

The Effect of a Course in Family Medicine on Future Career Choice: A Long-Range Follow-Up of a Controlled Experiment in Medical Education

Roger A. Rosenblatt, MD, and Joel J. Alpert, MD
Seattle, Washington, and Boston, Massachusetts

The career choices and professional behavior of three cohorts of students who participated in a family medicine program were studied by mail questionnaire. Cohort I (1957-1960), as part of an educational experiment, had been randomly assigned to the course; unselected classmates were used as controls. Cohort II (1961-1965) and Cohort III (1966-1970) were volunteers; alphabetically adjacent classmates were used as a comparison group. The results suggest that the impact of a given medical school course on future behavior must be evaluated in the context of general medical school orientation and societal trends extraneous to the school itself.

The renaissance of family medicine as an academic discipline in the United States has multiple roots.¹ The 1966 publication of the Millis and Willard reports catalyzed the development of academic departments of family medicine.^{2,3} In one decade the number of such departments grew from none to 91, and in 1977, 83 percent of US medical schools had identifiable family medicine administrative units.⁴ Yet, the intellectual ferment that prepared the fertile ground into which the Millis report was planted had begun many years before. The basic concern expressed by many educators was that medical schools in the post-war era were concentrating on a reductionist, exclusively

bioscientific approach to the education of future physicians.^{5,6} A number of early attempts were made to modify this educational approach.⁷

In July of 1963, Stokes et al reported at length on an experiment in the teaching of family medicine that had begun at Harvard Medical School in 1953.^{8,9} The program was noteworthy in that it was conceived and executed as a controlled experiment. Students were stratified on the basis of academic standing, and a random portion of the class was assigned to a newly established Family Health Program. Evaluation was rigorous and ongoing, using a series of instruments specifically designed for the experiment by the Educational Testing Service of Princeton.

Each member of the experimental group was assigned to become the family physician for an entire family. The families selected usually were multigenerational and whenever possible contained one pregnant member. The students, under the supervision of a preceptor during their third and fourth years of medical school, made home

From the Department of Family Medicine, University of Washington School of Medicine, Seattle, Washington, and the Department of Pediatrics, Boston University Medical School, Boston, Massachusetts. Requests for reprints should be addressed to Dr. Roger A. Rosenblatt, Department of Family Medicine RF-30, University of Washington School of Medicine, Seattle, WA 98195.

visits, saw members of their families for scheduled and acute visits, and participated in weekly seminars and case discussions revolving around the care of their families. The test instruments were administered to both the experimental group, comprising 10 to 20 percent of five successive medical school classes, and the rest of the medical school class. The major objective of the instruments was to determine the students' knowledge of and acquaintance with ancillary health care facilities available in the community and to measure the "student's awareness of the importance of social and environmental factors in the practice of medicine."⁸

Stokes and his colleagues did not find significant differences between the experimental and control groups. They were unable to demonstrate that students randomly assigned to a family medicine experience had any changes in their knowledge or their attitudes as expressed in the instruments that were administered. The authors offered a number of potential explanations for the lack of a significant difference: the experiment was a relatively small part of the students' total experience; students who were randomly assigned to an experiment conducted largely in their "free time" may have resented the experience; other elements of the curriculum may have concentrated on similar materials; and Harvard, at the time of the experiment, lacked any faculty members who could act as viable role models of family physicians. In addition, students delivered on the average only about 20 percent of the services received by their assigned families.

However, it is also possible that the instruments were insufficiently sensitive to detect the differences generated by the experiment. Since it is exceedingly rare to be able to follow the results of a rigorous controlled experiment in the field of medical education, this study examines potential behavioral differences between the experimental and control group as reflected in their future career choice.

Method

The primary source of data for this study was a questionnaire which focused on the careers of medical students at Harvard Medical School subsequent to graduation. The questionnaire was designed to elicit information about postgraduate training, choice of specialty, acquisition of spe-

cialty boards, and subsequent achievement. In addition, the questionnaire elicited information about the physicians' current work arrangements, including practice organization, amount of time spent in various activities, and amount of practice that was family-oriented or consisted of primary care.

The questionnaire was sent to three cohorts of Harvard students in 1971. The first cohort (I) encompassed the period during which the experiment discussed above was being administered, and included those classes that graduated in the years 1957-1960. In these years, every alumnus of those classes received the questionnaire, and the sample was differentiated into control or experimental group on the basis of whether or not an individual respondent had been assigned to the Family Health Care program. In the 1960s, the Family Health Care experience was incorporated into the regular curriculum as an elective, and was taken by approximately 15 percent of each successive class. For the subsequent two cohorts (II and III), encompassing the classes from 1961-1965 and 1966-1970, respectively, classmates who were listed alphabetically adjacent to the participating students were selected as the comparison group, and all the students who had elected the clerkship and the comparison groups received questionnaires.

The questionnaire was sent out to a total of 894 alumni, 447 in Cohort I, and 137 and 128 to Cohorts II and III, respectively. A cover letter was prepared by the Dean of the Medical School encouraging cooperation with the study, and two follow-up mailings were sent to initial nonresponders. Eighty-three percent of the sample universe of 894 completed and returned questionnaires.

The data were analyzed for differences, both within and among cohorts, that could be attributed to the impact of the physicians' inclusion in the Family Health Course. The three different cohorts were compared to see if there were differences in career choices among these Harvard alumni over time. The data are presented in tabular form in Table 1.

Results

The Experimental Cohort—1957-1960

The first cohort is split between a classical control and experimental group. The data demonstrate that in behavioral terms there was no impact

Table 1. Impact of a Medical School Course in Family Medicine on Residency Training and Speciality Choice in Three Cohorts of Harvard Medical Students

	Cohort I (1957-1960)*		Cohort II (1961-1965)*		Cohort III (1966-1970)*	
	Participants (N=86)	Non-participants (N=361)	Participants (N=70)	Non-participants (N=67)	Participants (N=66)	Non-participants (N=62)
Percentage of Respondents Selecting Following Types of Residency Training						
Internal Medicine	37	35	30	36	36	37
Surgery	20	24	14	19	11	18
Pediatrics	4	7	11	5	8	2
Other or None	39	34	45	40	45	43
Totals	100	100	100	100	100	100
Percentage of Respondents in the Following Major Medical Specialty Areas						
Internal Medicine	31	28	31	27	36	37
Surgery	23	23	13	15	14	27
Pediatrics	5	6	12	6	12	2
Psychiatry	9	11	11	10	12	7
Public Health and Preventive Medicine	2	2	4	5	11	8
Family Medicine/General Practice	0	1	1	0	6	3
Other	30	29	28	37	8	16
Totals	100	100	100	100	100	100
Percentage of Respondents Indicating the Medical School Experience With Greatest Impact on Career Choice						
Clinical Rotation	53	53	53	42	49	55
Pre-Clinical Course	2	3	3	9	0	2
Independent Experience	6	6	8	8	3	3
Family Medicine Course	5	0	7	0	15	0
Other or None	34	38	29	40	33	40
Totals	100	100	100	100	100	100
*Years of graduation from medical school						

that can be attributed to participation in the family medicine course in the third and fourth years of medical school. Although five percent of the experimental group singled out the family medicine course as the medical school experience most significant on their future career choice, they, like their confreres, became primarily specialists in other areas, seeing patients on a referral basis.

Comparisons Within Cohorts II and III

In Cohorts II and III, third year students were able to elect a family medicine experience lasting one academic year. In the latter years of the program, the locus of the experience was shifted from the Massachusetts General Hospital to the Boston Children's Hospital and was incorporated into the Harvard curriculum. The two directors of the program during this era were pediatricians. Although the differences do not attain statistical significance, there is a tendency in both of the cohorts for students who elected the family medicine course to take residencies and choose careers in pediatrics and not to pursue surgical training and careers. In Cohort III, respondents who elected the family medicine clerkship report that 28 percent of their practice is devoted to medical care of families as opposed to 11 percent of the clinical activities of the comparison group. However, at the time of the questionnaire distribution, more than 50 percent of this cohort were still in the military or in some postgraduate training, so that it is unclear whether this difference will persist as the members of these classes establish permanent practices.

Trends Over Time

There are no statistically significant differences to report among the three cohorts with respect to career choice. When each cohort is aggregated, only two disciplines show trends. The number of Harvard graduates listing family medicine as their major clinical activity rises from zero percent in Cohort I to one percent in Cohort II and to five percent in Cohort III. This trend is paralleled in the field of public health and preventive medicine, where the percentages for the three cohorts are two percent, four percent, and nine percent, respectively. Internal medicine, surgery, and pediatrics together claim between 47 and 58 percent of each cohort. Psychiatry claims about ten percent

of each cohort, and the remainder are scattered in other specialties.

Discussion

The evaluation of discrete interventions in medical education is rarely rigorous. The current exponential growth of family medicine as an academic discipline has focused attention on curricular innovation in this field. Yet there is dearth of carefully controlled educational experiments which shed light on which characteristics are important in transmitting the knowledge and values important to family medicine to future medical students. Even more importantly, there is little which relates curricular content to the future behavior and career choices of medical students.¹⁰⁻¹²

This study is important from several aspects. First, it has historical significance as one of the very early attempts by a major medical school to inject a family medicine orientation into a traditionally structured medical school oriented almost exclusively to narrowly based specialties. Secondly, from a methodological standpoint, it represents a fairly classical experimental design with random allocation of a significant proportion of four medical school classes to an experimental course. In retrospect, however, the independent variable being studied, the family medicine course, was not as major an innovation as perhaps might have been offered. Finally, it allows for a relatively long-term follow-up in which the behavioral consequences of an educational experience can be assessed.

The data are remarkable in the lack of significant differences among various groups, either within cohorts or over time. The very stability over a 15-year period of the product of a prestigious medical school demonstrates some of the inertial characteristics of medical education. It suggests that medical schools tend to transmit fairly consistent values and orientations to students over time.

The minor trends that do develop seem to indicate that forces outside the medical school may have more of an effect on student behavior and career choice than do individual courses. The increase in the number of students going into family medicine and public health, which is shown in the study, is documented by Funkenstein in his study of medical students over three eras; this study parallels the transition he describes from the Scientific Era to the Community Era.¹³ This study,

which ended with the class of 1970, extends to the end of the Scientific Era. The following year saw the introduction of major curricular changes, and the establishment of family medicine residencies as a viable alternative for graduating seniors. Prior to 1971, the lack of such residencies prevented even interested students from seriously considering such a professional track, especially since they had been inculcated with the perception that a residency was a necessary prerequisite to clinical practice. Perhaps the increasing numbers of students entering the field of public health and preventive medicine indicates that this area was a surrogate for those who might otherwise have elected family medicine careers.

An analysis of the comments appended to the questionnaires demonstrates that the respondents clearly recollect the course to which they were assigned or which they elected. Particularly interesting are the comments among those assigned to the experimental group in Cohort I. The respondents indicate three major factors which may explain the relative lack of influence of the course. First, they cite that the coercive aspects of being assigned to an experimental experience in their "free time" generated resentment. Secondly, many cite the disdain for primary medical care which permeated the educational environment at the time of the assignment. Thirdly, a number of the respondents mention that they did not see any credible examples of family physicians among their preceptors during medical school. In this regard, students in the two later cohorts who elected the family medicine electives, showed a tendency to go into pediatrics during an era when the major figures in the course were pediatricians. Perhaps, had the course been led by family physicians, a greater proportion of the participating students would have elected such a career. The current effort to develop residencies in primary care pediatrics and internal medicine acquire an added importance in changing the medical school environment to be more supportive of the full spectrum of primary care.

An interesting hypothesis that emerges from this inquiry is that curricular innovation has relatively little direct effect on the students to whom it is directed. Rather, changes in the academic environment and experiments in curricular design have an effect by permeating into the intellectual substratum from which the structure of medical

education emerges. Thus, while the rather major effort to instill family medicine into the curriculum at Harvard in the 1950s had no demonstrable effect on the first students to take the course, it did result in making a family medicine experience an available part of the elective curriculum¹⁴ for the next 15 years and perhaps making later primary care innovations possible.¹⁵ It may also have inspired a generation of that era, as did other experiments in medical education,⁷ thus laying the foundation for the later major revisions in medical school curricula in general that paralleled the growth of family medicine, and now primary care, as academically acceptable disciplines.

Acknowledgements

Supported in part by grants from the Commonwealth Fund, United States Children's Bureau (12HS-118, 12), Family Health Foundation, National Center for Health Services Research and Development, and The Theodore Schulze Foundation.

References

1. McWhinney IR: Family medicine in perspective. *N Engl J Med* 293:176, 1975
2. Millis JS (chairman): The graduate education of the physician. Report of the Citizens Commission on Graduate Medical Education. Chicago, American Medical Association, 1966
3. Willard WR (chairman): Meeting the challenge of family practice. Report of the Ad Hoc Committee on Education for Family Practice of the Council on Medical Education. Chicago, American Medical Association, 1966
4. Baker RM, McWhinney IR, Brown TC: Undergraduate education in family medicine. *J Fam Pract* 5:37, 1977
5. Haggerty RJ: Family medicine: A teaching program for medical students and pediatric house officers. *J Med Educ* 37:531, 1962
6. White KL: Family medicine, academic medicine and the university's responsibility. *JAMA* 185:192, 1963
7. Lee PV: Medical Schools and the Changing Times. Evanston, Ill, Association of American Medical Colleges, 1962
8. Stokes J, Cliff N, Blodgett FM, et al: An experiment in the teaching of family medicine. *J Med Educ* 38:539, 1963
9. Stokes J, Cliff N, Riche CV, et al: The effect of a course in family medicine on medical student skills and attitudes. *J Med Educ* 38:547, 1963
10. Harris DL, Bluhm BP: An evaluation of primary care preceptorships. *J Fam Pract* 5:557, 1977
11. McWhinney IR, Molineaux JE, Hennen BK, et al: The evolution and evaluation of a clinical clerkship in family medicine. *J Fam Pract* 4:1093, 1977
12. Herman MW, Veloski J: Family medicine and primary care: Trends and student characteristics. *J Med Educ* 52:99, 1977
13. Funkenstein DH: Medical students, medical schools and society during three eras. In Coombs RH, Vincent CE (eds): *Psychosocial Aspects of Medical Training*. Springfield, Ill, Charles C Thomas, 1971, pp 229-281
14. Alpert JJ: Educating the physician toward a solution. *Arch Intern Med* 127:85, 1971
15. Alpert JJ, Charney E: The education of physicians for primary care. In *Public Health Service, Bureau of Health Services Research* (Rockville, Md). DHEW publication No. (HRA) 74-3113. Government Printing Office, 1973