THE SCHOOL OF MEDICINE

OF

THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

MERRIMON LECTURE

by

ROBERT J. GLASER, M.D.

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THE MERRIMON LECTURE

THE MEDICAL CENTER: DISTINGUISHED PAST, UNCERTAIN FUTURE

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ROBERT JOY GLASER was born in St. Louis, Missouri in 1918. He was educated at Harvard, receiving his S.B. degree in 1940 and his M.D. degree, magna cum laude, in 1943. He was trained in internal medicine at the Barnes Hospital in St. Louis and at the Peter Bent Brigham Hospital in Boston, and was a National Research Council Fellow in the Medical Sciences at Washington University where he pursued studies on experimental Group A streptococcal infections and rheumatic fever. He worked with the late Dr. W. Barry Wood, Jr., Chairman of the Department of Medicine at Washington University, a noted investigator in the field of infectious disease. Both Drs. Wood and Glaser were elected to the American Society of Experimental Pathology, and Dr. Glaser still maintains his membership in that organization.

Dr. Glaser was appointed an Instructor in the Department of Medicine at Washington University, becoming an Assistant Professor in 1950 and an Associate Professor in 1955; from 1953 to 1957, he was Assistant Dean and then Associate Dean. In 1957 Dr. Glaser went to Denver as Dean and Professor of Medicine at the University of Colorado, and two years later was also made Vice President for Medical Affairs. He was Professor of Social Medicine at Harvard from 1963 to 1965, moving in 1965 to Stanford as Vice President for Medical Affairs, Dean of the School of Medicine, and Professor of Medicine. From 1970 to 1972 he was Vice President of the Commonwealth Fund in New York, returning to California in 1972 as President of the Henry J. Kaiser Family Foundation.

During his years at the Kaiser Family Foundation, Dr. Glaser was active in encouraging the further development of prepaid health care programs. He also focused attention on the need for increasing the number of academicians interested in general internal medicine, an area which had been progressively neglected because of the increased subspecialization in internal medicine. Numerous other programs were carried out by the Kaiser Foundation during Dr. Glaser's tenure, a major one being the comprehensive study of premedical and medical education carried out by the Association of American Medical Colleges.

After retiring from the Kaiser Family Foundation in December, 1983, Dr. Glaser became Director for Medical Science of the Lucille P. Markey Charitable Trust, a Miami-based foundation which supports basic medical science. The Trust has already developed one major program, the Lucille P. Markey Scholar Awards, which support outstanding Ph.D.s, M.D.s, and M.D./Ph.D.s interested in academic careers. In addition, the Trust has begun making project grants in basic medical science. Although the Trust is based in Miami, Florida, Dr. Glaser makes his office in Menlo Park, California.

Dr. Glaser is a recipient of six honorary degrees and various other honors, including the Abraham Flexner Award of the Association of American Medical Colleges. He is a director of the Commonwealth Fund, the Packard Foundation, and several large corporations. He was a founding member of the Institute of Medicine at the National Academy of Sciences, and belongs to the American Society for Clinical Investigation, the Association of American Physicians, the American Clinical and Climatological

Association (president 1983–84), the American Academy of Arts and Sciences, and numerous other societies.

Since 1962, Dr. Glaser has been editor of *The Pharos*, the publication of Alpha Omega Alpha Honorary Medical Society. To quote an anonymous friend, "He has changed the journal from a throwaway to an incredibly interesting quarterly which I can't wait to receive."

It is to honor a distinguished teacher, administrator and medical statesman, that he has been invited to become the sixteenth Merrimon Lecturer.

THE MEDICAL CENTER:

DISTINGUISHED PAST, UNCERTAIN FUTURE

It is a great honor to have been invited to deliver the Merrimon Lecture at this outstanding institution. Pleased as I was to receive Dr. Graham's kind invitation, I must admit that I had second thoughts about the wisdom of my accepting the invitation when I saw the names of the distinguished individuals who have preceded me. The list includes a number of good friends and respected teachers, and I take pride in being accorded the privilege of serving as the 1985 Merrimon Lecturer.

I also want to acknowledge the added pleasure attached to the opportunity afforded by this occasion as it has made possible our first visit to Chapel Hill. Over the years since I was a medical student, I have had warm friendships with students and faculty members from Chapel Hill. In my years at Washington University, when the medical education program here was only two years in length, we always considered ourselves fortunate to be able to attract transfer students from Chapel Hill to the third year to St. Louis, some of whom stayed on as house staff members at the Barnes Hospital where, without exception, they performed at the highest level. This medical center has a justly deserved reputation for excellence, and I thank you for allowing my wife and me to see it firsthand.

I am going to take the liberty of telling you a bit about my career since I finished my residency training because I would like to document my broad experience with the academic health scene. As will be apparent to this audience, my career in medicine has had three phases, each different but each related to the other. After I finished my training in internal medicine and had spent two years in the laboratory, I joined a fine Department of Medicine at Washington University as an Instructor, one of twelve full-time members of the Department. The entire department was probably smaller—or at least not much larger—than some divisions in a number of current Departments of Medicine. I had the good fortune to have a superb mentor, the late Dr. W. Barry Wood, Jr., a stimulating teacher, astute clinician, and productive investigator, and from him I learned much about the joys of scholarship, of academia, and dedication to excellence. Interestingly enough, as a young colleague of Dr. Wood's, I had introductions to two areas in which I would later gain more experience and to which I would ultimately devote my major energy—administration and philanthropy respectively.

As a research fellow, prior to my first academic appointment, I met the late Dr. Roderick Heffron of the Commonwealth Fund when he visited our laboratory to review our programs, and thus had my first encounter with someone from the field of medical philanthropy. And as a young member of the Department of Medicine, I was given responsibility for house staff recruitment and appointments, and thus began to learn firsthand something about administration. Needless to say, in neither

of the two exposures mentioned did I envision being involved in either philanthropy or administration. But a few years after I became an Assistant Professor of Medicine, I was asked by the then dean, the late Robert A. Moore, to become Assistant Dean in Charge of Student Affairs. As I was assured that the position would not preclude my continuing to be active in the Department of Medicine, both clinically and in research, I accepted Dr. Moore's invitation.

As an Assistant Dean, I began to attend meetings of the Association of American Medical Colleges, and came to know other foundation officers, notably the late Dr. Alan Gregg, Vice President of the Rockefeller Foundation, and Dr. Lester Evans, a senior staff member of the Commonwealth Fund.

In this period I began to learn more about philanthropic foundations and of their relationships to medicine. One particular stimulating experience resulted from an invitation extended to me by the Rockefeller Foundation to visit medical schools in Mexico and in Latin America. During the course of a six-week trip I had an excellent opportunity to see firsthand a multitude of problems in medical education and health care in both new and established schools, and to observe the way in which the able staff of the Rockefeller Foundation utilized its resources to improve the quality of education and health care and to stimulate research.

In the period from 1957 to 1970, during which I devoted the majority of my time to medical administration as a Dean and Vice President for Medical Affairs, I was inevitably much more actively involved in matters financial, and I interacted repeatedly with various Foundation officers. Further, I was invited to join a small group of academicians brought together by Quigg Newton of the Commonwealth Fund and Margaret Mahoney of the Carnegie Corporation to examine some of the issues in health care delivery that were beginning to attract attention at that point. It is important to remember that as recently as the early 1960s, health care issues were not accorded a great deal of attention, and the Carnegie-Commonwealth discussions were to a degree a pioneering effort. The deliberations of the group referred to ultimately led to the creation of the Clinical Scholar Program when Margaret Mahoney joined the Robert Wood Johnson Foundation a few years later.

After a number of years as a senior academic administrator during which period I was also involved in a broad spectrum of medical education with many of my peers from across the country though participation in the Association of American Medical Colleges, I was attracted by the opportunity offered me by Quigg Newton, President of the Commonwealth Fund, to become the Fund's Vice-President. Newton had been President of the University of Colorado when I was Dean of the Medical School, and had been enormously supportive of the School. He had and continues to have a keen interest in medicine, and working at the Commonwealth Fund, and in my subsequent foundation positions, has provided me a chance to observe medical education and its related components from a more objective point than was the case when I was in the direct line of responsibility.

Given the complexities which characterize medical education, medical care, and research, I suggest there is a distinct advantage to having been on the "getting" side prior to becoming involved in "giving." As you have now heard, for forty-five years I have been involved, directly or indirectly, with academic health centers, and although I would be the last to suggest that I can speak for anyone except myself, it would have been difficult for me not to have developed some perspective on these complex entities. In this Merrimon Lecture, I would like to review with you the development of modern medical education and its relationship to the academic medical center of which it is a key component. There are those who believe that one should never look back but only ahead. In some instances that may make sense but in this case, because so much has happened so fast, I believe it is useful to see what has gone before because it helps understand where we are, and has some relevance to planning where we are going.

I consider myself a loyal and vigorous supporter of academic health centers but I believe strongly that one of the functions of a supporter is to look critically at the entity and help identify problems, immediate as well as potential. In our society, complacency is an invitation to disaster, and in my view there is no room for complacency at this time in the academic health center's history. Let me emphasize that my comments are generic and do not therefore apply to any single institution.

I date the beginning of what I would call modern medical education to the turn of the century or at most to the last decade of the past one. Until then, in part because the body of knowledge was so limited and in part because the concept of full-time teachers had not been adopted, at least in this country, programs in medical education were of poor quality and even those that existed were limited in number. When it was established about 1895 The Johns Hopkins University Medical School was the first truly graduate medical school in the United States; further, The Johns Hopkins Hospital was the first hospital actually built specifically to serve a program in medical education while providing for patient care of high quality. Hospitals in which minimal teaching took place preceded by many years the founding of the Hopkins Hospital, but the kind of teaching was variable in quality, often minimal at best, and certainly not acceptable by modern standards.

Only after the Flexner Report was published in 1910 and the diploma mills went out of business in the following decade did most medical schools begin to merit classification as true educational institutions. A key development was the appointment of full-time faculty members, whose responsibilities included teaching, and in the case of the clinical departments, patient care. Further, research began to be generally recognized as an appropriate function within a medical school, not only in the basic sciences but in clinical fields as well, and here again the Hopkins served as a model. Parenthetically, it may seem odd for a Harvard graduate to laud its friendly rival but the evidence is quite clear. Although the research enterprise was initially minuscule, it nonetheless represented the starting point of a growth curve that progressed slowly but steadily until after World War II when it began to accelerate at a rapid rate.

Another direct result of the Flexner Report was that affiliations between medical schools and teaching hospitals were formalized, thus creating the antecedent of the modern medical center. Indeed, one of the first references to the medical center concept, at least to my knowledge, was that made by William H. Welch when the Columbia-Presbyterian complex was dedicated in 1928. In the majority of instances, the teaching hospitals, especially the private ones, were and continue to be under separate Boards of Trustees from the medical schools, which were of course governed by the Boards of Trustees or Regents responsible for the entire university. A few private universities and a larger number of state-supported ones developed their own wholly owned hospitals, under the same governance as the University itself. Not infrequently, where there were separate hospital and university boards, some sort of joint board with representatives from each entity were created to coordinate operations.

Let me emphasize that at the time Flexner made his famous survey, he pointed out that many of the medical schools of that time had no clinical facilities whatsoever. He went on to say that the lack thereof was usually not considered to be a particular deterrent to medical school operation, which emphasizes the abysmal lack of understanding, on the part of those who were then in charge, of the complementarity of teaching and patient care. Even where there were associated hospital facilities, the authorities responsible for the hospital were often unwilling to allow students access to patients, and hospital appointments were based primarily on seniority rather than on the professional qualifications. As a result, students were not meaningfully involved in patient care, and potentially able teachers were often prevented from assuming responsibility for the teaching and patient care functions. It is to a degree surprising that the modern medical center developed as well and as rapidly as it did, given all the obstacles that existed.

I suspect that the students and house officers in this fine medical center have little knowledge of the antecedents of which you now are the fortunate beneficiaries. Perhaps the same thing is true of members of the faculty, particularly the younger ones. Not many people seem to have read Flexner's famous report, Bulletin #4, entitled *Medical Education in the United States and Canada.*[1] If you haven't, I commend it to you. In the interest of helping you with your perspective, let me tell you a bit about your institution as Flexner saw it. In February, 1909, Flexner came to Chapel Hill, which at that time had a population of 1181. This was one of four schools in the state at that time, and one of them wasn't Duke!

In his autobiography, Flexner described the situation here as follows:

> The State University of North Carolina gave the first two years of its medical course at Chapel Hill, while the two clinical years were given at Raleigh. The medical-school building at Raleigh was filthy and absolutely without equipment. I employed a photographer, who took photographs of every room in the building. When I returned to New York, Dr. Pritchett (the President of the Carnegie Foundation) sent these photo-

> graphs to the President of the University with a letter saying that they would be reproduced in facsimile in the forthcoming report. The President, who had probably never visited the medical school, was horrified. After a hurried visit to Dr. Pritchett, he called the Regents together, and the clinical years were abolished, so that it became unnecessary to mention them in the bulletin that was subsequently printed.[2]

Interestingly enough, in Bulletin #4, Flexner's entry took note of the change in this institution from a four-year to a two-year school—to which he attached the term "A half-school." The entrance requirement was a year of college work, not strictly enforced. The faculty numbered fifteen, ten of them professors, and Flexner described them as "trained, full-time teachers." The budget for the school was $12,000 and fee income added $6,500.

For that time, Flexner's description of the facilities, equipment, and curriculum suggested that they were far better than most. The school continued with a two-year program until 1952 when, under the leadership of the late Reece Berryhill, a most effective leader and a delightful human being, whose friendship I had the privilege of enjoying, it added the clinical years, and has continued to develop in outstanding fashion under the aegis of Drs. Isaac Taylor, Christopher Fordham, and Stuart Bondurant.

Let me return now to the review of the history of the modern medical center. The concept of additional clinical training after graduation from medical school is essentially a twentieth century phenomenon. While there were some internships available late in the nineteenth century, especially in New York City, the widespread acceptance of the importance of a year of internship for young physicians came along in the early part of the century. Residency training was a later development; in the years after World War I, many graduates of medical schools still took only a year of internship and then went into practice. In fact, even after they were established, residency programs increased rather slowly in number, accelerating only after World War II. The specialty boards were an important factor in this increase, in no small measure because those who were certified as specialists during World War II enjoyed distinct financial and professional advantages in the Armed Forces. Accordingly, many physicians, who had only an internship or at most one year of residency before they entered military service, were motivated after their discharge to complete residency training and obtain board certification.

At the time of World War II, full-time faculties were quite limited in size, and because of the needs of the military for physicians, the academic ranks were further depleted. Even in the first decade after the war ended, faculties were still rather small, especially by today's standards. As I mentioned earlier, when I joined the Department of Medicine at Washington University in 1949, we had twelve full-time people. The size of house staffs was small as well. For both medical students and house officers relative smallness had the distinct advantage of fostering close contact between them

and the faculty. In most medical schools, faculty members, with few exceptions, participated actively and extensively in the education process, both in the basic sciences and in the clinical fields. Those appointed to major clinical positions were, or at least were supposed to be, "triple threat" men or women (there were of course precious few of the latter), equally adept at the bedside, the bench, and the lectern. Most students who pursued their education in the forties and even the early fifties were known to a high percentage of the faculty, and in turn knew their teachers relatively well. As a medical house officer I came to know the heads as well as the members of the other clinical departments, and my experience in this regard was not unique. Today I encounter house officers at some schools who see their own chief only occasionally, and often know only a fraction of the department faculty.

After World War II when the federal government began to invest increasing amounts in research, the situation changed rapidly. Research produced new knowledge, and with new knowledge new fields of basic and clinical science came into being. Multiple training programs in existing and new disciplines were developed, and faculties grew significantly. Funds were available not only for program support but as well for facility construction. It is not surprising that during the fifties and early sixties the medical schools and their teaching hospitals underwent dramatic growth, and the medical center came into a new and more complex era. Whereas in the period before World War II, relatively few institutions were known for their research, it became possible for any institution with effective leadership to aspire to and in fact to become a center of excellence. Better facilities and adequate support led to the expansion of existing programs and the creation of new ones. Scientific understanding advanced, but despite the remarkable progress that was achieved, it was not without its negative aspects. At least in retrospect, and of course hindsight tends to be 20/20, most of those who were invested with administrative responsibility for the university medical centers failed to recognize the potential problems that were being created by the enormous growth of their centers that characterized the period of the sixties and the seventies. In a sense one cannot help be reminded of Aesop's grasshopper who indulged himself mightily during the summer when food was plentiful but failed to provide for winter when it wasn't.

I know from my own firsthand experience how important federal funding was to the achievement of the objectives of medical schools, and particularly to those with high aspirations, in the late fifties and early sixties. Without that funding the many centers that grew and prospered would have remained relatively dormant. But in those days the scientific arena, if you will, was far different from what it later became. Let me point out, for example, that as recently as 1959 or 1960, the now burgeoning field of immunology was in its relative infancy, even though the discipline went back almost a century. As a matter of fact, I was a member of an *ad hoc* committee appointed by Dr. James Shannon, director of the NIH, to advise him as to whether there was enough going on in immunology to justify a training program. Our group concluded that there was, and we became the first immunology training grant committee. The NIH staff person assigned to our committee spent a good bit of his time going from

medical school to medical school, encouraging faculty members to apply for funds and going to some length to persuade them to make their applications large enough to utilize the funding provided by a generous Congress, responsive to the requests of the late Senator Lister Hill and Representative John Fogarty.

Molecular genetics, now so exciting and so much a part of today's research, began to draw attention only a few years earlier. Few remember that the first formal course in genetics in a medical school in this country was established in 1953. Similar developments occurred in other fields with the result that new programs multiplied rapidly. This sequence of events obviously was not bad; clearly it was all to the good. What is unfortunate is that few recognized that every institution could not do everything. It is understandable that, in a time of plenty, few even thought about the consequences of unbridled growth, and had they resisted the embellishments of the NIH, deans and department heads would have incurred the wrath of their colleagues. Perhaps some of those responsible for the overall administrative decisions may have had fleeting perceptions that there might ultimately be a problem, but if so, they quickly dispelled the thought on the assumption that their institution would be exempt from it. Even today, in the face of all the current signs of serious problems, financial and otherwise, I find a substantial number of senior faculty members and deans whose view is, "Yes, there have to be some constraints—but not in my institution."

During the period of which I have been speaking, the relationship of the University Medical Center to the community also changed. In an earlier day, most of those responsible for clinical services in teaching hospitals, other than those that were supported by municipalities or states, did not feel an obligation to serve the community except insofar as doing so provided the patients needed to support teaching and research, and the community accepted this view. But in the 1960s the community began to expect the academic medical centers to respond to its overall needs in the health field. As new forms of diagnosis and treatment were reported, the public, viewing medical care as a right and not a privilege, understandably wanted to be the beneficiaries. Often their expectations were heightened unrealistically, a situation that still obtains to a degree. As the demand for medical care increased, the need for more physicians became apparent, and between 1960 and 1978 the existing medical schools responded by expanding their respective class sizes and over forty new schools were established. I have no question that expansion was needed but once again it proceeded rapidly and without much if any consideration as to how long the process should go on. To a degree, like the Sorceror's apprentice, once we started the process, we didn't know how to stop it. Federal funding enhanced the expansion but as is now so painfully apparent, the largesse was not destined to be provided in perpetuity. Where additional state-supported medical schools were established, as in North Carolina, additional constraints on budgets were inevitable.

Today we are graduating more than twice as many students as we were in 1960; last year the number was 16,318 and currently we are confronted by the problem of a surplus number of physicians. The surplus problem is accentuated by the number

of U.S. students, many of them educated in subpar offshore schools, who understandably wish to return to practice here; their success in doing so in some areas reflects the effectiveness of their well organized, politically astute supporters. Dr. David Axelrod, Commissioner of Health for the State of New York, predicted that without a cutback in medical school enrollment, five years from now New York City will have one doctor for every three hundred fifty people!

Concomitantly, in order to provide the clinical training for the increasing numbers of graduates, internships and residencies were expanded, fellowship programs were developed, and the universities began to turn out increasing numbers of highly trained subspecialists. Because for many years there was very little provision for educational support and almost all funding was for research, the growth of the research enterprise greatly overshadowed the educational activities within most medical centers. In support of this statement, note that between 1960 and 1970, preclinical faculty increased by 106 percent, full-time clinical faculty by 167 percent, while student enrollment grew only by 34 percent. As Robert Ebert has pointed out, the faculty increase was clearly not related to teaching needs. As those in charge paid very little attention to the question of how many subspecialists were needed, more and more were trained, and as a result, the number of generalists decreased sharply. This problem was particularly apparent in medicine but not exclusively so; it also affected pediatrics and surgery. More and more programs provided advanced clinical training, and the outflow of these trainees resulted in an oversupply, particularly in urban areas, one that not only continues but worsens. A few data will help explain the reason for the oversupply of subspecialists.

The first specialty board, that in ophthalmology, was established in 1917. Seven years later, a Board of Otolaryngology was created. That the idea of specialty certification caught on can be seen when one takes note that thirteen more boards came into being in the following decade. Today there are twenty-four recognized specialty areas, and within these twenty-four there are forty-two defined subspecialties.

In 1950, twenty-nine thousand medical graduates sought specialty training, a number that more than doubled by 1973, and reached seventy-two thousand by 1983. As residency programs grew, various organizations such as the American Medical Association (AMA), the Association of American Medical Colleges (AAMC), the various specialty boards, and the American Hospital Association (AHA) became involved in accrediting residency programs through residency review committees, but the system to a serious degree lacked integrated controls, and like Topsy, it just grew.

For those who were active in medicine during all or much of the period I have been describing, the developments I have recounted are familiar ones. They have been interrelated so that changes in one area have with few exceptions affected others. I would like now to examine briefly the changes that have occurred in the conventional triad of education, patient care, and research, and then look briefly at other problems of recent origin that have further complicated the overall enterprise.

Let us first consider medical education. Over the span of years since the Flexner Report, medical schools and their associated hospitals have taken seriously their responsibility for providing the best possible education of students—and for most of those years the further education of house officers. That responsibility is not a small one. Almost thirty years ago, George Packer Berry, then the Dean of the Harvard Medical School, defined the challenge as follows:

> Becoming a good doctor is one of the most difficult things in the world. It requires many years of arduous study and a lifetime of dedication. Today's physician, at his best, combines the clinician and the laboratory worker; he brings together the healer's intuitive art and the scientist's power of analysis and integration. In him fuse the ancient art of healing and the modern science of medicine.
>
> The environment in which a medical student attains the stature of a physician is dynamic and tremendously complex. The student must master a broad spectrum of the natural sciences if he is to be equipped to promote health and to comprehend disease. He must learn to observe, to reason about his observations, and to compare his reasoning—free of bias—with that of others. He must come to know himself in order to understand his patients. He must have compassion and sympathy—and a high capacity for empathy. At the same time, he must achieve a detached objectivity about human behavior. Although these attributes seem mutually opposed, each must be developed without sacrifice of the others. These faculties must ripen, furthermore, under the impact of violent forces: pain, fear, hostility, death. It is a formidable task.[3]

Given the expansion of knowledge and the ever increasing complexity of medical care, the formidability of the task is far greater than it was when Dr. Berry defined it thirty years ago.

A quarter of a century later, in 1980, speaking at class day exercises at the Harvard Medical School, Dr. Judah Folkman, a distinguished professor of surgery, had this to say to the graduates about to begin their internships:

> You are fortunate to be entering the very best hospitals. You will be taught a myriad of new skills by the finest consultants and specialists, with the most modern equipment... In fact, everything you need to apply your medical education to your future clinical work will now be taught to you, *except for one essential.* This essential is the most difficult thing to teach in a teaching hospital—*How To Be A Doctor.*[4]

He then described the price paid by patients and their families because of the fragmentation produced by specialized care as currently practiced in teaching hospitals, recommended that this problem urgently needs attention, and went on to say, "The idea that for each patient one doctor should have constant responsibility seems self-evident,

yet, its actual practice is confounded by almost every tradition established in our modern medical centers."

If anything, Dr. Folkman's comments are probably even more to the point in 1985. In a recent paper in *The Pharos* of Alpha Omega Alpha, Dr. David E. Rogers stated his serious concerns about the way in which medical students are being educated.[5] He based his comments on observations he made while a visiting professor at a leading academic center. He found the students extremely dissatisfied with the quality of their education, with its impersonal nature, with its rigidity, and with the excessive emphasis on rote learning.

Despite the large gaps in knowledge that are being steadily filled in these times, medical education in the first decade or two after World War II had certain features that have all but disappeared but which enhanced the quality of instruction.

First, teaching was done on ward services, and although the amenities often left something to be desired, with less intensive care, less technology, longer patient stays, and little need to worry about costs, students and house officers had more time with patients and to a large degree with their teachers. The pace was less hectic, faculty members traveled less, and ward rounds, grand rounds, and other teaching exercises tended to focus to a larger degree on the patient. The situation today in many of our medical centers is quite different. It is not surprising that in his Cartwright Lecture at Columbia, Dr. Paul Beeson, a distinguished academician and medical statesman, expressed the view that the quality of education has suffered despite the vast improvement in the knowledge base.[6] There are many well-known educators who have voiced similar opinions.

We need to ask whether the academic medical centers are doing as effective a job in educating tomorrow's physicians as one might like. All of us recognize that an understanding of the scientific basis of medicine is a must for the physician, but it is not clear that adequate attention is given to the other aspects of medical care that are commonly referred to as the art of medicine. Do students and house officers receive enough experience in the care of patients who do not have life-threatening disease? Do they gain adequate appreciation of the socioeconomic and psychosocial factors that impinge on the lives of patients? Are they prepared to care properly for the rapidly increasing segment over sixty-five, with its chronic diseases? The very nature of today's academic center with its high complement of critically ill patients on the one hand, and accompanied paradoxically with ever shortened length of stay, makes the teaching of medical students and even of house officers much more difficult, and certainly lessens the contact between the patient and students and residents.

Given the changes in inpatient services of our major teaching centers, can we continue to teach students or even beginning house officers as effectively as we once could? For years the inpatient services have been the featured locus of medical student and house officer teaching. In most centers the outpatient clinic was the stepchild. Of

late, emphasis on ambulatory teaching has increased in our academic centers, as more and more the inpatient services have become intensive care units. These changes have not been limited to medicine and pediatrics; much surgical care has been transferred to surgicenters or their equivalent.

Leading medical educators such as Dr. James F. Glenn, president of the Mount Sinai Medical Center, and Dr. Thomas Meikle, Dean of the Cornell Medical College, have called attention, in the face of decreasing occupancy rates in many medical center hospitals, to the need to utilize facilities outside the medical center for teaching. One example, which would have been unheard of twenty-five years ago, is the nursing home.* As the elderly segment of our society grows, chronic disease, for which often only supporting care can be given, has changed the system and will continue to do so.

Further, with the availability of tertiary care outside of the teaching centers, the academic center has lost some of its appeal as a referral center. The situation varies in different parts of the country, but certainly in many urban areas the competition for patients has grown substantially. With overproduction of well-trained subspecialists who could not be accommodated in teaching centers even if they chose to remain in academic careers, it was inevitable that more and more hospitals would develop programs and facilities comparable to those in the teaching centers, and often the amenities are superior in the former to those in the latter. When one adds the cost of education and the cost of caring for indigent patients, one finds the academic centers in a distinctly disadvantageous financial situation.

In turn, with increasing government regulation of health care financing, paralleled by tightening of reimbursement on the part of private insurors, the adverse impact of high cost operation is accentuated. Although in an ideal society funds would be available to guarantee high quality education, it seems to me quite unrealistic, in the face of our enormous national debt, to assume that federal sources will pick up the tab. And it seems equally unlikely that John Q. Public will do so. Educational costs are already enormous, so much so that almost all medical graduates leave their respective schools with huge debts. The figure for the debt of the average Cornell graduate reported recently in the *New York Times* is $40,000, and that figure may be even higher for graduates of other schools. When one takes into account the debt acquired by many students during their college years, it is difficult not to wonder when the system will collapse. At a minimum, the pressure on young physicians to repay their debts inevitably causes many of them to seek to generate the largest possible income in the shortest possible time.

In respect to the cost of maintaining the very large faculties now common to most schools, the situation is not much better. Because basic science departments tend to be considerably smaller than clinical ones, the dimensions of the problem are not as great, but the basic problem is the same. At the time NIH budgets began to go up steadily, most faculty members, particularly senior ones, received most of their salary from endowment or state appropriations and/or other relatively dependable school

income, referred to in those days as hard money. As NIH funding grew steadily in the sixties and early seventies, more and more faculty members received NIH grants and budgeted a large amount of their salaries on those grants. In passing one cannot help note that between salary items and university overhead, a goodly share of federal grant money is diverted from direct research support to indirect costs.

In clinical departments, because of their size and multifaceted activity, large portions of the budgets must be covered by patient care income. In some fields, particularly the procedure-oriented ones, this is not too difficult, but in others, e.g., pediatrics, the story is different. Clinical practice, once carried on primarily for its relevance to teaching and clinical research, now, in many institutions, generates income essential to keep the institution solvent, causing considerable, and in my view, unhealthy pressure on faculty members—especially younger ones. In many institutions, the struggles as to how clinical practice income is to be deployed occupy untoward time and effort on the part of many faculty members.

Similarly the financial impact of the greatly expanded research efforts in medical centers cannot be overlooked. Today's research requires sophisticated supporting equipment and adequate space, and both are costly. The reward system in most institutions, in respect to promotion and tenure, depends on research productivity. Given the pace of research progress, investigation is demanding, and many individuals in clinical departments are hard pressed to preserve their clinical skills while maintaining a competitive research program that will ensure continued funding. In many centers, physicians skilled in patient care and teaching are actively recruited to meet service and teaching needs, but more and more they are appointed with the understanding, explicit or implied, that they will at least generate their own salaries; not infrequently, they are treated as academic second-class citizens, at least in terms of not being given tenure-track appointments. Many young physicians understandably tire of this arrangement and take their talents elsewhere. In years past, able part-time or voluntary faculty members made an important contribution by taking turns on the clinical services, providing students and house officers with the benefit of their experience and perspective, but in many centers this group is a disappearing breed, if not an extinct one.

I would be the last to suggest that the research effort that has been mounted over the past thirty or forty years has not been important, nor would I for one minute suggest that it should not be maintained. Indeed, it must be maintained. It is a matter of great concern that at this time, with so many exciting opportunities ahead, relative cutbacks in Federal support of research have occurred. To a degree, I believe support has declined because we have generated unrealistic expectations about how quickly it is possible to go from the bench to the bedside. Lyndon Johnson didn't help when, during his presidency, he stated that we already knew enough and only needed to apply what we knew. That unfortunate statement led many of our citizens to believe we were lax in applying new information in medical treatment.

One such effort is that of the Task Force on Academic Health Centers, organized by the Commonwealth Fund under the chairmanship of Dr. Robert Heyssel, president of the Johns Hopkins Hospital. The Task Force has addressed in depth the serious problems, especially the financial ones, facing the academic medical centers, with the purpose of identifying ways in which the key roles of such centers can be preserved.

The Task Force Report, recently released, can be expected to be of interest of multiple constituencies, medical as well as non-medical, concerned in one way or another with education, patient care, and research.[7]

Among the recommendations of the report are the following:

> Revision of reimbursement schedules to take into account the added costs faced by teaching hospitals. Patients with insurance are being directed to lower cost hospitals when hospitalization is needed, a situation that can only be dealt with if a defined source of funding for the costs of teaching, and where indicated, indigent care, can be provided the teaching institutions. One suggestion made by the Task Force is that a tax on all hospital admissions, both in teaching and non-teaching hospitals, be assessed to create a pool of funds to support education. The rationale for the proposal is that physicians educated in teaching hospitals ultimately serve the entire society.
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> Understandably, the report calls for stringent measures to limit funding for subspecialty training in order to reduce the excess of specialists; funding to encourage greater use of ambulatory settings for teaching; a ban on the use of public funding for the training of foreign medical graduates; provision of funding, perhaps through a tax on health insurance benefits, for indigent care to reduce the financial burden on those teaching hospitals which serve the indigent.

It will be apparent, even from the brief foregoing summary, that none of the measures recommended will be simple to implement, even if on further examination, they are determined to be appropriate.

Any solution will inevitably involve reallocation of existing funding rather than infusion of large amounts of new money. There was a time when more and more money could be attracted for support of education and patient care but that time is past.

In a sense, it is a painful paradox that when we have come so far in medicine, we must of necessity consider some form of retrenchment or at least the imposition of limits in growth.

Our capabilities today make medicine of the forties and even the fifties seem primitive in many ways; it would have been hard to imagine back then that progress would occur at the rate it has. Nonetheless, progress is and probably always has been a two-

edged sword. It brings great benefits, but with those benefits come problems. Think only of the ethical dilemmas we face today that were unheard of prior to the advent of life-support devices, transplantation, and the myriad of other additions to our therapeutic armamentarium. But costs have risen at a rate that is unsustainable, and if we fail to recognize the need to make appropriate changes, we court disaster.

Our challenge is to profit from the lessons of the past and to preserve the strengths and the quality of the enterprise by addressing and correcting the defects in the system. To do so calls for the best on the part of the leadership of our academic health centers but the goal is a noteworthy one—to ensure the future of one of society's greatest assets.

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*The program in nursing home care at the University of North Carolina, in which Drs. James A. Bryan II and Mark Williams are active, is to be highly commended.