residencies.

mary care preceptorship that is required of all Wayne State medical students.

The number of students who have taken the rural family practice clerkship offered by the Department of Family Practice at MSU (six in northeast Michigan and three in southwest Michigan as of April 1982) is insufficient to allow a statistical evaluation of the impact of the clerkship on the professional choices and practice sites of the students who have taken the course. Instead, we offer the following description of the course for its inherent interest as an educational innovation, the goals of which are in accord with the recommendations of the GMENAC report.

A special feature of this clerkship is that the teaching responsibilities are split between the family physician teacher and a behavioral science instructor. Approximately three-fourths of the time is spent with the family physician. Initially, the student observes. Then, as the confidence of both student and physician progresses, the student assumes increasing responsibility for the care of the office patients. The student also carries out limited responsibility for some of the patients admitted to the hospital—especially those with whom he or she has had contact in the office. The student, physician, and behavioral scientist commonly make daily rounds together.

Without a local behavioral science instructor, accomplishment of the comprehensive curriculum of this family practice clerkship would not be possible. Through a grant from the U.S. Steel Corporation—which maintains a limestone quarry in the northeast Michigan region where this clerkship is taught—a behavioral science instructor (R.D.) was hired. In family practice electives in other areas of Michigan that do not have a behavioral science instructor, predefined curricular objectives usually have been secondary to the master-apprentice style of education.

The starting point for the design of the curriculum of this clerkship was a modular scheme for an undergraduate curriculum in family practice prepared in the School of Medicine in the University of California, Los Angeles (*5*). The 3-column format of the curricular guide for the rural family practice clerkship was adapted from the UCLA model (tables 1 and 2). A faculty committee in the Department of Family Practice at Michigan State (chaired by B.W.H.S.) designed 10 curricular modules for the rural clerkship: family orientation, the individual patient interview, problem solving and recording skills, manual skills, continuing and comprehensive care, health maintenance and education, community orientation, practice management, professional relationships, and professional identity. Within each module, themes and learning activities especially relevant to the rural environment are stressed. An educational experience of this kind that was rated most highly by the clerkship students is spending 3 days with a visiting nurse to see postoperative and long-term care patients in their farm homes.

Families selected for interview by the clerkship students have situations typical of those a family physician and his patients frequently encounter—a first pregnancy, the first child entering school, a major illness, a chronic disease, or a family with multiple problems, including socioeconomic ones. These situations are selected to reinforce and expand the students' skills and knowledge of interviewing, family dynamics, and the family life cycle, topics taught earlier in the preclinical curriculum of the College of Human Medicine.

The students also visit community agencies such as mental health centers, welfare agencies, and the courts. On these occasions they talk with members of the agency to learn more about the institution and its relationship to the families it serves. Contact with the court consists of attending part of a court hearing or

Table 1. Family orientation module of the rural clerkship curriculum, adapted from the University of California at Los Angeles model

Rationale: The family is the primary social unit we live in and it greatly affects and is affected by the health or illness of its members. The family physician is aware of this strong interrelationship between the family and its members and is able to address the family as a unit in providing care.[1]

Normal family development, terminal objectives	*Enabling activities*	*Evaluation*
The student will understand normal family development and can apply this understanding in treating family medical and emotional problems. Is aware of family developmental crises and the way they may present themselves in the medical setting. Is able to apply information on family history and development to the clinical setting via treatment and education plans. Can describe the interrelationships in a given family and use this knowledge to develop treatment or education plans, or both, to maximize the family's functioning.	The student will participate with other clerks and behavioral science supervisor in a discussion seminar on the family and the rural environment. The student will locate and review 3 or more articles on family illness as it relates to the rural environment from a medical library or other appropriate source and prepare for discussion with other clerks and faculty supervisor in seminar. The student will interview a couple together or the expecting mother and will use the normal family development report outline as a guide in preparing a written summary of the visit.	Informal feedback from behavioral science supervisor based on participation in seminar discussion. The behavioral science supervisor will review the medical record for each family interviewed and will rate family and behavioral sections on a scale of 1–5. The rating will become part of the formal evaluation record. Location: preceptor's office or remote clinical site.

[1] For additional reading see Worby and Gerard (6) and Worby (7).

trial relating to a medical issue such as child abuse, child custody, or malpractice. In each case, the student prepares a written report that is subsequently evaluated.

Another section of the curriculum is "The Individual Patient Interview." In the first years of training, the students have learned empathic and exploratory counseling skills. This clerkship is designed, in part, to reinforce the earlier learning. One clerkship student commented that in her other hospital-based clerkships there had been no evidence of the sort of empathetic interviewing style, stressing attention to the patient's emotions and life situation, which is emphasized in the preclinical courses in the college. As a consequence of taking this clerkship, she had been rereading her textbook on interviewing skills.

Commonly used manual and technical skills, covered in another module of the curriculum, include such items as taking throat cultures, giving injections, and drawing venous blood. Time is also spent studying commonly seen medical problems and, as the family physician consults other specialists, the student becomes involved in the referral process.

Still another module is devoted to "Continuing and Comprehensive Care." Alcoholism is recommended as the paradigm to study onset, clinical course over years, complications, management, patient education, and effect of the disease on both patient and family.

In the module on "Health Maintenance," the student focuses on common risk factors, the incidence of the most common illnesses in the family physician's practice, and learning about less common but reversible and controllable diseases.

Rural families with characteristics such as poverty, minority racial or ethnic status, and residential distance from hospital facilities are interviewed by the student in order to complete the module on "Community Orientation." With varying assumptions as to the availability of resources, the student is asked to outline strategies for more adequately meeting the health care needs of disadvantaged families within the service area of a rural medical practice.

The "Practice Management" module requires the student to examine factors affecting the financial viability of a rural practice, such as the collection rate, the proportion of the patient population covered by insurance or governmental medical assistance, staff salaries, and patient volume.

The emphasis of the "Professional Relationships" module is on how the student and physician relate to a multitude of other professionals—other family physicians, other specialists, nurses, health nurse clinicians, physician assistants, and mental health workers. Finally, in the "Professional Identity" module, the student is asked to investigate how health professionals of various types cope with problems of burnout and isolation in a rural setting.

These examples illustrate how the clerkship curriculum gives strong emphasis to those features of medical care that are specially important to family practice. Clerkships in the traditional disciplines of internal medicine and pediatrics rarely cover such topics. Students' reviews of this highly structured approach to teaching a clerkship have been uniformly favorable. One student described the course as "a noble attempt at developing a meaningful family practice clerkship."

Careful recruitment and selection of the clerkship faculty, including physician preceptors and the behavioral science instructor, has contributed not only to the quality of the clerkship as an educational experience, but also the reception of the clerkship at the field sites. A local advisory committee was asked to interview and screen applicants for the part-time behavioral science position, which was advertised in local newspapers. Involvement in personnel selection for the clerkship program has helped to bridge the gap between the university and its local supporters, by giving them a sense of critical participation in medical school affairs.

Departmental participation in evaluating the performance of the clerkship students has been accomplished mainly via the local behavioral science instructor, who holds an appointment in the Department of Family Practice. For students to obtain credit for the course as an 8-week elective, the behavioral science instructor must certify that 80 percent of the clerkship objectives have been met; for the 6-week version of the course, 60 percent of the objectives must have been met. The department clerkship coordinator and other family practice faculty from the college also visit the field sites each time the clerkship is taken. At the conclusion of each clerkship, reports on student performance from the behavioral science instructor and from the assigned physician-teacher are reviewed by the departmental clerkship coordinator before a grade is assigned.

National Health Service Corps

After several meetings with family physicians in northeast Michigan, a small group of physician faculty was selected for the clerkship in 1978. One of the best of these physician teachers was serving his obligation in the National Health Service Corps at the time that the rural clerkship program began. The Rural Health Initiative clinic where he was posted was an excellent instructional site, since it had connections to the rural community through its board of directors and through linkage agreements with many social service agencies serving northeast Michigan. Students have reported that they especially appreciated the opportunity to collaborate with a physician assistant and a nurse practioner in this clinic, because they could not participate in team medical care with allied health professionals in their standard hospital-based clerkships.

Without originally intending to, we found that we had created a clerkship that was well suited to training medical students who were looking forward to duty in the National Health Service Corps because of their scholarship obligations. Two years after our rural clerkship planning had begun, a monograph was published

Table 2. Practice management module of the rural clerkship curriculum, adapted from the University of California at Los Angeles model

Rationale: For a physician contemplating practice in a medically underserved area, where the financial viability of medical practices is likely to be fragile, it is especially important to comprehend the economics of such practices and to master some of the fundamentals of practice management.

Terminal objectives	*Enabling activities*	*Evaluation*
The student will appreciate the influence of the service area and its characteristics on the capacity of the rural practice to attain self-sufficiency.	The student will describe the medical service area of a rural health center along the following dimensions: total population, percentage of population enrolled as patients, average income, percentage below poverty income, percentage elderly, percentage insured, and range of available inpatient services.	The executive director of the rural health center will review the student's work and will discuss the student's performance with the behavioral science instructor.
The student will appreciate the influence of collection rates, expenditure rates, and provider productivity on the capacity of the rural practice to attain self-sufficiency.	The student will classify the rural health center as belonging to system, 1, 2, or 3 according to the criteria in the Rosenblatt and Muscovice (*8,9*) articles.	
	Using data from the rural health center, the student will plot the 4 graphs shown as figure 2.5 in the Rosenblatt and Muscovice article (*9*).	

about the training of National Health Service Corps scholarship students. The authors, Madison and Shenkin (*10*) of the Rural Practice Project in North Carolina, set forth an ideology of medical education that justified in retrospect much of what we had attempted in launching a rural family practice clerkship in the remote, medically underserved region of northeast Michigan. Paul Werner, a family physician who headed the faculty of our college's Upper Peninsula Medical Education Program, commented that Madison and Shenkin's monograph was the most exciting think-piece in medical education that he had read in years. (Dr. Werner was also a key faculty planner of the northeast Michigan project. He is now assistant dean for undergraduate medical education at Mercer University in Georgia.)

Revision of the clerkship curriculum has been facilitated by comparisons with the content of a course designed by one of us (B.W.H.S.) for first- and second-year medical students considering practice in medically underserved areas. That course—a direct result of Madison and Shenkin's monograph—covers in a more didactic way many of the same issues that are addressed experientially in the rural family practice clerkship.

Replication

With support from a Federal grant received by the Department of Family Practice in the fall of 1980, the rural family practice clerkship model that was initiated in northeast Michigan has been duplicated in a rural area of southwest Michigan, in the opposite corner of the Lower Peninsula of the State. The criteria for the selection of the second clerkship site in southwest Michigan included a stipulation that the southwestern rural clerkship site must have the following characteristics: (*a*) a moderate-sized town in which there is a community hospital and group of board-certified family physicians, (*b*) adjacent to the town, a medically underserved rural area in which there are one or more Rural Health Initiative clinics staffed by National Health Service Corps physicians who are family practice residency graduates (many NHSC physicians start their tour of duty after a single internship year), (*c*) evidence of cooperation in patient care (such as shared call schedules) between the family physicians in the town and in the rural clinics, (*d*) indications of dedication to medical education by the two groups of family physicians, who must be willing to teach without financial reimbursement, and (*e*) a strong supportive network of social service agencies (such as for alcoholism, mental health, and the elderly) in the town and the adjacent rural area.

As in the original rural clerkship project, a part-time local behavioral science instructor has been hired. During the first run of the southwest Michigan rural family practice clerkship in the summer of 1981, one student was placed with a family physician in private practice at the county seat of Allegan, and another student was placed with a family physician in the National Health Service Corps, who practices at a Rural Health Initiative clinic in the outlying village of Pullman. The behavioral science instructor worked with the students and physicians at both sites.

Discussion

Psychologically, the greatest need of medical students is to prove to themselves that they can perform as physicians. Many medical students would be happy to skip their classwork and their examinations and to plunge ahead with patient care under the supervision of "real" physicians—the way physicians were trained years ago. Thus, predictably, all medical students who have taken the rural family practice clerkship have reported favorably on their patient care experiences. According to one student, family practice works best in small towns, and this clerkship allows students to take part in family practice at its best.

Reaction to the "medical" aspects of the clerkship was summarized as follows by a student:

> The variety of problems that the patients presented was amazing. I thought I was going to see a lot of sore throats, colds, etc. But each day brought several challenging problems. I saw, for the first time, a person with Addison's disease, one with Myasthenia Gravis, and other problems the variety of which was equal to anything I had experienced on any of the previous clerkships. A new aspect of the same problems I had seen on internal medicine was presented by hearing the complaints at an early, unsubstantiated stage. As a hospital student, the admitting physician always gave me his own selective interpretation of the patient's problems, and some direction for diagnosis. But there is nothing like talking to the patient from the beginning, before another doctor has put words in his mind, then deciding which patients require working up and to what depth.

Students' acceptance of those components of the curriculum in which the behavioral science instructor participates more than the family physician varied. A few students objected to whatever scheduled activities take them away from direct interaction with their physician-teacher, either in the office or the hospital. In the opinion of the family physicians concerned, those same skeptical students were most in need of improving their sensitivity to family and psychosocial aspects of health care. Furthermore, the volunteer physician teachers were pleased that they did not have to supervise the clerkship students continuously; in an 8-week clerkship, a student who is between his third and fourth years of medical school is near the balance

point between a beginning student who clearly imposes a net drain of time or money from the physician and a resident who could contribute to patient volume and cash intake. Occasional breaks from supervising the medical student allow the physician to catch up with other aspects of his practice.

Depending on their personal interests and background, the less skeptical students became enthusiastic about various aspects of the clerkship curriculum. One student was intrigued with tracing the physician productivity and economic self-sufficiency of a Rural Health Initiative clinic. Another student was especially appreciative of the opportunity to hold family interviews, under the guidance of the behavioral science instructor.

This elective clerkship does have limitations. Most importantly, it is limited in size. The rural family practice clerkship can be offered at a given time in a given region (such as northeast Michigan) to only a few students. The chief constraint is the number of family physicians in the area who are qualified and willing to serve as teachers. Willingness to teach is crucial, because the College of Human Medicine does not pay its clinical physician faculty. And from that small pool of family physicians in a rural area who are willing to teach without compensation, those who are well qualified and would be good role models must be selected with care and diplomacy. It appears that in each region where we have set up the rural clerkship—the northeastern and southwestern corners of the Lower Peninsula of Michigan—its carrying capacity is limited to three, maybe four, students during any cycle. If this were a more traditional preceptorship, in which the physician was the only teacher, then many more physicians and teaching sites could be used. As it is, the behavioral science instructor can work only in a limited geographic area which has a limited number of family physicians. Thus, there is a tradeoff between the student absorption capacity of the clerkship program and the sophistication of the clerkship curriculum, which in our comprehensive form required the participation of the behavioral science instructor for its completion.

Another limitation of the clerkship is more characteristic of progressive medical education in general. All three behavioral science instructors hired for the clerkship—two in northeast Michigan and another in southwest Michigan—have expressed uneasiness about their legitimate place in a remote-site program in clinical education. They do not have the proximate authority of a medical school or a residency to back them up and make it plain that what they say is to be heeded. They have come to recognize that they must depend upon the endorsement of the physician-teacher, who has more immediate credibility in the eyes of the medical students. One of the best ways to obtain that endorsement, it has been found, is for the behavioral science instructor, physician, and student to make hospital rounds together.

Conclusion

Within the scope of its limitations, the rural family practice clerkship has made its mark on the clinical education of some students in the College of Human Medicine. Those clerkship students who have held National Health Service Corps scholarships—about half of those who have enrolled in the elective—have said that they obtained a clearer idea of the sort of practice they would be heading toward when they did their tour of service in a medically underserved area. And all of the students, whether or not they opted for family practice as a career, have said that the clerkship afforded them a vision of the issues that a family physician must deal with in small-town or rural practice.

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