An Innovative Family Medicine Clerkship

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A clinical clerkship in family medicine at Brown University has been developed utilizing many innovative educational modalities. These include games, simulations, group problem solving, research projects, videotaping, case presentations, field trips, sensitivity sessions, computer assisted instruction, patient management problems, slide-tape shows, and direct clinical experiences. These modalities are described together with a new approach to evaluation. Students' evaluations of the clerkship have been excellent, providing evidence that this clerkship offers a model of learning that is both effective and enjoyable.

A number of articles exist in the literature describing various components of a family medicine clerkship.[1-9] Most of these articles deal with evaluation, results, planning, and problems encountered with such clerkships. This article describes how a number of discrete components, both clinical and nonclinical, are integrated into a required six-week family medicine clerkship resulting in a highly successful experience.

Background

The clerkship is six weeks in duration and is required for all Brown University medical students during their third or fourth year. Completion of the medicine clerkship is a prerequisite. Students must complete the community health/family medicine clerkship by January of the fourth year. Approximately eight students rotate through the clerkship every six weeks. Students may select any of the four sites for their six-week experience. One half of the students select the Family Care Center as their ambulatory site. The Family Care Center is the model family practice unit for the Brown University family medicine residency program. This article will focus on the experiences for that site. It is comparable, though not identical, to the other sites.

Educational goals and specific behavioral objectives were formulated prior to the initiation of the clerkship.* These are provided to the students at the beginning of the clerkship. The department's philosophy of learner centered education and formative evaluation is presented to the students. The department seeks to provide a conducive, collegial educational environment in which students can feel safe, respected, and wanted.

Orientation Phase

The first day of the clerkship is spent at the main campus with students from all sites involved. The students receive several presentations to set the scene for their experiences. These include the goals of the clerkship, the role of the primary physician in the community, aspects of community health, and fundamentals of health care financing. Several techniques are employed to enhance the impact of these topics. A slide-tape presentation is shown tracing the evolution of the public physician and primary care throughout the history of medicine. Unlike many historical presentations, this one is designed to evoke an affective response rather than simply to convey a series of facts. The most commonly used word by students to characterize the presentation is "inspiring."

To illustrate the concepts of community, the students view a 30-minute videotape focusing on

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the city of Pawtucket. The health of the community is the focus of the videotape through which the history of the city, the diversity of its people, and the perspectives of its citizens are interwoven. Scenes of existing health care resources are contrasted with those depicting the gaps in health care that exist for the sizable number of those residents who live in underserved parts of the city.

Despite a well-designed syllabus on health care financing and a well-organized presentation on the subject by a knowledgeable health administrator, students did not retain the information well. To remedy this, a game was designed that involved the students in a highly participatory manner. The game is similar to "Monopoly" in that the student rolls the dice and moves his or her player around the board. Each student is assigned a health insurance policy such as Blue Cross/Blue Shield, Medicare, Medicaid, or a health maintenance organization enrollment. They encounter health care events in their play and must figure out whether the expense of treatment is covered, to what extent, and under what conditions. This has proven to be a highly effective as well as enjoyable learning device.

The second day of orientation is spent at the Family Care Center. The educational philosophy of the department is explained to the students. The educational objectives are shared with the students as are the methods used to evaluate their attainment. In discussing these, the faculty emphasize that the close supervision and frequent feedback do not represent a lack of confidence in the student; rather, the program is designed to assist the student in his or her learning.

"The Case of Nellie Jones" is used to acquaint the students with the ambulatory, problem oriented record and the data system during this orientation phase. Each student receives a narrative description of the history and physical examination and the results of laboratory procedures of a fictional patient. Their task is to transpose this data into the Family Care Center chart and to develop a properly coded problem list using the ICHPPC-2 code book.[10] A faculty member reviews their finished charts to assure that all data were entered in the proper places and that the encounter form was correctly encoded.

An orientation to common office and laboratory procedures is also included in this phase. Students receive a skill proficiency checklist which details those psychomotor skills in family medicine that a graduating student should have mastered. While students previously have been exposed to many of these skills in other clerkships, the teaching may have been ineffective due to inappropriate timing, lack of modeling, and other factors. The students appreciate the opportunity to acquire these skills.

Clinical Phase

The clinical aspects of the clerkship are similar to those described in other articles. Each student is assigned to a team in the Family Care Center and sees patients under resident and faculty supervision. Scheduling permits the student to have a continuity experience over the six-week period. Each student write-up is audited by the supervising physician, and the written chart audit is shared with the student before being filed. In addition, each student videotapes at least two encounters with patients and reviews those tapes with faculty. Kagan's Interpersonal Process Recall Technique[11] is used in a modified fashion, as is a clinical skills assessment form from McMaster University.

Students spend a half day per week assigned to a nurse practitioner in order to better understand the role of that important health provider in a family practice setting. The students see patients under the nurse practitioner's supervision. Encounters include acute urgent visits, chronic care patients, health maintenance and administratively necessary examinations, and home visits.

Students devote four days of the clerkship to a rehabilitation experience intended to introduce them to a functional assessment model with which to evaluate patients and develop treatment plans. In addition, students learn how to identify the types of patients appropriate for an intensive rehabilitation program and how to understand the roles of rehabilitation professionals.

The student is assigned one patient for an in-depth assessment using the functional assessment model. This entails a home visit to the patient. Additionally, the student works on the rehabilitation team, attending interdisciplinary case conferences and working with the patients and other professionals. There are opportunities for rehabilitation patient follow-up at the Family Care Center and for participation in electrodiagnostic consultations.

Other clinical settings in which the students actively participate are nursing homes, schools, and the emergency room, and nearby National Health

Service Corps sites. The students have direct patient care responsibilities under faculty or preceptor supervision in each of these sites.

Two of these sites deserve special mention. The primary nursing home experience occurs at the Jewish Home, a 250-bed, nonprofit nursing home and residence. The first half day is spent in an orientation led by the administrator of the Jewish Home. During this session, the students become acquainted not only with the issues and problems of long-term care but also with the wide range of services provided in the institution. The students are each assigned a patient during the first session and are expected to do a comprehensive evaluation of these patients over the subsequent weeks. This evaluation includes a complete history and physical examination, with particular emphasis on the psychosocial factors, at least one meeting with the patient's family, and presentation of the case in an interdisciplinary case conference at the Jewish Home.

On alternate weeks the students spend one half day at the Jewish Home for rounds with the medical director and one half day with a geriatrically oriented psychiatrist. Special attention is paid to learning how to recognize and manage behavioral problems, dementia, and delirium. The medical director stresses the special skills and knowledge needed to manage multiple chronic illnesses commonly encountered in the elderly.

The other clinical experience is an alcohol studies module. Students spend several half days in a number of community alcohol treatment programs. The emphasis in this program is upon early detection and intervention, prevention, and rehabilitation. The experiential portion is supplemented with didactic sessions, case presentations, and self-instructional exercises.

Nonclinical Activities

The most innovative aspects of the clerkship are in the area of the nonclinical activities. These activities complement the clinical aspects of the program and relate to the clerkship's goals and objectives.

Clinical Decision Making and Cost Containment

The students engage in a computerized data collection and problem identification exercise designed to help them assess their skills in clinical decision making. While similar exercises have been developed by others, they were not felt to be appropriate to a family medicine clerkship in that they often dealt with esoteric subjects and hospitalized patients.

The exercise presents the student with a patient giving a chief complaint. The students are paired together and must discuss with each other the decision options. They may choose among 295 history, physical examination, laboratory, and other diagnostic items. The students then formulate a problem list based upon the data they have obtained. Feedback is provided on their performance in terms of a standard problem list, optimal costs, and scores. These scores include errors of omission rate, errors of commission rate, efficiency, monetary costs, time expended, and the risks, discomfort, and inconvenience incurred by the patient as a result of the student's decisions.

A faculty member reviews the students' performance at the completion of the exercise. The students have enjoyed the exercise and report that it is helpful in raising their awareness of costs and the decision making process.

The specific effect of this exercise on cost consciousness in the context of quality care is assessed using a nonequivalent control group time series research design. Six patient management problems using latent image are given as a pretest and post-test to students at two different sites. Gain scores are compared between the group that had the exercise against the group that did not.

Telephone Management Exercise

This exercise permits the student to develop decision making skills in managing health problems initially presented over the telephone.[12]

It uses a simulated caller and standardized problems. The telephone conversation is tape recorded and scored. A formal teaching session follows the first call during which the student's performance is reviewed. A second telephone call is placed to the student one week after the teaching session. Student performance scores significantly increase between the first and second call.

Patient Education Exercise

Most medical students are poorly trained in patient education. Students often view patient educa-

tion in the narrow context of information transfer. An exercise in patient education was developed to broaden this view to include assessment of what the patient knows about the illness, what feelings they have about it, and what social support systems exist that would influence behavior.

A module consists of a didactic session on the principles of patient education, a simulated physician-patient encounter, and an interactive evaluation session. The didactic session is one hour long and is conducted by the department's health educator. Videotapes of actual physician-patient encounters are used for demonstration purposes and as a starting point for discussion.

For the encounter session, an actor or actress is hired to portray a patient according to one of seven developed scripts. The student receives an abbreviated manual outlining the exercise and describing the patient. The encounter between student/physician and actor/patient is videotaped through a one-way mirror. Viewing the encounter are other students, the health educator, a physician and a clinical psychologist. Immediately after the encounter the actor/patient answers a short quiz to ascertain the degree to which specific knowledge was effectively transferred.

In contrast to others,[13] attention is not paid solely to the content areas discussed by the student/physician. Emphasis is instead placed on the student's sensitivity to the patient's concerns, anxieties, misbeliefs, and psychosocial barriers that serve as blocks to effective patient education. This is accomplished by reviewing the videotape and using the technique of interpersonal process recall. The overall student performance is described in a composite narrative written by the three faculty members.

Most students who have gone through this exercise have rated it very highly (6.0 on a scale of 1 to 7, with 7 = outstanding). Faculty have noted a distinct change in student behavior in real situations with patients after this exercise. The faculty believe this approach to teaching skills in patient education is superior to previously described content oriented approaches and is more consistent with the family medicine approach.

Pelvic Teaching Program

A special three-hour teaching exercise has been developed to allow the students to become more comfortable in doing a sensitive and competent pelvic examination. The exercise uses a live teaching associate/patient surrogate upon whom the exam is performed. This is similar to programs described elsewhere.[14]

The program is supervised by the department's nurse clinician, who models the correct approach and technique. Each student then repeats the examination with the teaching associate providing immediate feedback.

Even the students who have previously taken the obstetrics-gynecology clerkship believe they have significantly benefitted by this exercise. It is one of the most highly rated aspects of the clerkship.

Seminars

Each Wednesday afternoon students from all the sites participate in a three-hour seminar focusing on common problems in family medicine. For each seminar, a detailed syllabus has been developed by the faculty. The students are expected to read the syllabus prior to the seminar, since the seminar time is not spent repeating the information described in the syllabus. Instead, the time is devoted to problem solving using case studies and exploring the subtleties of dealing with problems from a family medicine perspective.

As an example, during the seminar on Preventive Medicine and Health Maintenance, the students are presented with data on a hypothetical disease called Mabungo's disease. The students are constituted as a mock Public Health Council and must make recommendations pertaining to several options for prevention. In their deliberations the students must make use of their knowledge of epidemiology such as prevalence and incidence rates, sensitivity and specificity, and cost-benefit analysis. Besides this seminar, others on hypertension, cough, low back pain, contact dermatitis, otitis media, fever, urinary tract infections, well-child care, anxiety, depression, osteoarthritis, nutrition, hospital organization, and medical ethics are included.

A special quality assurance seminar differs in format from the others. In this seminar, the students are assigned roles as members of a Professional Standards Review Organization. Their task is to devise criteria with which they will evaluate the quality of care being given in the management

of hypertension. Actual medical records are selected which the students then audit using their criteria. Issues such as process vs outcome measures are discussed, as are the difficulties and shortcomings that must be addressed in doing quality assurance audits.

Personal and Professional Development

A workshop on personal and professional development is held for all the students in the clerkship. The Myers-Briggs Type Indicator (MBTI) is given to each student who wants to take it at the beginning of the clerkship. The workshop focuses on the MBTI and its application to career choice decision making, work setting selection, health team group dynamics, and interpersonal relationships.[15]

Individual sessions are held with students at their request in which additional instruments are used to assist the students in their personal and professional development. More important than any standardized instrument is the opportunity for students to talk to faculty and each other about the stresses in their lives and the decisions they face. The importance of this counseling function in the clerkship cannot be underestimated.

Mini-Preceptorship

Since the Family Care Center is a model unit for a family medicine residency program, it does not fully reflect the real world of family practice. Consequently, each student spends one day with a family physician in a private community practice. The purpose of this experience is to allow the student to observe the real world of family practice and to explore issues that cannot be adequately addressed at the model unit.

The students are given a modified essay question that raises questions they should try to answer during that day. These include describing the practice in terms of the following characteristics: the variety of problems seen and special epidemiologic characteristics, how the practice started and how it changed over time, how the practice suits the community in which it is situated, hours of operation, typical schedule, and time pressures on the physician, the office staff and their roles, how the physician arranges for time off and coverage, the role of the physician in the community, and practical problems of practice management, including how the physician reconciles the demands of profession with family life and personal recreation.

Community Assessment Project

It is important for students to learn about the community in which they work as well as the practice itself. To accomplish this, the students are given a community assessment checklist developed by several practitioners in the National Health Service Corps. Their checklist encompasses a broad range of information, including health resources, community demography, social, economic, cultural, and educational factors. Students do this exercise as if they were considering whether to establish a practice in the Pawtucket area.

Group Project

The students at each site must undertake a group project. These projects fall into one of three categories: quality assurance, community health planning, or preventive medicine. Currently the students have been assigned the latter in which several "charges" are given to them and they may select one from them. Some recent examples have been glaucoma screening, tetanus-diphtheria immunization, colorectal cancer screening, and testicular self-examination.

Their task is to study the issue from a preventive medicine perspective and devise ways to plan an office based preventive program, to implement it, and to monitor it. This strategy is based upon some preliminary training modules developed by the American Institute of Community Health and the Center for Educational Development in Health at Boston University.

To accomplish their task, the students must find the answers to questions relating to the disease's natural history and epidemiology. They must also describe the demographic characteristics of the community and the practice and relate those to the population at risk. In addition, they must investigate various preventive interventions and analyze the cost effectiveness of each option. Finally, they must formulate recommendations for implementation, taking into account current public health policy, the attitudes of the office staff, and other potential barriers to full implementation. The students' reports are taken very seriously and are reviewed by the Patient Care Committee at their respective sites. In almost all instances their recommendations are accepted and at least partially implemented.

Evaluation

Evaluation of student performance on the clerkship is heavily weighted toward early and continuous feedback on a formative basis. This is done through frequent meetings with the faculty as described above, written chart audits, and videotapes. Summative evaluation is based upon a composite of student performances during the clerkship and three additional measures: a half-hour oral examination with three faculty members, a written examination, and the presentation of the group project.

The written examination is done in a rather unorthodox but typically family medicine manner. Students are broken up into small groups of three or four students each, with each student given a copy of the examination. It includes 53 questions, including type A and type K multiple-choice questions, modified essay questions, and problems. The students are told they must each answer all the questions but they can collaborate with each other. With each group of students a silent faculty member observes. Unbeknownst to the students the primary assessment is made not on the answers they finally choose, but on their individual thought processes and logic. The silent faculty member is judging the student's fund of knowledge, critical thinking, logic, and decision making skills during the examination. The small size of the group necessitates the involvement of all the students, even the most retiring introvert.

The authors feel that for several reasons this is a more useful method of evaluation than a simple numerical score. First, physicians should be encouraged to collaborate with colleagues in solving difficult problems. The degree to which a physician in training can collaborate is an important skill. Second, a major purpose of evaluation is to help residency directors select appropriate candidates for their programs. A numerical score on a final examination is not very helpful. A description of a candidate's clarity of thought, logic, fund of knowledge, and decision making processes is far more helpful. Finally, no examination question is perfect, and students may often exhibit great insight and logic in deciding upon a "wrong" answer. This is lost to the faculty if only the answer is indicated.

The students rate the clerkship in terms of how well it met its stated objectives. The overall evaluation of the clerkship during the 1979-80 academic year was 6 (1=abysmal, 7=outstanding). This rating correlated well with the student's evaluation of the clerkship provided to the dean's office (overall mean 4.2, with 1=poor, 5=excellent).

The students anonymously evaluate the faculty in the areas of availability and preparation, teaching style, flexibility, and interpersonal relations. An oral debriefing is also held with the student and the director of undergraduate education to obtain further feedback from the students. The other way in which program objectives are assessed is by analyzing student performance on each of the measured activities. The program objective is considered successfully attained if 80 percent of the students achieve the criterion rating for each component. To date this has been achieved in all areas.

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