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PRESIDENTIAL ADDRESS

Health Systems Research in the Mainstream of Academic Medicine

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The opportunity, euphemistically speaking, presented by this Presidential Address, has been used by my many illustrious predecessors to consider problems relevant to the educational and research activities of clinical investigators. I believe I will not be departing from this tradition if I examine with you the goals we must project for academic health centers in the coming decade. These goals must preserve those traditional values in biomedical education and research which are essential for the health of the nation. In addition, these goals must include a commitment to improvement in our health systems through research, development, and broadened educational programs. This is not a new thesis. From my perspective as a relatively long-time clinical investigator, short-time administrator, and a "Young Turk" for only a few more hours—I see health systems representing the most urgent institutional priority of our medical schools.

Those of us who grew up in academic health centers during the fifties and sixties, must recognize that our early experiences, while in retrospect successful beyond all reasonable expectations, are not the models by which medical schools will provide effective leadership in health sciences in the decade ahead. The post-World War II period has been viewed as an age of affluence for health sciences and an era in which the scientific elite were actively engaged in the shaping of science policy with an effectiveness unprecedented in American history (1).

We are in a new era with respect to public involvement in determining policies governing directions for medical schools, the ready availability of funding for biomedical research programs, and the political character of issues related to health. I need not review the factors contributing to the development of these changes. Among them must be the fact that national expenditure for health reached 70 billions in 1970 compared to 26

billions only a decade ago, while, by various parameters, our systems of health-care delivery and disease prevention are quite inadequate (2). Indeed, the uneven accessibility, efficiency, and effectiveness of health services are, as David Rogers stated, "becoming so acute and so visible as to threaten the entire structure of American medicine" (3).

While I doubt that anyone here will deny that health is the business of medical schools, medical schools cannot be expected to respond to all the challenges that exist in achieving better health in our society. One need only cite the World Health Organization's definition of health to recognize this important fact. This definition states, "Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity." Socioeconomic factors are most important determinants of the health of a people, and the resources of academic health centers cannot overcome issues such as poverty, which so restrict the delivery of health care and the prevention of disease. The challenge to academic medicine is how we can optimally use our special talents in education and research to contribute to the resolution of the "health crisis" which faces our nation.

To do this well will require new education and research programs. We can sketch out certain aspects of the nature of these changes, although specific programs must be expected to differ in different schools.

The objectives of the institutional changes should include: (1) developing a capability for research in health systems, which may encompass economics, operations research, information science, social research, political science, management science, and a variety of other areas as they relate to health in addition to the traditional clinical and preclinical sciences; and (2) developing educational curricula in the health sciences for a broad

spectrum of health professionals which, eventually, will consider undergraduate, graduate, and postgraduate training as a continuum and provide educational opportunities for diverse careers, which may range from community health workers to biomedical scientists, from health administrators to physicians with a deep interest in ambulatory care.

The problems that must be addressed are well known to you (4, 5). They include a search for a solution to the fragmented care, methods distribute equitably to health care resources, technology for effective disease prevention, and definition of what are the best uses of resources relative to needs, cost-effectiveness, quality, and costs of services. It is highly unlikely that existing academic health centers, with their present faculties, have the expertise and resources to adequately contribute to the solution of these problems. Superficial changes in existing patterns of medical care will not provide the long-term answers which are required. We are idealistic in responding effectively to these challenges.

In other words, for medical schools to participate appropriately in the improvement of the nation's health system is both a difficult and a long-term task. It is, nevertheless, an essential task that commands the utmost in thought and imagination. It represents, perhaps, the greatest challenge to medical schools since the Flexner Report. It is a challenge that will certainly not be successfully met if, in our effort to respond, we compromise the quality and productivity of our biomedical research and educational programs. As I see it, in the future of our medical schools, biomedical and socioeconomic research are interdependent and we can fulfill our commitment only if we are involved in both. This does not mean maintaining two unrelated efforts. Rather, the interaction of biomedical and socioeconomic sciences goes to the core of approaching problems in health care delivery and disease prevention.

Involvement in health systems research and education requires a spectrum of intellectual talents some of which are not traditionally found in faculties of medicine. These include the disciplines of economics, sociology, systems analysis, management sciences, engineering, and other sociopolitical and technological fields that relate to health. Clearly, it will rarely be practical for any single medical school to attract this full spectrum of talent to its faculty. Some schools will and, in fact have already recruited professional talent in one or several of these areas. All schools must of necessity develop appropriate intra- and interinstitutional relationships which facilitate the effective exploitation of available talent which can be brought to bear upon the demanding problems in health systems research and training.

Further, these new academic directions must be structured to represent accurately the institutional commit-

ments of medical schools. These programs, therefore, cannot be set apart in separately administered units, left to schools of public health, or even departments of community medicine within a faculty of medicine. If programs in health systems research and education are not supported by the resources of the mainstream departments of our schools—e.g., medicine, pediatrics, surgery, psychiatry, etc., they will provide neither the quality of clinical and biological expertise that the challenges demand nor the educational models that will attract our best students. The needed changes can only be effectively brought about by persons who have been educated in ways consistent with the changes desired.

Implicit in the development of new interdisciplinary relationships dedicated to these new challenges for academic medicine will be an alteration in many of those traditional departmental lines which represent the primary administrative structure in most medical schools. Departmental structures have many administrative and academic features to commend them. The survival of these desirable features will depend on our ability to adapt them in such a manner so as to use their resources in an interdisciplinary setting. If done appropriately, such interdisciplinary research and teaching programs should strengthen the involved clinical and nonclinical departments. Future programs in health systems research and education will be strongly influenced by the organizational framework within which teachers and investigators actually work. Effective health services research and education are likely to require relatively large numbers of people with related and complementary interests and talents working closely together. It is important that members of the clinical staff responsible for operational aspects of health programs be involved in the planning of such programs. It will be desirable, therefore, to create an organizational framework which not only permits, but strongly encourages, the development of interdisciplinary research in health systems (Fig. 1).

It is clear that this type of research cannot be regarded either as inexpensive or as feasible as a short-term commitment. It is likely that granting agencies will be particularly inclined to provide support if they recognize unequivocal institutional commitment and an institutional organizational framework that promotes multicategorical research. Evidence of institutional commitment must include allocation of staff and space to health systems research. Such decisions, however, cannot be taken lightly in our medical schools. Almost all of us now have larger faculty commitments than our financial resources may warrant. Further expansion of educational research facilities could exacerbate already marginally compensated systems despite the possible availability of government funding. The Nation's medical

# ADMINISTRATION OF UNIVERSITY HEALTH SYSTEMS RESEARCH UNIT

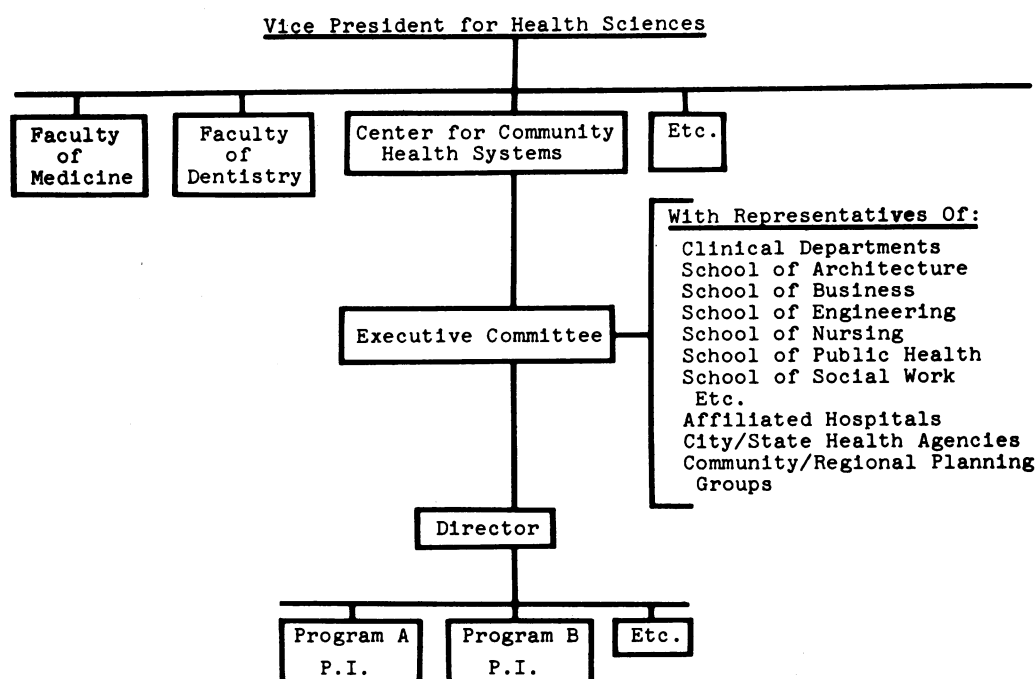


FIGURE 1 Schematic representation of the administrative relationships of health systems research efforts at Columbia University. The Director of the Center for Community Health Systems reports to the Vice President for Health Sciences, who is also the Dean of the Faculty of Medicine. The Executive Committee, with representatives as indicated, serves as the advisory body for all research and educational programs of the Center. Each program has a designated principal investigator (P.I.). The staff of the Center includes: (a) members with joint appointments in their primary discipline (e.g., Medicine, Sociology, Pediatrics, Economics, etc.) and in the Center; (b) full-time research associates involved in one or another of the programs of the Center; and (c) supporting staff consisting of technicians, secretaries, etc. The Center has assigned space and budget. The Center's activities span research, development and educational programs in health systems.

schools cannot afford to increase their commitment to health services research unless assurances are provided by the Congress and Administration that the difficulties that lie ahead in this area are appreciated. Without serious commitment by and to our medical schools, the field of health services research may be left entirely to those without direct involvement in health care. Even if large sums of money for health systems research become available, it cannot be overemphasized that real advances in this area may appear only after many years.

I recognize that much of what I have just said reflects a future which will be shaped, in a large part, by public policy decisions. This Nation is clearly embarked on a new course in its policies toward support of medical education, medical research, and health services. The entire system of medical care has come under public and governmental scrutiny, a scrutiny directed at fundamental biomedical research, the supply

of health manpower, the manner in which services are organized and delivered, the financing of services, as well as a host of related matters (6). The details of this new course are difficult to discern. We confront a kaleidoscope of shifting and, even occasionally conflicting, policy decisions. There are currently 10 competing national health insurance plans under various degrees of intensive consideration. Half a dozen legislative proposals vie for the mandate to alter the organization of health services on the assumption that national political directives will be necessary to achieve significant improvements in our health systems. There are a variety of proposals oriented toward incrementing and, hopefully, making more effective goal-oriented biomedical research. Despite the haze and confusion, there remains a clear need for a better defined commitment to research and education in health systems within our medical school curricula.

We could ask the question, if there is great need, why has the area not attracted more of our established medical academicians? In general, clinical investigators choose an area because some aspect of it intrigues them, not the least being the possibility that it is not as complex or insoluble as most people in the past have thought and that some insight on their part will make a worthwhile contribution to understanding the phenomenon. On the whole, successful investigators are clearly concerned as to whether the problem on which they are working is a significant one with broad consequences, or whether the fruition of their labors is so narrow as to be of interest only to the investigator. Clinical investigators may be motivated for humanitarian reasons, by the ease of availability of support in one or another area, by the intellectual challenge of the problem, or by a combination of these and other more complex motivations.

During the past two decades, the vast majority of clinical investigators have focused their efforts on biological phenomena for which basic information, generally derived from studies of simple organisms, encouraged extension to complex mammalian and, even, human subjects. It is not difficult to understand why, in the face of a harvest of successful biologic research, the majority of clinical investigators decide that attacking the extremely complex and often ill-defined problems involved in health systems is not attractive.

There is now a certain momentum developing in research in systems of health care delivery and disease prevention including consumer education. It is incumbent upon us in academic medicine to capitalize on this momentum and nurture its growth with the same enthusiasm and commitment that wrought the growth of contemporary biomedical research. Techniques derived from sociology, economics, and other disciplines have already been developed which are applicable to health systems and could lead to important new concepts. It is, I believe, necessary for us to recognize that new concepts in health systems are essential if we are to achieve meaningful, long-term incremental health for our society.

It is easy to state, particularly in these general terms, the need for health systems research and education in our medical schools. The major problem is who is going to carry it out, particularly at the clinical level. Most of us who have made a commitment to academic medicine are in a mold neither optimally trained for nor oriented toward this new direction in health research. The predominant existing pattern of medical education and postgraduate training in this country represents a real drawback in terms of a role model for our students, teachers, and future investigators in this area. There is no reason why teaching and research in health systems should have requirements less rigorous

than those which we demand for creative biomedical investigators. As Irving London stated (7) in his Presidential Address to this Society eight years ago, "the teaching of clinical medicine in terms of a deep understanding of the basic medical sciences is best done by physicians who, themselves, are well trained both in clinical medicine and in one or more of the basic medical sciences, in other words, by well-integrated physicians and scientists who engage in creative scholarship." Similarly, the teaching of clinical medicine in terms of a deep understanding of health systems requires physicians who, themselves, are well trained both in clinical medicine and in one or more of the sciences related to health systems. Persons with good clinical training who become expert in management sciences, health economics, or other related fields are required to provide the bridge between clinical medicine and health systems research. This role is analogous to the one clinicians, trained in one or another basic biological discipline, played in relating clinical medicine and basic biological research. Those among our medical school faculties who meet these criteria for effective leadership in health systems education and research today are few indeed. One important step might be for the Federal Government encourage vigorously to the establishment of training programs in this area analogous to categorical training programs that now exist. A number of schools have begun to develop the capability for providing quality training programs in this area and deserve categorical recognition from funding agencies.

Implicit in my argument is the recognition that successful realization of a commitment to health systems research and education will depend largely on young investigators, just entering research careers, to provide the scientific manpower in this area. Among our medical school faculties there does not exist a body of senior scientists, confident and competent in health systems research, armed by past successes, and serving as the source of new ideas for future research. Nevertheless, the senior members of our academic communities can make critical contributions to improving health systems. They can attract good, young, investigators to pursue health systems research in an institutional framework which is flexible and not authoritative with regard to departmental lines, in which a commitment at the appropriate institutional level encourages their efforts, and where, by tangible means, i.e., academic advancement, funding, and facilities, our traditional departments will support the necessary interdepartmental effort.

Least there be a misunderstanding, I would like to emphasize that it would be, in my view, totally inappropriate for universities to become instruments for

rapid social change or for medical schools to assume, as a primary priority, the incremental health care delivery which we recognize as an immediate societal need. Universities and medical schools are, in fact, very fragile instruments by which to achieve rapid social change and are susceptible to easy decompensation if inappropriately used. We obviously have to develop a logical and acceptable policy on health care responsibilities or we will continue to be harassed by conflicting interests and demands that will dissipate our resources and vitiate our efforts to provide those contributions which academic health centers alone can make.

Thus, medical schools should continue to accept, as their first priority, the education of physicians and other health personnel. If we do not stand firm in this regard, it is likely that the health crisis of the seventies will look pale in comparison to the chaos of the eighties and nineties for lack of qualified health professionals. Education is inseparable from research. Further, our effectiveness as teachers, investigators, and clinicians will be greatly influenced by the breadth of our viewpoint and our understanding of the society within which we function.

In concluding, a quote from a speech by the sociologist, Robert Merton, made at a symposium dealing with "The Creative Organization" is pertinent: "For individual organizations the recruitment of men of talent and the rate of innovation tend to be mutually reinforcing. The innovative organization recruits men of creative potential and helps them convert that po-

tential into productive innovation by providing them with an effective environment within the organization. As the flow of innovation becomes visible to others in the environment of the organization, it facilitates the recruitment of new men of talent. The cycle is renewed and amplified in magnitude" (8).

We must now give new life to research in health sciences by incorporating into the mainstream of our priorities a commitment to health systems research and by broadening the view of our responsibilities to health professional education.

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