

Family Medicine in the Undergraduate Medical Curriculum

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Family medicine has become an integral part of the undergraduate medical curriculum in many schools. The process of developing this important segment of the curriculum has encountered many difficulties which have centered around the particular phase in which family medicine is introduced in the student's development.

The student must recognize family medicine as an academic discipline comparable to, and as important as, other traditional specialties. Through the use of the model practice unit, the development of cognitive behavioral objectives, and the provision of continuity of care experiences during the undergraduate medical curriculum, the student can grow to understand that family medicine is, in fact, as academically strong as other more traditional specialties. This article describes the experience, problems, and the development of these components in one medical school.

In the years since the Millis and Willard reports,^{1,2} family medicine has become an integral part of the undergraduate medical curriculum in many medical schools. The process of developing this important undergraduate offering has been fraught with difficulty in many institutions. The difficulties, in some measure, have centered around acceptance by academic medicine administrations and more established departments within the medical school. In fact, the more successful family medicine departments have developed in institutions in which there is strong support for the department from academic administrations and the traditional medical school departments.³

In order for family medicine to be successful, the student must recognize it as an academic discipline comparable to, and as important as, other traditional specialties. This can be accomplished through the use of the model practice unit, the development of cognitive behavioral objectives, and the provision of a continuity of care experience during the undergraduate medical curriculum.⁴ This article describes the experience and the development of those components at one institution. It also illustrates potential problems.

Background

At last count, the Association of American Medical Colleges (AAMC) Directory included departments of family medicine in 98 of the nation's 131 medical schools.⁵ The logical consequence of

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this development has been the establishment of family medicine undergraduate medical curriculum offerings. The curricular offerings have varied with the inclusion of family medicine in Behavioral Science, Interviewing and Communications, and Introduction to Clinical Medicine, as well as with some formalized clerkships in Family Medicine. Perhaps one of the strengths of family medicine offerings revolves around the fact that many faculty members come from practice settings and as such are anxious to learn educational skills and to develop learning objectives.⁶

Many problems exist in developing undergraduate offerings in family medicine. For example, the cognitive information in family medicine has not been recognized and given credibility by inclusion in the National Board Examination. Some medical educators question whether there is unique content in family medicine or whether it is merely a process specialty.⁷

Given such a climate, it is timely to illustrate some successes and failures with the development of an undergraduate medical curriculum in family medicine.

The College of Community Health Sciences is a clinical campus of the University of Alabama System Medical Education Program, and as such, provides the clinical clerkships for limited numbers of undergraduate students.

In order to ensure that students received adequate instruction in programs reflecting the college's mission, the Curriculum Committee allocated blocks of curricular time to the Department of Family and Community Medicine, a two-month block in community medicine, a one-month block in family medicine, and one half-day per week continuity of care experience throughout the last two years of medical school.

Goals and Objectives

The initial task of the Department of Family Medicine was to define the goals of these curricula and from these to develop specific behavioral objectives which might be achieved by students during their undergraduate study.

The department identified the five philosophic

cornerstones of family medicine as the basis of curriculum development.

1. Family medicine is, by definition, family centered and focuses on the dynamics of the interaction of the patient, the family, and the diseases or states which affect the family and its members.

2. Family medicine is comprehensive and encompasses preventive, therapeutic, and rehabilitative maneuvers to assure an optimal state of physical, mental, and social well-being for the family and its members. The family physician must understand his broader responsibility to the management of care for his patients and must know how to serve as the coordinator and interpreter for other health care related resources in the community, which assist in the carrying out of his responsibility to the family.

3. Continuing care is the responsibility of the physician to follow the family and its members over time, to assume responsibility for their health or lack of health, and to provide a focus for the ongoing relationship of the family and the health care system.

4. Primary care or ambulatory care requires knowledge, skills, and attitudes that allow the physician to provide for the care of 90 percent of the diseases or conditions that affect people. The family physician must acquire the knowledge and skills which allow him to serve as an effective scientific practitioner of medicine.

5. The family physician is aware of and continually evaluates the patient's and the community's impression of his care, and he continually evaluates the care of patients so that he may constantly improve the quality of care.

A series of behavioral objectives was developed to reflect these goals. These objectives were initially developed and refined through faculty discussion and have been further refined as the result of experience. While it is much easier to adopt objectives developed by other institutions and by that process save faculty time, it is important to note that this exercise (a) facilitated the faculty's perception of the educational method, and (b) assured that the faculty was committed to helping the student achieve these objectives (Appendix 1).

Many departments of family medicine have been established by luring faculty from practice. These physicians may lack the medical educational background of their colleagues in other specialties. For that reason, the process of developing behavioral objectives serves to facilitate the faculty's adoption of an educational role and the transition from practitioner to educator.

Appendix 1.

Specific Behavioral Objectives for the Family Medicine Rotation of Undergraduate Medical Students*

1. The student should be able to describe, by the age and sex of the patient, the appropriate preventive measures and screening procedures that are necessary to assure patient care. (pp 82-95)
2. The student should be able to describe what steps he/she would take as the result of a positive finding in any of the screening procedures undertaken. (pp 82-95)
3. The student should be able to describe a recall procedure which will allow him to provide for continuity in a preventive mode. (pp 71-82)
4. The student should be able to demonstrate to an examiner that he can effectively counsel a patient's family concerning a patient's impending death. (Syllabus, Videocassette**)
5. The student should be able to describe to an examiner how a patient may effectively be carried through primary, secondary, and tertiary care activities without the loss of continuity of care. (pp 208-212)
6. The student should be able to demonstrate, to the satisfaction of an attending family physician observing the student, that he has effectively acquired skills to interview and examine a patient. (pp 231-239)
7. Given a simulated patient with a behavioral problem, the student should be able to demonstrate, in the interview and examination, how he would detect and handle this behavioral problem.
8. The student should be able to properly evaluate and treat a patient with a sore throat. He will demonstrate his capability of reading a blood culture plate for beta hemolytic streptococcus. The student should be able to describe the usual causative agent of otitis media. (pp 702-705, 784-786)
9. The student should be able to describe a diet that he would prescribe for a patient who is grossly overweight. (pp 62-64)
10. The student should be able to describe three curable causes of hypertension. He should be able to describe the work-up for a mild to moderate hypertensive, including the laboratory tests and their interpretations. He should be able to describe the drug regimens necessary for the treatment of mild to moderate hypertension and should be able to describe the side effects of those drugs. (Videocassette)
11. The student should be able to examine and interpret an intravenous pyelogram on a patient with renal arteriostenosis, chronic pyelonephritis.
12. Given a simulated patient with an anxiety state, the student should be able to deal effectively with that patient's anxiety to the satisfaction of an observing physician. (pp 240-247)
13. Given a series of slides illustrating the more common causative agents of vaginitis, the student should be able to identify the causative agent. (pp 612-619)
14. Given a series of slides demonstrating the appearance of the vagina in the more common types of vaginitis, the student should be able to describe the most likely organism. (pp 612-619)
15. Given a diagnosis, the student should be able to describe the treatment for vaginitis. The student should be able to describe the therapy for cervicitis. (pp 612-619)
16. The student should be able to describe a differential diagnosis for pelvic pain. (pp 625-634)

Appendix 1., Continued

17. The student should be able to describe the bacteriologic evaluation necessary for the diagnosis of salpingitis. He should be able to describe the usual therapy for salpingitis. (pp 625-634)
18. Given a simulated patient with a nonpsychotic depression, the student should be able to demonstrate, to the satisfaction of an attending physician, that he can handle the patient's depression. (pp 335-345)
19. The student should be able to describe the normal and abnormal levels of the fasting blood glucose and a two-hour postprandial blood glucose. (pp 89-90)
20. Given a series of glucose tolerance tests, the student should be able to separate the patients with diabetes from those without diabetes. (Videocassette)
21. The student should be able to describe the subsequent late complications of diabetes mellitus. The student should demonstrate, to the satisfaction of an attending physician, his capabilities of initiating treatment on a diabetic patient with oral hypoglycemics or insulin. The student will demonstrate his capability of prescribing a diabetic diet to the patient. (Videocassette)
22. The student should be able to describe the differential diagnosis of low back pain and the pathophysiology of lumbar disc, and be able to demonstrate to an attending physician his capability of doing an examination for a protruded lumbar disc. He should also demonstrate his ability to advise a patient on how to handle lumbosacral spasm, including exercises. (pp 462-473)
23. The student should be able to describe the symptoms commonly associated with urinary tract infections, excluding pyelonephritis. (pp 575-577, 591-593)
24. Given a series of pictures of urinary sediment examinations under microscope, he should be able to identify urinary tract infection. (pp 566-567)
25. The student should be able to describe the protocol for caring for a patient with a urinary tract infection, including follow-up, if necessary, for that patient, and describe the evaluation of a patient who has had multiple urinary tract infections. He should be able to describe three causes of repeated urinary tract infections.
26. The student should be able to demonstrate his ability to transilluminate the sinuses and differentiate between acute sinusitis and an uncomplicated upper respiratory tract infection. He should be able to describe the location of the orifices of the major sinuses. He should be able to examine and evaluate a skull film of a patient with sinusitis. He should be able to describe the etiology of sinusitis and prescribe treatment for it. (pp 804-809, Videocassette)
27. The student should be able to describe the more common arthritides, including rheumatoid arthritis, osteoarthritis, gonococcal-arthritis, and gout. He should be able to describe the differential diagnosis of these conditions. He should be able to describe the joint fluid examination in these types of arthritides and tell what laboratory examinations he would obtain to evaluate a patient with arthritis. (Videocassette)
28. The student should be able to describe the usual etiologic agents in acute gastroenteritis. He should be able to describe the therapy for acute gastroenteritis.
29. Given a simulated patient with angina pectoris, the student should be able to demonstrate, to the satisfaction of an observing physician, that he can evaluate the patient's angina, asking appropriate questions on the history and performing the appropriate physical examination.
30. The student should be able to demonstrate his capability in obtaining the appropriate laboratory tests and his ability to interpret a stress electrocardiogram. He should be able to describe the acute and chronic treatment for angina and acute myocardial infarction.
31. The student should be able to describe the more common etiologic agents in pneumonitis. He should be able to describe the chest findings in a patient with lobar pneumonia. Given a series of chest x-rays, he should be able to point out areas of consolidation and likely etiologic agents based on the x-ray

Appendix 1., Continued

examination. He should be able to describe his evaluation of the pneumonia including sputum examinations. He should be able to prescribe therapy for the more common types of pneumonitis, including pneumococcal, staphylococcal, PPLO (pleuropneumonia-like organisms), and pleuroplexus pneumonia. (Syllabus)

32. Given a series of pictures, lesions of the skin, including warts, nevi, melanomas, contact dermatitis, atopic dermatitis, the student should be able to correctly diagnose these conditions. He should be able to describe the specific treatment for each of these conditions. (Videocassette)
33. Given a simulated patient with complaints of upper abdominal pain, the student should be able to evaluate and demonstrate, to the satisfaction of an attending physician, that he knows how to proceed with the work-up for the upper abdominal pain. He should be able to describe the differential diagnosis on upper abdominal pain.
34. The student should be able to describe the more common etiologies for asthma and its clinical manifestations. He should be able to prescribe the basic treatment for asthma, status asthmaticus, and chronic asthma. He should be able to describe the side effects experienced with epinephrine and aminophylline.
35. The student should be able to describe the work-up of a patient under, as well as one over, 40 years of age with vaginal bleeding, and also be able to describe treatment for anovulatory bleeding. (pp 635-641)
36. The student should be able to describe the usual causes of iron deficiency anemia. He should be able to describe the differential diagnosis of a microcytic hypochromic anemia. He should be able to define the follow-up procedures necessary in order to assure that a patient with a microcytic hypochromic anemia is treated adequately with iron. (Syllabus, Videocassettes)
37. The student should be able to describe the pathophysiology of external hemorrhoids as well as a procedure for relief of acutely thrombosed hemorrhoids. The student should be able to describe the symptomatic relief for problem hemorrhoidal complaints, and to demonstrate his capability of effectively communicating information about these conditions to a patient.
38. The student should be able to demonstrate his capability of taking an effective family and social history and should be able to deal with some of the more common intrafamilial problems, such as drug abuse, problem pregnancies, death and dying. (pp 118-127, 259-309)
39. The student should be able to describe the requirements for continuing education of the American Academy of Family Physicians and should be able to describe the importance of continuing education to the practicing physician. (Syllabus)
40. The student should be able to develop a protocol for a specific tracer disease and audit his own charts using that protocol, and identify from that any deficiencies that he has generated in his care of patients. He should be able to use that deficiency as a behavioral objective for developing a training program which he will design for himself.

*Page numbers refer to Conn HF, Rakel RE, Johnson TW (eds): Family Practice. Philadelphia, WB Saunders, 1973

**Videocassettes selected by the faculty are also used, which explain in better detail the subject matter. Various lectures and reprints are given out during the clerkship pertaining to the topics not cross-referenced.

Likewise, if objectives are "off-the-shelf," the faculty feels no responsibility to assist the student in achieving these objectives. The attitude could well be, "Yes, those objectives are fine, but I'll go ahead and teach what and how I want to." Through the process of development, there is an internalization of these objectives by the faculty members that assures a uniformity of content to be conveyed.

Teaching Approaches and Methods

The setting and educational methods used to facilitate the student's learning experiences are influenced by the particular goals that pertain at a point in time. Given the high level of interest of entering medical students in family medicine and the self-selected nature of the students, the faculty felt it was possible to bypass the "romance" phase of a student's experience and plunge into the cognitive arena. If others feel the necessity to acquaint and romance the student, settings and methods different from those described here should clearly be used. In the faculty's judgment and observation, the private family physician's office is probably the most appropriate setting for this "romance" phase.

It should also be pointed out that in order for family medicine to have legitimacy, it must stand as an equal academic discipline with other traditional specialties. If a romance phase is necessary, and if the academic health science center is not appropriate for teaching family medicine, it could be viewed by the student as being something "less" than the more traditional disciplines.

For these reasons, the setting for this institution's family medicine experience has been the model practice unit, the Family Practice Center. As indicated earlier, family medicine has two components of curricular time which reflect different parts of the philosophy and objectives of family medicine. The block rotation focuses on the knowledge, attitude, and skills' requisite in primary care, family-centered care, and, to a certain extent, comprehensive care. The continuity care experience allows the student to provide more

comprehensive, long-term care and to establish a more solid patient-physician relationship.

The resident, attending physician, and student are assigned to family practice teams in the Family Practice Center. These teams seek to simulate a group practice of family medicine. They are composed of an attending family physician, six to ten family practice residents, and a similar number of medical students. This group uses a clinical module with its associated nursing and allied health care personnel. With this arrangement, the student feels he/she has his own office and nursing personnel.

The clerkship is taken during the senior year after the core rotations have been completed and lasts for four weeks. The student is expected to see an increased number of families and establish a more contiguous patient-physician relationship. The student spends four full days each week in the office seeing patients and is expected to spend the other day completing the reading assignments. While seeing patients, the student is supervised by an attending physician or senior resident and each patient seen by the student is presented to and seen by either one of the supervisors.

There are two sources of patients for the medical students. First, patients who apply and are accepted into the Family Practice Center panel may be selected for the students by the Coordinator of Undergraduate Family Medicine. The family is then notified that they have been assigned to a medical student. It is pointed out in a letter that the student will be supervised in his care of patients by an attending family physician. Very few patients have been uncomfortable or hesitant about being cared for by a medical student. These assignments are made with an attempt to reflect the broad cross-section of the community.

The student may also accept any patient into his panel that he wishes, so that patients cared for in other specialty clerkships or friends from the community may become part of the student's panel. The patient is told to call the student's nurse to make an appointment.

While on the clerkship, the student is expected to care for his patients in the model practice unit, make hospital rounds with his team, and in general function as a junior partner of his family practice team. Visits to the patients' homes are also stressed.

The student is also expected during his clerk-

ship to read those materials, view those videotapes, and pursue other such academic endeavors as will assure achievement of the specific cognitive objectives of the clerkship.

Two grades are given for the family medicine experience. The first is for the block rotation and reflects a subjective evaluation of his patient care performance in the Family Practice Center and the hospital. In addition, the student is graded on both a written and an oral examination which is keyed to the behavioral objectives developed by the faculty and to the patient problems encountered by the student during the basic clerkship. A second grade is based on the continuity of care experience throughout the two years. This is a subjective grade based on the student's ability to render continuity of care and the ability to mount and coordinate a comprehensive program of care for his chronically diseased patients.

Discussion

In an overall evaluation by medical students, close to 90 percent rated the clerkship as excellent or very good. Their narrative comments raised some important points to which the authors attempt to respond in this discussion. The milieu of any family practice program cannot be the "real world" no matter how much one tries to emulate a practice. For that matter, the experience was criticized in that respect by the students. However, the objective of the experience is not to emulate the real world, the romance phase, but to convey information about requisite knowledge, attitudes, and skills to the aspiring physician. Other problems cited included achieving patient mix and occasional sparsity of patients assigned to the student during the rotation. Attempts have been made to correct this by increasing the total number of families assigned to the student initially, closer scrutiny of the patients assigned to provide a better patient mix, allowing the student to accept patient overflow from residents, and allowing the student to see unassigned walk-in patients.

The model practice unit has become the training site for several health care professions, including social work, dentistry, and family nurse practitioners. This large number of trainees has been perceived as creating pressures for both space and faculty time which, to many trainees, seems counterproductive.

Another major source of difficulty has been the continuity experience, that is, the half-day each week in the center. While the traditional specialty faculty has been supportive, it is unlikely that this support would be generic. However, the problem has been eliminated by impressing upon the traditional specialists the need for and the educational experience derived from this exposure to ambulatory family medicine. In addition, when the students are unavailable because of other clerkship commitments, it has been difficult to persuade residents to assume responsibility for seeing the students' patients. However, the students have a great desire to provide continuity of care and other students have voluntarily provided this when needed. When one of the patients is hospitalized, similar jurisdictional disputes occur.

In spite of those difficulties, both students and faculty are supportive of the program. The students enjoy having "their" patients, office, and nurses. The opportunity to provide care for a patient during the evolution of the disease has been both informative and useful to the students.

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