

# Can Medical Schools Remain the Optimal Site for the Conduct of Clinical Investigation?

PRESIDENTIAL ADDRESS BEFORE THE 67TH ANNUAL MEETING  
OF THE AMERICAN SOCIETY FOR CLINICAL INVESTIGATION,  
ATLANTIC CITY, NEW JERSEY, 5 MAY 1975

Eugene Braunwald

*From the Department of Medicine, Harvard Medical School—  
Peter Bent Brigham Hospital, Boston, Massachusetts 02115*

The past several years have witnessed a profound upheaval of many elements of Western civilization. Not since the changes catalyzed by the industrial revolution has society undergone such drastic reorganization, yet the pace of today's changes is infinitely more rapid. Relations between individuals, economic classes, races, age groups, and the sexes are being radically revised. Clinical investigation has not been immune from the current pressures and I believe that it may be of some interest to attempt to identify the major forces currently acting on our field.

One of the themes on which my predecessors have focused attention during the past few years is the relationship between clinical investigators and the federal government, which may be considered the major purchaser of biomedical research. They have pointed out the ultimate societal dividends likely to accrue from the investment in biomedical research, have decried the inadequate support of research in recent years, and have also encouraged investigators to assume more active interest in the development of government policy that affects the welfare of biomedical research. I will choose a different theme and not look primarily at our external milieu, i.e. at the relations between the federal government and our academic institutions, but rather examine our internal milieu, i.e., the basic organizational units in which clinical research is actually conducted.

We take for granted that the vast bulk of clinical biomedical investigation in this country is carried out in

medical schools, and most of us would find it difficult to imagine a system in which teaching, research, and patient care are not inextricably intertwined. However, it may be well to remind ourselves that there is nothing sacred or binding about this partnership between biomedical research and the medical schools. Indeed, the great European research institutes, such as the Max Planck, were deliberately established to be freestanding; similarly, the institutes of the Soviet Academy of Sciences and of its Academy of Medical Sciences have relatively little relation to that nation's universities and medical schools. Even in this country and the United Kingdom, large, outstanding biomedical research laboratories operate under the auspices of pharmaceutical houses or under governmental auspices at the campuses in Bethesda and Mill Hill, without formal connections to academic institutions.

However, shortly after World War II, a conscious decision was made to carry out the bulk of this country's biomedical research effort in its universities and medical schools. Clinical investigation, in particular, has been carried out almost entirely in medical schools and their closely affiliated teaching hospitals. These institutions have provided a hospitable soil for the nurturing and ultimately the flowering of clinical investigation. As this plan has been implemented during the past three decades, the benefits to the research endeavor have been enormous. The constant influx of bright, energetic, and enthusiastic young investigators

from the ranks of the students, house staff, and fellows who populate an academic medical center has provided a key, perhaps the most important, ingredient for the research process. In contrast, the relative isolation of the freestanding institutes from the most talented pre- and postdoctoral students has tended to impair their recruitment efforts unless extraordinary incentives were provided. On the whole, the marriage between the country's research enterprise and the academic health centers has until now been a happy one, even though both parties have at times wanted the other to give more and to take less.

However, a number of major issues are now emerging that threaten the stability of the marriage between the country's research enterprise and the academic health centers, and these issues endanger the continuing role of the medical school as the most favorable environment for the conduct of clinical investigation. Three of these issues will be discussed.

The first of these revolves around the magnitude of the medical schools' commitment to service roles. In the past few years academic institutions have been rapidly propelled into the direct delivery of health services by pressures exerted by the communities surrounding the institutions, as well as by the genuine desire on the part of all elements in the medical center to contribute to the communities' needs for health services. An additional stimulus has been the desire for the development of new programs in primary care, and even the most traditionalist faculty recognizes that for these programs to have any academic validity, they must be based on realistic models. Others have argued that the assumption of major service roles by many institutions may seriously distort the fundamental purposes of the academic center, i.e., the generation and transmission of knowledge. Also, they have pointed out that medical schools are not well organized to render clinical services to large populations and that they are not particularly effective in this regard. I believe that this question must be examined critically and continuously to determine prospectively and for the long term how big a program of delivery of health care and how much research into the delivery of health care are appropriate for each school. For this analysis the school's overall academic objectives must be clearly defined. Just as these objectives differ among schools, so might the magnitude of health care delivery programs differ. Just as we as individuals must establish priorities in the activities in which we engage, so must each institution establish its priorities. It is vital to the very character of our schools and therefore to their ability to serve as appropriate sites for clinical investigation that this question be addressed seriously and forthwith.

A second issue that has critical implications for clinical

investigation is that of academic tenure. Individuals in all areas of creative scientific endeavor exhibit marked variability and unpredictability in their rates of maturation and decline. The rapid movement of the cutting edge of science causes early obsolescence of many biomedical investigators, particularly those whose clinical and administrative responsibilities make it difficult, if not impossible, to retool intellectually frequently enough to remain in the forefront of their fields. Tenure was originally designed to prevent the harassment of scholars who espoused unpopular political views, and to protect faculty members from the indiscriminate attacks of irresponsible administrators or unscrupulous governing boards. As such, it became one of the principal bulwarks of academic freedom. The concept was quickly embraced by the whole academic community and is now applied to relatively apolitical disciplines such as mathematics, structural engineering, poultry feeding, and otorhinolaryngology. A serious reexamination of the advantages and disadvantages of tenure in medical schools is clearly in order. On the positive side, it serves as an important incentive, provides desperately needed stability to academic programs, and certainly represents a humane, gentlemanly personnel policy. On the negative side, it may result in complacency. We have all seen formerly productive individuals mark time, become authoritarian, defensive, and rigid, occupy valuable space, and utilize valuable resources during the last 10 or 15 years of their professional lives. What should the permanent obligations of a medical school be to an individual who is promoted in his mid-30's to an associate professorship, when his most productive period as an investigator might terminate by the time he reaches his mid-40's? Would clinical investigation and academic medicine be better served if he or she were offered a series of renewable 5-year contracts?

I do not advocate discarding all emeritus members of the American Society for Clinical Investigation on an academic scrap heap, but I do feel that since research is largely a young person's sport, as the maturing investigator's talents inevitably decline, upon renegotiation of the contract many useful teaching, administrative, and clinical tasks might be found for him or her, so that he or she could make room gracefully for the younger person coming along. I don't presume to know the answer to this complicated question, but I do feel that it too must be addressed at a time when our medical centers confront an era of no growth or at best of very slow growth of their academic activities and when it is vital that those individuals best equipped to use the limited facilities and resources are placed in a position to do so.

The responses of medical schools now addressing

this issue are likely to have a profound impact on the ability of medical schools to conduct research in the future. Unfortunately, the examination of the tenure system, where it is being carried out, is being forced exclusively by financial imperatives. Here again, the responses should take into account the implications of the ability of the school to provide a climate hospitable to research.

The third issue I would like to discuss is the potential effect on clinical investigation of the changes in the nature of departmental chairmanships. In the past, the ability, encouragement, and support provided by institutions' academic leaders have played a critical role in making medical schools the ideal sites for carrying out the nation's biomedical research programs. Chairmen of clinical departments have had not only the responsibility but also the authority to select from among their students and house staff those with the greatest promise of becoming creative investigators, to guide their training, often in other institutions, and then to encourage their growth into independent investigators. A department chairman's ability to identify a very small number of future leaders from among hundreds of students, i.e. his ability to serve as a research talent scout, his long-term personal commitment to the developing investigator, and his maintenance of an intellectual climate in which the investigator in training would be nurtured and the established investigator would flourish, have been critical but inadequately recognized contributions of the medical schools to biomedical investigation. In the past the relatively long tenure of department chairmen in their positions helped to foster this very important feeling of stability, both among investigators in training as well as among established investigators.

As I stated at the outset, radical alterations in virtually every organization are now taking place, with the requirements of leadership and governance changing in groups as diverse as labor unions, the U. S. Congress, foundations, educational institutions, and businesses. One manifestation of this turmoil, as it has affected departments of medicine, has been the acceleration in the rate of turnover of departmental chairmen.

There are currently 105 incumbent department chairmen, and 12 vacancies exist. Of these 105, only 42 occupied their positions 5 years ago and only 15 did so 10 years ago. This occurred despite the fact that the chairmen were on the average only in their mid-40's when appointed. The half-time, i.e. the  $t_{1/2}$ , is 4.0 years. Another interesting statistic is that of the chairmen who left their positions during the past 2 years, only 12% did so at what is considered to be normal university retirement age of approximately 65 years. The others left the chairmanship prematurely or died while in office. This contrasts strikingly with the situation only a decade

earlier, when 50% of chairmen left office at normal university retirement age. This much more rapid turnover of chairmen has been coupled to another new phenomenon, namely that of an increasing number of outstanding academicians who refuse the opportunity to become chairmen, in some instances declining what had been considered the most prestigious chairs in academic medicine. I thought it would be of interest to examine in greater detail some of the vicissitudes in the lives of chairmen of departments of medicine, present and past.

I have been fortunate to have had the opportunity to collaborate with Mrs. Rhoda Isselbacher and Dr. Richard Lee in all aspects of this study. We have developed and analyzed an extensive questionnaire and diary filled out by the incumbent chairmen, by a group of 65 former chairmen, and by 210 members of the American Society for Clinical Investigation who have never been chairmen. We have learned that leading the departments of medicine of American medical schools, and therefore playing key roles in the future of clinical investigation, we have a group of harried, exhausted, overworked, albeit well-paid individuals, who see themselves as unsuccessful professionally and who are perceived as such by key members of their departments. 16% of the chairmen, and only 6% of those now under the age of 50 years, plan to remain in their current positions until retirement, and more than one-third are so frustrated that they have given very serious consideration to resignation in just the last year. Our survey of the former chairmen of departments of medicine reveals that very few of those who resigned and returned to regular professorial status before the age of 60 years have found professional satisfaction. Many have found it difficult to obtain research support; perhaps their years as chairmen and the necessary time commitments to the administrative aspects of the position dulled their research abilities. Also, those who remained in the departments they previously headed complained of being uncomfortable in their new peer group relations and in particular they report that they find it awkward to work under the new chairman.

It is little wonder then that we found in our survey that only 17% of members of the American Society for Clinical Investigation reported that they would accept a departmental chairmanship if it were offered, and it is not surprising that so many of the most able men and women in academic medicine today decline the opportunity to attain what was until recently considered to be a pinnacle of professional success. While we have restricted ourselves to the study of chairmen of departments of medicine, there is evidence that the results apply, to a greater or lesser extent, to other large clinical departments.

My concern about the results of our survey relates

not only to the narrow issue of the professional satisfaction or dissatisfaction of department chairmen. Rather, it involves the much larger issue of the direction, indeed the vigor, of academic medicine and clinical investigation. We are all painfully aware of the consequences of inadequate or inappropriate leadership in all areas of human endeavor. There is a growing perception that many contemporary problems have arisen because of our inability to attract or to retain the most talented, most strongly motivated individuals of the highest personal integrity in positions of leadership in the government, industry, and the professions. This sad state of affairs may now be spreading, indeed may already have spread, to academic medicine.

I can only conjecture about the cause of this problem. Many department chairmen strove for and ultimately achieved their positions, using as models their own chairmen when they were medical students or young house officers. Why is this model no longer appropriate today? Dr. Saul Farber has succinctly summarized the issue by pointing out that it is because medical schools have been transformed into medical centers. We all know that the modern academic medical center is really a medical conglomerate with a multi-million-dollar budget, several hospitals and ambulatory care units, thousands of employees and inpatients, and hundreds of thousands of outpatients. The assumption by medical schools of the responsibility for important segments of the health care system, to which I referred earlier, has played a key role in the transformation of the medical school into the medical center conglomerate. Departments of medicine are the largest organizational units within these conglomerates.

The problem then is that a departmental chairman today requires skills and talents that differ from those he or she is likely to possess. Related to this problem are the enormous time demands placed on the modern department chairman, who constantly feels that there simply are not sufficient hours in the day to make a significant personal impact, whether as teacher, clinician, or investigator. Rather, he finds himself flitting from meeting to meeting and from battle to battle, without sufficient time to get to know his or her house staff personally, or even to attempt to inspire his students as he himself might have been inspired by his professor. The feeling that the chairman isn't doing a satisfactory job in *any* of his several tasks is often shared by his dean, hospital director, patients, students, house staff, faculty, research fellows, spouse, and children. All of these groups to whom he is responsible often find him a remote figure who does not appear to be genuinely interested in *their* particular problems. His difficulties are, of course, aggravated by the fiscal problems that beset academic medicine today, since

these have resulted in a growing dissociation between the chairman's responsibility for developing and maintaining programs of academic excellence and the resources required to accomplish this task. An additional level of complexity is introduced by the fact that in his effort to develop a program that pays more than lip service to the university's role of creating new knowledge, the chairman is forced to expend very limited resources in the national competition for faculty and for programs of scientific excellence, which often do not satisfy the local requirements for teaching and health care delivery.

It is discouraging to watch institutions in their attempts to cope with this problem. Perhaps the most common response is to do nothing drastic, i.e., to maintain the chairman's tenure as indefinite, perhaps with perfunctory periodic reviews, but to leave the medical school's and department's basic organization unchanged and to maintain the traditional criteria for the selection of the chairman. This approach is unlikely to be successful, since all signs point to a continuation, probably an acceleration, of all of the influences that have led to the present difficulties.

The second institutional response is the creation of the time-limited term. Again, this does not tackle the fundamental problems, although when, as a consequence of these problems, the chairman does not perform well, he can be gracefully eliminated. I fear that this approach is also unlikely to make the position of chairman so attractive that it again becomes the highest aspiration of our most promising academic physicians. As a matter of fact, the uncertain future and generally unpleasant experiences of chairmen who have rotated out of their posts, either voluntarily or involuntarily, is likely to have precisely the opposite effect.

The third form of institutional response seems more logical at first. It consists of selecting individuals whose qualities do fit the perceived requirements of the position. Since so many of the problems faced by departmental chairmen now are managerial, i.e. the management of large numbers of people, facilities, and dollars, it is perhaps natural that institutions are turning more and more to individuals who have established a good track record at some other managerial task, such as conducting a successful house staff program, or who understand the intricacies of various forms of third-party reimbursement schemes. My concern with this response, of course, is that we live in an era when we desperately need true academic leaders, not managers.

Having criticized current proposed solutions to the problem posed by the modern chairmanship, I think it appropriate at least to try to suggest other approaches. Basically, I propose that rather than change the type of individuals selected from one who is deeply rooted in

the full academic process, including a personal commitment to research, an attempt be made to restructure the position so that this type of individual will again find professional fulfillment in a chairmanship.

One approach might be to create the post of executive vice-chairman, to be filled by a highly paid professional administrator, preferably a non-M.D., who would be responsible under the chairman's direction for almost all of the administrative duties of the chairman, leaving the latter free to devote himself to the task of providing true academic leadership. In our survey, we found that the salaries of the highest paid non-M.D. administrative assistants to department chairmen average \$13,320, or less than 25% of the chairman's salary, while the budget for which the chairman is responsible exceeds \$2.5 million when assessed most conservatively. It is interesting to compare these figures with those of business corporations of comparable size. I have learned that the incomes of the executive officers of companies having annual budgets and employing approximately as many individuals as modern departments of medicine, i.e. 150-170 persons, including faculty, house staff, fellows, and the chairmen's personal technical, administrative, and clerical support personnel, but excluding the faculty's technical and clerical support, are similar to those of department chairmen. However, their highest paid administrative aides, usually given the title of vice-president for administration, earned an average of \$40,000, i.e., approximately 75% of the chief executive's salary and three times as much as a chairman of medicine's principal administrative assistant! An argument in favor of this approach is that we are learning that nonphysicians can work closely with physicians in a variety of important roles in the health care system, thereby freeing the physician for tasks for which he or she has been trained over many years. Can there be a better example of a physician-extender than a trained executive who relieves a physician-scientist of the administrative tasks that the latter is not well equipped to handle and that prevent him from carrying out those academic tasks for which he is trained?

One of the principal problems faced by current chairmen is that the organizations for which they are responsible are so large that little if any time is left for other than managerial tasks. Students of business administration have long realized that there is a point of complexity beyond which a business is no longer manageable. When top management has to depend totally on abstractions, rather than on direct contacts with the employees, customers, and technology, then the business has become too complex to be manageable and reorganization is necessary. The size, structure, and strategy of an organization are closely related. Different sizes

require different structures, different policies, different strategies, and different behaviors. For any organization, there is an optimum point—and it may well have been reached by some of the giants, be they universities, businesses, or departments of medicine—beyond which additional size no longer improves performance capacity, but actually impedes it. In other words, the optimum size may be well below maximum size.

When a business reaches the point of diminishing returns, then responsible management finds ways not to grow further but to diversify and perhaps to give birth to new independent businesses that then have the capacity for growth and can benefit again from the economies of scale. Therefore, a second approach to restructuring the chairmanship that might be considered would consist of breaking up the large departments of medicine in many schools and creating multiple independent departments of medicine, perhaps one based in each major teaching hospital affiliated with a medical school, so that the total number of faculty, fellows, and house staff for which any department chairman is responsible does not exceed a manageable number—let us say 50-80. The exact number obviously could not be fixed rigidly and might depend on local circumstances. This restructuring could be phased with due recognition to commitments to incumbents. According to this scheme, the smaller size of each department, which might be analogous to British professional units, would then allow the chairman the time for academic leadership, personal contact, and guidance of faculty, junior staff, and students, as well as for his or her own scholarship. This approach does, of course, create administrative complexities of its own, but it is inconceivable to me that they are not soluble.

I am not yet prepared to recommend either of these approaches or some combination as the solution to the problems posed by the chairmanship of a modern department of medicine. Obviously, no two medical schools present identical problems, and different schools might well employ different solutions. I present these suggestions, however, because of the conviction that it is essential that we now open the dialogue on the mission, organization, and governance of our clinical departments so that our academic institutions remain the optimal sites for the conduct of clinical investigation.

I have brought up three issues that deal with the internal structure of our medical schools. Of course there are many others of importance that require airing, and one proper forum for these examinations, of course, is the medical school itself. However, this should not be the sole forum. Organizations, such as the American Society for Clinical Investigation, deeply concerned with the future of the field should also deal with these important questions to find answers that will not en-

danger one of the most fundamental of a university's tasks, i.e., the generation of new knowledge.

From the birth of the Royal Society in England in the 17th century until 10 or 15 years ago, the function of scientific societies has been almost purely scholarly, i.e., to improve scientific communication in a variety of ways: to conduct scientific meetings and symposia, to publish journals, and to recognize scientific achievement. Then, when it became apparent in this country that the well-being and resources made available to research depended on the policies of the federal government, our scientific societies broadened their missions to include concern with the development of these policies; they became involved with what we might refer to as the relationship between research and its external milieu. On the whole, I believe that this has been a useful effort. If, however, our scholarly societies continue to fix their attention solely on the external milieu, then I fear that we might awaken one day to find that our internal milieu has deteriorated to the point where the resources for clinical investigation, whatever their level, are no longer deployed almost exclusively in the clinical departments of medical schools and their teaching hospitals. This would be unfortunate not only for clinical investigation, but would obviously also exert a deleterious effect on the quality of our clinical and educational programs as well. Therefore, I believe that organizations such as the American Society for Clinical Investigation should concern themselves with these important questions of the internal structures of our institutions so that these issues may be dealt with in a manner that will not endanger what should remain one of the most fundamental of a university's tasks, i.e., the generation of new knowledge.

In concluding, I do wish, however, to make one remark about the external milieu, because the changes in the external milieu are in large measure responsible for the dangerous disturbances in the internal milieu that I have described and that I believe pose such serious hazards to biomedical research.

The American public is now deeply frustrated by the organization, function, quality, and cost of our health systems. As our elected representatives attempt to grapple with this problem, they have found that they cannot really get a grip on the system as a whole, and therefore they turn to that segment of the system over which they do exert some control, i.e., they turn to the medical schools to solve both our medical and sociological problems. However, only a minor fraction of these problems can be solved by medical schools *per se*. Disciplines outside the medical school represented in other branches of the university, such as law, ethics, political science, sociology, systems analysis, and economics, can certainly contribute to their solution.

However, not even the entire university is equipped to solve this nation's health problems, which are insoluble within the present framework of our society.

The public and the government have the well-intentioned but misguided hope that by judicious use of the carrot and particularly of the stick on the medical schools, the latter will solve all of the nation's health care problems and some of its most serious sociological ones as well. This policy has resulted in a series of perturbations that has produced dangerous instability of the entire biomedical education and research enterprise. This instability is expressed in a variety of ways, including the abrupt birth and demise of federally funded programs and what might be considered to be fads, such as special initiatives, "diseases of the month," new instruments for supporting and reviewing research, and the admonition to alter radically the number and mix of medical school enrollees, the curriculum, and the type of health care professionals being trained: in short to do something different. Thus, societal pressures are responsible for some medical schools' frantic expansion of programs in the delivery of health services.

The instability of the medical schools is, in part, responsible for the disillusionment of the senior faculty, as reflected in the results of the survey of chairmen of departments of medicine. This instability is enormously wasteful, not only of financial resources, but of our much more precious human resources. More importantly, this instability is in danger of cutting off the hopes of solution of serious health problems at the roots. The continuing and confusing debacle of the research training grants, to cite just one example, may result in a form of scientific infanticide, and has already become a powerful deterrent to the most promising aspiring young investigators, who are understandably unwilling to throw their lot in with a system which oscillates as wildly as does the biomedical research enterprise.

In these turbulent times it is appropriate, indeed essential, for us to expend every effort to assure that our medical schools remain the ideal sites for biomedical research. We must fight this battle in a variety of arenas—in our home institutions, in our contacts with the public and press, as well as in Washington and Bethesda; and we must fight this battle in a variety of capacities—as individuals, as members of faculties, and collectively as members of scholarly societies, such as the American Society for Clinical Investigation. The stakes have never been higher.

#### ACKNOWLEDGMENTS

The cooperation of Mrs. Rhoda Isselbacher and Dr. Richard Lee in obtaining and analyzing the role and feelings of chairmen of departments of medicine is gratefully acknowledged.