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AN OUTPATIENT DEPARTMENT AND THE TEACHING OF PREVENTIVE MEDICINE*

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MANY CHALLENGES face the contemporary medical school striving to educate "undifferentiated" or "blast"[1] physicians, adequately prepared for post-graduate training in the diverse activities required for the optimal satisfaction of society's medical needs.

The achievement of this undergraduate educational goal necessitates both the coordination of divergent and occasionally conflicting interests of the faculty, and the provision of an environment in which the student may integrate experiences and knowledge as he matures personally and professionally.[2] Opportunities to develop educational methods directed toward this goal were provided in 1952 when the University of North Carolina expanded its 75-year-old, two-year medical school to a four-year program with the addition of a full-time clinical staff and a university hospital. Abundant opportunities were provided for experimentation with new approaches to old problems of medical education. Among these new approaches was a strong emphasis on preventive medicine and on the social and emotional components of health. To further these aims a General Clinic for senior students was established as an interdepartmental teaching activity of the departments of medicine, preventive medicine and psychiatry.†

A better understanding of this clinic's role in the student's education may be obtained if other innovations in the curriculum are described briefly. A first-year course in "human ecology" taught by the departments of psychiatry and preventive medicine attempts to delineate the human and socio-environmental setting in which the study of health and disease may be most realistically pursued by students.[3] Individual student research projects carried out with faculty members are encouraged, and in 1958 almost forty per cent of the students undertook original investigations. Most of these projects form the basis for a "senior paper" or thesis required of each student for graduation; many have considerable scientific merit and are presented at professional meetings.

Modification of the traditional second-year course in medicine has permitted correlation with teaching in psychiatry, surgery and pathology. Students first consider the patient-physician relationship, are instructed in interviewing techniques and history taking, and proceed to the evaluation and understanding of symptoms and signs as expressions of disordered function, then to physical examination and finally to laboratory diagnosis. Twenty-two lectures in biostatistics and 30 lectures in epidemiology are given by the department of preventive medicine, the latter correlated with the course in microbiology.

In the third year, students serve as ward clerks, spending 14 weeks each on medicine and surgery, and seven each on pædiatrics and psychiatry. Daily ward rounds are the core of these teaching programs, but there is also an integrated series of lectures by members of the departments of medicine, pædiatrics and surgery, covering recent developments, controversial problems and the most significant aspects of the pathological physiology of a wide spectrum of disorders. A series of 20 lecture discussions focused on "The Doctor and His Community" is conducted by the department of preventive medicine.

Another series of weekly interdepartmental "lectures in medical science" for the third-year and fourth-year students, house staff, and faculty intensively covers selected aspects of such topics as cancer, thyroid disease, anxiety, and biological hazards of radiation. Lecturers from the medical school, other university departments and other universities participate in each series.

Fourth-year students spend 10 weeks on an obstetrics and gynæcology clerkship, five weeks in the psychiatric clinic, five weeks with the surgical sub-specialties and half the year (20 weeks) in an outpatient clerkship. One-third of this clerkship is spent in the pædiatric clinic and two-thirds in the adult General Clinic. The latter is a separate administrative entity from the obstetrical, orthopædic, urological, psychiatric, and pædiatric clinics and represents a substantial departure from traditional medical outpatient clinics in several respects.[4]

The General Clinic provides "comprehensive" diagnostic and treatment services for general and specialized medical and surgical problems referred from the eastern two-thirds of North Carolina, a predominantly rural state, by family physicians and specialists, for a variety of reasons.[5] After a thorough study, patients are returned to their family physicians, since the clinic only provides continuing primary medical care for a few patients carried on two teaching programs. About 40,000 visits are made annually to the outpatient department but only 1800 new patients are seen in the General Clinic; this small number has been adequate for undergraduate teaching. Many General Clinic patients are the "private" patients of referring physicians and pay a Clinic fee; some are medically indigent, and a small number are totally indigent "welfare" patients.

The director of the General Clinic is chairman of the department of preventive medicine and holds a joint appointment in the department of medicine.*

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A "core" group of eight full-time members of the departments of medicine and preventive medicine spend much of their teaching and research time in the General Clinic, but not to the exclusion of other in-patient, research and administrative responsibilities. All members of the department of medicine, including the chairman, work in the General Clinic both as individual student preceptors and attending physicians. Although at times unpopular with specialized internists, this responsibility keeps the senior staff in touch with ambulatory patients and maintains their interest in general medical problems. In addition to the "core" group, the full-time members of the department of medicine and several part-time internists, an epidemiologist interested in chronic diseases and five psychiatrists act as preceptors. The latter have had considerable experience in internal medicine and see unselected patients. Their participation does much to help those students and instructors who are uncertain about the relevance of psychological and socio-environmental factors to the care of sick people.

Although originally controversial, it now is generally accepted by the department of medicine that there are many advantages for both students and instructors to assigning a highly specialized consultant, say a neurologist or hæmatologist, to a random medical patient. Students may observe the neurologist applying his skills in interviewing and in evaluating the evidence from a patient with a gastro-intestinal or cardiovascular problem, and learn the basic skills of medicine as a scientific discipline, distinguished from the factual content of the specialty.

Morning sessions of the clinic are concerned with the initial or general examinations of all patients. In the afternoons, sub-specialty sections, fewer in number than those found in most out-patient departments, provide consultant services and follow up small numbers of patients with complicated problems in whom the staff has primarily research interests. The sub-specialty sections are limited to: gastroenterology, metabolism, neurology, dermatology, allergy, cardiology, chest disease, hæmatology and chronic disease. The latter two are used only for graduate teaching.

One untested hypothesis underlying the General Clinic program states that among the best learning stimuli for a medical student is a new "unlabelled" ambulatory patient or "clinical unknown". These new patients are seen by appointment and after preliminary laboratory work are assigned randomly to students. Letters, roentgenograms and other data from the referring physician are withheld until the student has completed his work-up. Analysis of the patient distribution over a two-year period indicates that individual students encounter a wide spectrum of human disease, including the common, the obscure and the bizarre. "Old" patients—that is, those seen in the clinic during the previous year—are not assigned to students, but rather to the house staff or to one of the sub-specialty sections. Patients with overt psychiatric problems are sent to the psychiatric clinic.

A second untested hypothesis states that a medical student is optimally stimulated to learn when given patient responsibility commensurate with his stage of development and when provided with ample supervision from senior instructors. In the General Clinic student-physicians follow up their new patients for from one to five and occasionally ten visits, but usually for two to four visits. A few patients may be followed up for as long as 20 weeks. When the patient's health problems have been clarified, perhaps understood and occasionally resolved, the patient is usually returned to his referring physician. Complicated problems requiring periodic follow-up may be referred to a sub-specialty clinic which collaborates with the family physician in the patient's care.

On completion of the work-up, the student presents the patient to his preceptor. Together they review the data obtained by the student and discuss the problem; the preceptor examines the patient, and laboratory tests, consultations, and use of ancillary services such as social service, public health nursing and vocational rehabilitation are planned. Reading is assigned to the student and if appropriate the management regimen may be considered at this point. At the patient's second visit, the student's reading is discussed in detail and the patient's progress reviewed. When consultations are indicated, the student first evaluates his patient as extensively as possible, obtaining the necessary diagnostic studies and formulating the specific questions to be asked when he presents his patient personally to the consultant. In this manner it is hoped that the student learns both the advantages and limitations of consultation. The consultant, in turn, is usually able to provide more effective teaching and patient care when given the necessary data with which to work. Considerable emphasis is placed on these experiences since there is evidence from studies currently being conducted in the clinic that family physicians, university consultants and medical students frequently have serious difficulties in communication, which work to the disadvantage of the medical student as well as the patient.

The student's primary responsibility in the General Clinic is to his 20 or more new patients, and conflicts in schedules are resolved in favour of the student's own patients. To provide continuity of student-patient and student-preceptor relationships and to minimize conflicts, the same student, patient, and preceptor meet on the same day at weekly or fortnightly intervals for return visits.

Each student is assigned to one major and one minor sub-specialty section, usually of his own choosing, and all go to the dermatology, allergy, ophthalmology and otolaryngology clinics. A major sub-specialty section is visited about 12 times and a minor about four times. The aim of this program

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is not so much to teach the content of the sub-specialty as to give the student some appreciation of the potentialities and restrictions of highly specialized practice and, within a given area, to see a wide variety of complicated disorders.

Two other programs round out the patient assignments. The first is a "Home Health Service"[6] to which students are assigned in pairs to care for home-bound indigent patients whom they visit regularly under staff supervision, assisted by a public health nurse. These patients present serious, frequently fatal, illnesses complicated by adverse socio-environmental conditions and provide significant educational challenges to the students. The second is a "Continuity Program" in which each student is assigned one preceptor and an ambulatory patient in need of continuing medical care at the General Clinic. Together the preceptor and student follow up the patient for 20 weeks, discussing the many problems presented by the disease process, the patient and his environment. Opportunities for observing the fluctuations and vagaries of the patient-physician relationship are especially abundant in this context.

One of the deficiencies of traditional outpatient teaching has been its lack of organization. On the hospital ward, the patient is kept horizontal and readily available, frequently more for the convenience of the staff than for the welfare of the patient. In the clinic, the patient is vertical, independent, and available only briefly, so that closer scheduling of all activities is required to make effective use of his presence. Teacher, student, and patient are the primary factors in the learning process, but experience has taught that, in the outpatient department, the efforts of all participants must be carefully planned and highly co-ordinated if educational opportunities and medical care standards are to be optimal.

Daily teaching "rounds" similar to those on the inpatient wards are conducted in the General Clinic by a member of the senior staff. A student presents the new patient he has worked up that day to the attending physician and other students not assigned new patients or seeing their own return patients. After discussing the patient's problems with the group, the staff physician serves as preceptor for the student and his patient.

By means of didactic or socratic teaching methods, various topics in pædiatrics, ophthalmology, otolaryngology, radiology, electrocardiography, ambulatory medicine, medical emergencies, genetics, biostatistics, and dentistry are discussed at a series of early morning conferences. Patients on the Home Health Service are used to illustrate certain aspects of the management of chronic diseases and rehabilitation. A psychiatrist discusses patients on the Continuity Program to illustrate aspects of psychological medicine and the patient-physician relationship. A series of conferences on selected aspects of the natural history and prevention of disease utilizes data developed by epidemiologists, behavioural scientists, geneticists and others to discuss some of the broader parameters through which better understanding of chronic diseases may be approached. Late each afternoon one of the sub-specialty sections has a clinical conference in which disease processes are illustrated by patients from the clinic. There is a weekly Combined Staff Conference, attended by members of all departments, at which are presented staff or student research projects, clinico-pathological and clinical conferences, and addresses by distinguished visitors to the medical school.

The General Clinic program emphasizes internal medicine as the basic clinical discipline in contemporary medicine and prevention as the basic emphasis in teaching. It provides opportunities for both students and faculty to understand the patient in the broadening context provided by developing knowledge from psychiatry, the behavioural sciences, genetics, epidemiology, and medical care economics. Familiarity with these new disciplines may be as fundamental to effective understanding of health and sickness as knowledge of the pathological physiology of disease processes.

The integrated educational program in the General Clinic is the culmination of the student's four years at this medical school, and derives much of its value from a solid preparation in the basic sciences and from the earlier collaborative teaching programs. Effort is directed in the clinic towards helping the student to understand the sick patient and his problems as thoroughly as possible while avoiding inappropriate emphasis on any one facet. The aim is to make medicine more scientific, not less, and to provide a common professional experience for all graduates with the ultimate hope of substituting knowledge and prevention for our present inadequate therapies.

REFERENCES

1. WEARN, J. T.: *Tr. A. Am. Physicians*, 67: 1, 1954.
2. PICKERING, G. W.: *J. M. Educ.*, 33: 36, 1958.
3. HARGROVE, E. A., HAM, G. C. AND FLEMING, W. L.: *Ibid.*, 32: 697, 1957.
4. WHITE, K. L. AND FLEMING, W. L.: *Ibid.*, 32: 30, 1957.
5. ANDREWS, L. P. *et al.*: A study of patterns of patient referral to a medical clinic in a rural state: methodology, *Am. J. Pub. Health.* (In press.)
6. FLEMING, W. L.: *J. A. M. A.*, 161: 711, 1956.

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