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THE MEDICAL SCHOOL AND THE COMMUNITY

The "revolution" initiated by Flexner established a firm foundation for the physical and biological sciences in medical education and introduced the concepts of the scientific method into medical practice.[1] As a result, medicine's scientific achievements are phenomenal; its social accomplishments are more modest. This "revolution" is over, and the next is upon us, heralded, if not initiated, by Flexner.

In the post-Flexner era, the politicians and popular press are asking the medical establishment, "What have you done for the community lately?" The statesmen and the scholars are asking, "How can the university and its medical school accelerate the application of medical science in medical service?" Can the medical school concern itself with the medical problems *in* the community without being engulfed by the problems *of* the community? This is the dilemma facing contemporary medical schools; it was clearly foreseen by Flexner in a volume, less celebrated by medical academicians than the "report," but more enduring as wise counsel for academic administrators.[2]

In discussing the interaction between the university and society, Flexner distinguishes between "what universities do not now touch and what they have no business to touch." "Let me concede," he wrote, "for the purpose of argument (and for that only), that all things that universities do are in themselves worth doing—a very large concession. Does it follow that universities *should* do them? Does it follow that universities *can* do them?" Flexner answered both these questions in the negative. "As the world has changed," he wrote, "new faculties have been needed; new subjects have from time to time been created. But even in the most modern university a clear case must be made out [for expansion] . . . and, the case, as I see it, must rest on the inherent and intellectual value of the proposed faculty or the proposed subject. Practical importance is not a sufficient title to academic recognition: if that is the best that can be said, it is an excellent reason for exclusion." How then, Flexner asked, could he urge:

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> that universities maintain contacts with the actual world and at the same time continue to be irresponsible [with respect to practical affairs?]. Are the two attitudes incompatible? Can [universities] really take an objective position in reference to social, political and economic phenomena? Can they study phenomena without wanting to tell legislatures, communities, municipal authorities and chambers of commerce what they ought to do at any particular moment about some particular thing? I think they must and can. It is a question of ideals and organization. For experimental purposes they may, without sacrifice of intellectual integrity, make suggestions and watch results; but this is different from running a city government or a political party, involving, as such responsibilities do, compromises of principle that are fatal to fearless thinking. The analogy . . . is not complete . . . but it is suggestive. The professor of medicine needs patients, just as the social scientist needs his environment . . . but the professor of medicine is primarily a student of problems and a trainer of men. He has not the slightest obligation to look after as many sick people as he can; on the contrary, the moment he regards his task as that of caring for more and more of the sick, he will cease to discharge his duty to the university—his duty to study problems, to keep abreast of literature, to make his own contributions to service, to train men who can carry on.

These extensive quotations from Flexner establish the ground rules for the two issues I wish to discuss: the new subjects and the new organizational patterns that could relate the medical school to the community. The new subjects and the new organizational patterns are necessary but not sufficient conditions both for relating the medical school to the community, and for preserving the university's responsibility to challenge the status quo and anticipate the future.

New subjects

First with respect to the new subjects, there are two which merit consideration: Epidemiology and Sociology.

1. *Epidemiology.* There are many definitions of epidemiology but essentially it means "the study of that which is upon the people." Like the other two methods of studying health and disease, clinical observation and laboratory measurement, epidemiology is appropriate for some problems and quite inappropriate for others. The essential characteristics of the method include the definition of the population (the community) to be studied, the use of sophisticated sampling methods, and the collection of data with instruments (clinical, laboratory, or questionnaire) of predetermined reliability and validity. As in other research, there are descriptive, analytical, and experimental applications of the methods. These can be used to measure, for example, the prevalence of symptoms and diseases, the characteristics of population groups at high risk of becoming ill, and the end-results of medical

care regimens and programs.[3] The methods are applicable not only to the study of the communicable diseases and the noncommunicable diseases but also to the study of medical care and the health services designed to alleviate disease.[4] A simple way of recalling the diverse applications of epidemiology to the full spectrum of human ills is to think of six levels of observation: Death, Disease, Disability, Discomfort, Disruption, and Discontent. All can be measured with varying degrees of precision in communities; it is measurement that helps to make epidemiology a science.

When epidemiology is taught as a "basic" science in medical schools, and its contributions to defining the health problems of society and evaluating the effectiveness and efficiency of health services designed to alleviate those problems are learned as an "applied" science, the community and its problems will have relevance for both the faculty and their students. The impotence of the old preventive medicine departments both conceptually and operationally may be attributed to their failure to embrace epidemiology as the primary scientific discipline with which to build a body of knowledge and principles. The hope of the new community medicine departments lies in the development of sound traditions of epidemiologic research and teaching applied to the problems of general populations, i.e. communities. This is the road travelled by the other successful activities in medical schools, and there is every reason to believe that epidemiology, now in its infancy, can be equally successful.

2. *Sociology.* The second subject is sociology, or more broadly conceived, the social sciences. There is a place for anthropology, economics, history, political science, and psychology in the general education of the physician, but sociology has a particularly important place in his medical education. The concepts and methods of medical sociology have three broad applications to the problems of health and disease.

   First, medical sociology can be used to provide insights into the processes of professionalization and institutionalization. Only when we know more about the manner in which the attitudes, behavior and values of health professionals are formed and evolve will we be in a sound position to encourage desirable changes. The same may be said for medicine's institutions, the medical school, the hospital, the health department, and the "doctor's office." Although political science and psychology can help in generalizing the "principles" of administration, it is sociology that is currently in the strongest position to assist in understanding the forces that shape and govern the performance and inter-relations of our medical institutions.

The second application in which medical sociology can be helpful is in understanding the contributions of social and cultural forces to the pathogenesis and natural history of disease. Many diseases encountered by industrialized societies are associated to varying degrees with chronic patterns of behavior which are inimical to health. The same may be said with respect to other diseases in other societies. The study of social forces in relation to specific diseases is essential if their prevention and treatment is to be facilitated by changes in human behavior.

The third application of medical sociology is to the study of medical care and the health services. Having demonstrated through a controlled clinical trial that a specific drug, operation, clinical maneuver, or therapeutic regimen is likely to be more beneficial than harmful when used appropriately, we are still left with many unanswered questions about the extent to which such information is applied to all those who could benefit from it. We know very little about the extent to which perceptions, attitudes, expectations, and satisfactions of individuals and populations inhibit or facilitate the extent to which they demand, accept, and use what knowledge is available. Effective and efficient delivery of health services requires extensive study of the social forces that condition the transactions between the medical establishment and the society it serves.

The case for sociology as a second new but "basic" subject in the medical school seems strong. Like epidemiology, however, the need is less for "teaching" the subject than for "learning" it. For the latter, research is essential. An active program of research in medical sociology seems essential if the medical school is to approach the study of medicine in the community in any rational fashion.

New organizational patterns

The new organizational patterns are perhaps more important than the new subjects. If the right people are appointed, they are bound to redefine the subjects; that is, their function in a university. The task of university organization is to provide an environment in which learning will be stimulated. The task of organization for the medical school and its teaching hospital is to so organize its clinical services that the contemporary medical problems of the community are presented to the medical faculty and its students in manageable proportions. This means first, that the medical school must decide whether the tasks of identifying the community's health problems and of organizing, delivering, and evaluating personal health services (or medical care) are legitimate "clinical" subjects for concern, in-

vestigation, and instruction. If they are, the university is immediately faced, as Flexner said it would be, with the problem of maintaining "contacts with the actual world and at the same time [continuing] to be irresponsible."

The resolution of this conflict, it seems to me, is to be found through organizing the university medical center's services on the basis of the type of clinical care, the level of patient care, and the degree of patient responsibility involved.

With respect to the first, the type of clinical care, at least seven distinct categories can be identified, each of which could be provided by an appropriately organized unit in a university medical center:[5]

1. *Super-specialty care.* This is the care that only a large, sophisticated medical center can provide. Patients with unusual, complicated, or severe problems can best be cared for by the clinical scientists who are deeply involved in the study of specialized disease processes at the molecular level. Such scientists are usually prepared to give their specially selected patients meticulous care at the clinical level. It is from the study of these diseases that our fundamental understanding of biological processes will come. It is only from such advances that demonstrable impacts on death and disease and the health status of populations will be derived. The different diseases encompassed in this category are very numerous (perhaps as much as 90% of all known diagnoses) but they each occur very infrequently and account for perhaps only 5% or 10% of all the morbidity in the community.
2. *Diagnostic and consultant care.* In this category are those patients who are referred by community practitioners and agencies for careful diagnostic evaluation and recommendations for treatment and management that will confirm or modify the original physician's impression. These are patients at the interface between "primary" care (*vide infra*) and "super-specialty" care, patients about whom important decisions have to be made, and patients whose careful, supervised work-up at the medical center can be used as a useful learning experience for fellows and residents, as well as a means of post-graduate education for referring physicians. A well organized diagnostic clinic can be a source of first-rate care for patients with respect to the confirmation or modification of diagnoses, reassurance, or suggestions for treatment and management. Such patients are customarily seen only on referral and should, in most instances, be referred back to their original physicians for continuing community care or to super-specialists for more specialized care.[6]
3. *Primary care.* The central problem in contemporary American medicine is the uncertainty about sources of continuously available and

accessible first-contact or primary care. This care is desired, if not required, by patients with "general," undifferentiated, early symptoms, complaints, conditions, and problems who want to consult sources of "general" medical care. A relatively few different diagnoses (perhaps 10% of all diagnoses) produce about 90% of all medical morbidity and engage the bulk of the efforts of all physicians in all forms of medical practice, but particularly the efforts of those who provide primary care. This aspect of care requires skills in patient treatment and management rather than skills in diagnosis. It is provided largely through ambulatory facilities and is family centered in the sense that care of the patient frequently requires knowledge about the patient's family, his natural habitat, occupation, and place of work. Anticipatory care, rehabilitative care, and terminal care are aspects of so called primary, general, family or first contact care; the name is less important than the nature of the responsibilities. In general, it may be said that the diagnostic system and terminology used differ from that customarily taught in medical schools in that the prevalence, probabilities, risks, and costs associated with the symptoms and problems presented to sources of primary care differ greatly from those currently seen on the wards of most university medical centers. In all candor, it must be admitted that we know little about this aspect of morbidity in practice since it has been so little studied.[7]

5. *Emergency care.* Patients with severe, life-threatening, or potentially disabling conditions that require medical intervention within minutes or hours may be classified as true emergencies. Acute patients in discomfort, urgent problems that would benefit from medical attention or problems patients would present to some other source of medical care or some other physician, if available, cannot be regarded as emergencies. These are problems to be dealt with by a responsible professionally staffed telephone answering service or triage service or by a designated source of primary medical care in the community.
6. *Social care.* The central city ghettos and the rural slums of this country contain a large proportion of multi-problem families. Their problems frequently are the result of long-standing economic, educational, nutritional, emotional, and social deprivation which has proved refractory to the ministrations of numerous community, social, welfare, and medical agencies and institutions. These families need jobs, education, and housing primarily and only secondarily do they need medical care. Social Rehabilitation Clinics, Neighborhood Health Centers, and Community Action Programs under the Office of Economic Opportunity are currently regarded as appropriate ways in

which to approach these problems. Social care patients are usually native indigent migrants who, in recent decades, have supplanted poor foreign immigrants as the clients of university hospital outpatient departments. In many communities, these patients now have their care paid for through Title XIX Programs, Comprehensive Child Care Programs, or Neighborhood Health Centers. Such patients are suitable for teaching medical students about social rehabilitation; they are not particularly suitable for teaching primary medical care or family medicine because they do not represent a full range of socio-economic classes and problems with their associated diseases. Nor are they suitable for teaching super-specialty medicine because the number and variety of different diseases generated by such limited populations would be insufficient to occupy the time of the super-specialty services appropriately.

7. *Anticipatory care.* An increasing proportion of physicians and patients believe there is some merit in monitoring patients' health periodically. Although the effectiveness of this has yet to be clearly documented, it represents a point of view, some knowledge, and a researchable field which warrants encouragement. Specifically, it is far from clear that periodic physical examinations performed by physicians are a useful way in which to use professional time. Periodic screening tests, on the other hand, can be provided by paramedical personnel and automated equipment for large numbers of people as demonstrated by the Kaiser-Permanente Multiphasic Screening Clinics.[8] Such clinics offer an approach to preventive screening (and education) for both patients and physicians and are believed to reduce laboratory and hospital utilization. They can be used by all socio-economic classes and are a source of data about morbidity in general populations which should be of value in organizing more specific medical care activities.

The traditional practice in medical schools and their teaching hospitals was to select from the clinic populations those individuals who were regarded as having "interesting" diseases, and who could be used as "teaching material" while the rest of the patients were allowed to drift, fend for themselves, or seek medical care elsewhere. I suppose a critic of these methods of triage and conditional responsibility might ask "Interesting to whom?" and "Teaching what?" The point of advocating a reorganization of the medical center's clinical services on the basis of the content of care is to encourage the center to be *more "responsible"* within defined limits and to be *"irresponsible"* with respect to patients not falling within the programs of care defined by the center. If it is to be concerned about the problems of delivering medical care to patients in all seven types and if the needs

of each are sufficiently discreet to require different organizational patterns, different staffing patterns, and different facilities, all seven types should be represented in a fully comprehensive medical center.

With respect to the levels of patient care, six may be identified:[9]

1. *Intensive care.* Patients in this category are in need of skilled nursing care and technical support, supervised by readily available house staff, concentrated in carefully planned intensive care units.
2. *Intermediate care.* This is the traditional bed care found on most hospital wards. It is appropriate for certain types of disease and for certain stages in illness but it is expensive and may even be dangerous and inappropriate in other circumstances.[10]
3. *Self-care.* This is care for essentially ambulatory patients who are able to go to a cafeteria for meals, perhaps make their own beds, and take their own drugs. These patients are apt to be undergoing investigation or therapy not requiring all the expensive facilities of the intensive care or intermediate care units but needing some specialized resources. Counselling and health education by public health nurses would be more suitable for the needs of these patients than traditional clinical nursing.
4. *Long-term care.* Patients in need of minimal nursing but prolonged physical, X-ray, or other therapy can be housed in long-term units. Close integration with physical and vocational rehabilitation units is usually desirable. Extended care facilities and convalescent homes are a variation of this level of care.
5. *Ambulatory care.* Traditional "office," "clinic," "dispensary," or "outpatient" care is embraced by this category. It is desirable to provide "overnight" and "observation" beds for patients who may need to lie down for a few hours or a few days. Such patients should be accommodated *by* the hospital for brief periods without being subjected to the costs and hazards of being *in* the hospital as traditionally organized. In connection with ambulatory care, it should be noted that rapid growth of third-party payments (either from commercial or governmental sources) is breaking down the traditional barriers between "private," "welfare," "charity," and "clinic" patients. Every patient is, of course, entitled to appropriate confidentiality in his private transactions with a physician or nurse. Many university hospitals are now combining their "private" and "welfare" ambulatory facilities. Decentralized waiting rooms and efficient appointment systems can remove the undesirable features of outpatient waiting rooms shared by patients of varying socio-economic backgrounds.

6. *Home care.* Patients who require medical or nursing supervision but who can be cared for at home can benefit greatly by this level of care. It has yet to be widely developed in the United States. Apart from the economies involved, many patients are happier in their own homes with their families.

Finally with respect to the degrees of patient responsibility, three types may be identified:

1. *Continuous responsibility.* This implies complete responsibility for patient care in an organized responsive fashion with respect to geographical accessibility and temporal availability. The patient should be able to approach a designated source of care (a nurse or primary care physician) at any reasonable or even "unreasonable" hour of the day or night with any reasonable or "unreasonable" complaint.

   Now, the *only* way in which the university medical center can have a relatively stable population to whom it can be readily responsive, and for whom it can be completely responsible is to strictly limit the number of people for whom this service is provided. The clear advantages of specialization and differentiation both in research and service, to say nothing of education, can best be achieved if organization of the clinical services is related to the different degrees of responsibility assumed. The university medical center can no longer be all things to all persons at all times. The notion that it will give "succour to the sick" whenever anyone drops in is *"irresponsible,"* it cannot be done by the modern university medical center. To say that it serves "all the medical needs of a great city" or "the entire state" is equally *"irresponsible,"* if not nonsense. To say that it will give complete, primary care to a defined population of one thousand, ten thousand, or a hundred thousand persons is responsible. The center, its staff, the community, and the patients all know the nature and extent of the responsibility assumed. For this population, whether it be defined by geography, place of residence, or enrollment, the university should be expected to innovate and experiment with new ways of delivering medical care and to evaluate and compare them. For the rest of the community's problems, it should avoid responsibility—it should behave *"irresponsibly"* in Flexner's sense, lest it be swamped with demands for "service" and abrogate its primary responsibility to innovate and experiment. There are community hospitals and health departments charged by society with responsibility for organizing the day-to-day services in the community. The university has another mandate; for it to abrogate this mandate would be *"irresponsible."*

Although usually applicable to primary care patients, continuous care is also associated with some forms of super-specialty care. Where the patient is referred to a highly-specialized physician for prolonged meticulous care of the type that he alone can give, the relationship would involve continuous responsibility.

2. *Intermittent responsibility.* This kind of responsibility is most appropriately accepted by the Diagnostic and Consultant Clinic and by the Multiphasic Screening Clinic. The patient is seen by referral from a source of primary care for diagnosis, consultation, screening, or treatment and on completion of the appropriate care is referred back to the source of primary care, i.e. the referring physician. It would, of course, also be appropriate for super-specialty services to provide intermittent care on a consultant basis to a referring physician, provided the participants (i.e., the patient, the referring physician and the super-specialist) all understood the arrangement.
3. *Episodic responsibility.* This kind of responsibility is usually encountered in the emergency room where an acute espisode of illness is presented for care. Unfortunately, at the present time, this form of responsibility characterizes much, if not most, of the care given by university medical centers. To restrict most of the care provided to this limited form of responsibility does, indeed, seem *"irresponsible"* and the university centers now seem to be recognizing that the more activity of this kind they undertake, the less they accomplish with respect to their primary missions in society. It is an appropriate level of responsibility for a triage service in which the only service rendered is to make a decision about the most appropriate sources of care for a patient without a source of primary care.

If the various categories related to type of care, level of care, and extent of responsibility are regarded as valid, then they have important implications for the manner in which the services of clinical departments should be arranged. Traditional dichotomies between "inpatients" and "outpatients" or between horizontal and vertical patients becomes inappropriate.

There are many possible patterns for rearranging clinical facilities in accordance with the principles outlined above but certainly some traditional patterns would be excluded and others strengthened. For example, it would be unreasonable to expect super-specialists to give primary medical care to patients from the defined population for whom the university accepted continuous responsibility. Similarly, it would be unusual for primary care physicians to be caring for patients in an intensive care unit of the hospital, but it would be quite appropriate for them to care for them in the self-help or intermediate care units. Patients from the primary care unit would not

be expected to appear at the emergency room of the hospital since they would have a known source of primary medical care always available to them. Physicians in the community would no longer hesitate to refer patients to the diagnostic and consultant clinic or super-specialty clinic because they would know that their patients would be returned promptly to them, unless arrangements for transfer of continuous or intermittent responsibility had been made.

Of much greater importance, perhaps, than the service aspects of any reorganization of clinical services would be the opportunity afforded each faculty member to see those patients for whom he was best suited by training and temperament. Appropriate problems would be presented to those groups interested in primary care and to other groups interested in super-specialty care in manageable proportions. Most would be conducting the kinds of research that the needs of their patients stimulated. In the primary care clinic and the multiphasic screening clinic, there would be opportunities for much needed epidemiologic research designed to provide better understanding of the distribution of symptoms, conditions, and diseases in general populations and health services research to evaluate new, and hopefully improved, ways of providing medical care for communities.

Summary

In the post-Flexner era of medicine, it seems essential to acknowledge the desirability of introducing "new subjects" into the curriculum and "new organizational patterns" into the clinical services if the medical school is to be concerned with health problems in the community. Two new subjects are advocated; namely, epidemiology and medical sociology. These should be taught as basic subjects in the pre-clinical years. In the clinical years, rather than have abstract teaching of "community medicine," it seems important for the traditional departments to reorganize their clinical services so that they become involved in the care of appropriately defined groups of patients. This means that the departments of pediatrics and medicine, primarily, and to a lesser extent surgery, psychiatry, and obstetrics will need to reorganize their services so that they staff the several types of clinics each with its clearly defined responsibility, and each using appropriate levels of patient care facilities. This approach to new patterns of organization requires the addition of new activities and staff rather than curtailment of old activities; it encourages definitions of responsibilities and relationships rather than persistence of "irresponsibility" and confusion. Above all, it builds on the strengths of the modern medical center whose growth was initiated by Flexner when he introduced science into medicine.

Finally, the new activities should be associated with strong research programs directed not only at the communicable and noncommunicable diseases but also at the problems of medical care and the evaluation of health services. Only in this way can the educational programs and clinical services adopted by the medical center of today be modified to meet with the needs of the community tomorrow. What is needed in the post-Flexner era is more science, not less, and science that is employed by the medical school faculty to alleviate the problems of its community.

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