Before reducing the cost of medical education we need to define more clearly cost and the notion of cost to whom? Shall we consider changing medical education so that it consumes fewer resources, either through change in the educational process or substitution of cheaper means to educate? Recent developments in medical education have tended to move away from reducing costs: For example, the New Pathway program at Harvard Medical School calls for more teaching manpower than is currently utilized.\(^1\) Not only has the subject matter of medicine burgeoned, the conditions of academic life in medical schools and teaching hospitals have evolved as well, and educational economies seem hard to achieve.

At the turn of the century what a physician needed to know represented a relatively stable body of knowledge which could be acquired mostly by apprenticing, by following a more senior physician in his pattern of daily care. The Flexner report encouraged an appreciation of basic science in medical learning at a time when scientific content of medicine was about to undergo unparalleled expansion. Subsequently the fledgling physician had to add a growing appreciation of psychology in medicine, a perspective that moved beyond science-based pathology to the concept of the patient as a whole. Several more streams have since been added, including appreciation of the dynamic content of today’s medicine, where new information is added at a breathtaking pace and old information discarded. The physician must develop effectiveness not only as scientist, clinician, counselor, and support system, but as processor of a large and rapidly evolving body of information. And the complete physician can no longer ignore the impact of external events upon medical service and scholarship. Add to that medicine’s move beyond

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the threshold of molecular biology, whose insights will rewrite in a finer hand the scientific basis of medicine. Is it conceivable that tomorrow’s physician can be developed with economies in medical education?

To create primitive figures in the caves at Lascaux was an extraordinary achievement for humankind. Undoubtedly it was cheaper than painting the Sistine Chapel. But like art, medicine cannot go backward. Perhaps the true costs of medical education can be tempered, for example, the student workup of a patient simulated by computer might—just might—be less costly than seeing the patient directly. But unless we shut down medical schools and decrease the production of physicians, not much of positive value may be achieved in cutting the costs of medical education through generalized penury. Savings could be had by decreasing the research base and dropping faculty members at some medical schools, but the resulting drift toward more simplistic and more mechanistic training with reliance on outdated information might prove more costly in the long run given the pace of evolution of medical knowledge and the need for the student to become skilled as a life-long processor of the profession’s basic data, as the data both accumulate and become outmoded.

Some savings could be achieved through more control over the specialty career paths chosen by young physicians. A surgeon’s five or six years of training consumes more resources than that of a family practitioner whose residency lasts half that duration. But how to control the numbers of physicians and their specialty distribution is a sticky question. The government has acted on the supply side—stopping the rewards to medical schools for producing more physicians, just as it had stopped subsidizing the building of hospitals under the Hill-Burton program. The demand side is a more positive driver, however, but the nation is yet uncertain about the nature and extent of what controls might best be instituted. And until the problem of the American student who goes abroad for medical education and then returns to the United States is dealt with, measures against U.S. medical schools and U.S.-based students may well have little direct impact overall on numbers of doctors and their distribution, although quality of care may be affected.

A major problem is the linkage of education to clinical practice. When clinical education was best done by apprenticing, that “set” of activities which was medical education was reasonably congruent with the “set” of activities that was patient care. As the hospital changed from a place to die to a place for the care and cure of serious illness, the experiences deemed most relevant for medical education seemed to concentrate in the hospital, and education and patient care became more concentrated and even more congruent. Today, as both medicine and the nature of hospital care continue to change, and as new economic pressures even take precedence over some clinical decisions, the overlapping of the requirements for hospital care and those for education have decreased;
no longer can the young physician learn medicine best by spending all of his or her time in the teaching hospital. Today it has become necessary to look at each set of requirements for medical education and for patient care separately, asking what is the best way to carry out each specific responsibility. Then we might search each for specific operating economies, a better approach than today’s cost controls where a move to economize in medical education will likely affect patient care, and a move to economize inpatient care will likely affect medical education.

The challenge is not that of education. We are confronted with an escalation of costs beyond the desire or capacity of institutions and people to pay for medical care. It is the economies of medical care delivery and then the linkage of delivery with medical education that power the call for lowering the cost of teaching. But the problem is the cost of care, not the cost of education. It is the threatened bankruptcy of the Medicare Trust Fund that will truncate Medicare’s payment for education. It is American industry, looking at its own bottom line, that will pay less tomorrow for its employees’ health care than it did yesterday. At worst, the call to economize on medical education may be unconscionable cost shifting, yet it cannot be ignored; it reflects the requirement by those who pay that health care expenses overall must be trimmed.

**Cost Of Medical Education**

What are the costs of medical education? A recent estimate lists the figure of about $2 billion for salaries and fringe benefits to residents and perhaps another $500 million in direct compensation to more senior physicians for services including teaching the residents and medical students.3 There are additional costs, for example, residents may be slower in their work or may order more laboratory tests than more experienced physicians. These additional costs, plus the added costs of technology and the extra capabilities and other characteristics which make up “excellence” of the teaching hospital are included in the federal government label, “the indirect cost of teaching,” even though most of these do not relate to teaching but to other responsibilities of teaching hospitals. In 1983, this so-called indirect cost of teaching amounted to some $5 billion. To those who pay for care, these direct and indirect costs loom as major targets in the effort to limit expenditures.

Some argue that the costs of medical education should be separated from the costs of care. Others ask, Why pay residents in training who will be among the better-paid professionals a few years hence? Yet consider that today’s new physician typically carries from medical school not only an M.D. degree but an indebtedness approaching $30,000. This figure is about twice the debt limit many universities might allow students heading to other professions, based on projections of lifetime earnings. Add
more debt for the years of graduate training plus interest costs, and the tab mounts. From whence will the money come for the doctor to repay this debt? Ultimately, in large part, from that doctor’s clinical practice when he or she finally gets to it, that is, from patients and the patients’ payers. Which means that the costs of today’s medical education (if not borne by today’s patient) will be shouldered by tomorrow’s patient, with added interest plus accounting and administrative costs. Where is the economy in merely deferring a nasty problem to a subsequent generation?

Challenges Of The Teaching Environment

Yet the challenge is one of education because, today, in the teaching hospital, cost controls have already changed the environment for teaching and learning by both medical students and house officers. Here are some illustrations I offered recently in a presentation to the Association of American Medical Colleges. For example, who gets into the hospital? Since illness in the hospital becomes more acute and complex as utilization and quality review exclude those who can be cared for as ambulatory patients, the medical student and house officer see a narrower range of patients and problems. It is a spectrum increasingly acute, increasingly complex, and often burdened with iatrogenic overlays—patients whom most physicians will confront infrequently, once in practice. And too often the patient may become caught up in some compelling technology with one or more specialists, with the primary physician relegated to the sidelines, deferring to the specialist. The student may fail to develop a good sense of the case, particularly how the responsible physician must put it all together. James Warren recently commented, summarizing the 1984 Ohio State University College of Medicine Conference on Medical Education for the Twenty-first Century, “As originally conceived, the clerkship was an educator’s delight: an individualized, active experience in problem solving. On the leisurely paced medical unit, the students worked up their patients, made diagnoses, and discussed the problems with house staff and faculty. Today it is suddenly very different . . . the clinical investigator-teacher is disappearing . . . as restrictions on hospital admissions become greater, the clerkship will be unable to serve its original purpose.”

Reduced length-of-stay takes its toll on teaching. Take the example of a relatively healthy patient requiring a subtotal thyroidectomy. Yesterday, the patient arrived on Monday, was worked up by house officer and student that afternoon, and seen by her surgeon that evening. The student could review the appropriate books and journal articles that evening and scrubbing at surgery the following day would help fix that knowledge. Then, follow-up of the patient for several more days in-hospital would give evidence of a surgical procedure completely done, and lend a fair
insight into how this patient, as an individual, was reacting to the illness and then to its treatment. Today the patient arrives fasting at 7:00 on Tuesday morning, having been seen only by the surgeon a few days earlier in the office. The student’s first patient contact is in the operating room, not with the patient, but with a neck, or even a surgical field already exposed, surrounded by blue drapes. That evening, the student first encounters the whole patient but it is hardly the time for a chat, much less a probing history and physical examination. Next morning, the patient leaves for home. In the second scenario, thanks to the pressures of utilization review and cost control, the wealth of information formerly developed by the inquiring student over several days of patient contact—the anatomy, physiology, surgery, human impact—has become reduced to a vignette of little more than skin-to-skin technique. On the medical service, the pressure to shorten stay may lead the admitting physician to schedule critical tests and crucial consultations even before the patient arrives, leaving the house officer and student with the rote work but depriving them of a major intellectual challenge in patient care and decimating the learning experience.

We learn some of our doctoring through observation of role models. The student looks to the house officer, for example. What is he or she doing in today’s hospital? Shortened length-of-stay means greater patient turnover, and more discharges mean more admissions, if the hospital is not on its way to bankruptcy. More admissions mean more workups per house officer, and greater throughput means less time to sit and talk with students as well as less time to get to know one’s patients. Some leisure is needed to think, some to incorporate the details and meaning of the stressful environment of patient care, and some simply to observe the role models and learn how better to be a doctor. Much of this is lost in the new pace set by cost control.

Nor does the tempo benefit the patient. For the patient, the concentration of interventions per day is more intense. For more of each day, the patient is shuttled away from the bedside for one or another procedure, and this has its consequence for teaching as well as patient comfort. In teaching, many clinicians want to emphasize the value of seeing, talking with, and examining the patient directly. To stress the importance of bedside teaching in this era of technology, the concerned teaching physician will lead house staff and students to the bedside but too often finds the bed empty with the patient off at x-ray. Against his will, the teaching physician’s rounds deteriorate into a backroom exercise where discussion migrates from the specific individual who is the patient to a more disembodied recitation of physiology, biochemistry, and laboratory values, a shift from the human individual to the data.

Is the teaching hospital then the right place to teach? A logical extension of that question is whether the ambulatory clinic, the primary care
setting, and the private physician’s office may be a better locus. At least two considerations must enter, educational and economic, and these identify the many difficulties of in-hospital teaching in the ambulatory setting as well. The more diverse the educational settings—a widespread collection of practitioners’ offices, for example—the greater the problem of quality control. Monitoring teacher and student and evaluating them become increasingly problematic. Furthermore, the basic nature of the teacher then shifts from the university-based faculty member, whose emphasis is on uncovering new scholarship, to that of the practicing clinician whose day is necessarily geared to responsiveness to his or her patients. I do not mean to denigrate either the mind or motivation of the practicing physician; I am simply noting a change in the intellectual environment of medical school teaching and learning by virtue of differing time and priority allocations for the practicing physician compared with those of the medical academician.

### Impact Of Cost Control

As for the economics, to take time for teaching students means time away from the generation of clinical revenue. To allow a student to work up a patient slows throughput, restricts productivity, and cuts income. Whether in the teaching hospital or ambulatory setting, teaching costs money, and in an era of increasing economic competition, where the costs of patient throughput are scrutinized by the payers of care, the more costly provider of care will likely lose the business. The argument that teaching intermingled with care might result in better care worth the added cost will likely not go far with most payers.

Other issues arise. Over the past decade a growing portion of the budget of academic clinical departments comes from private practice dollars. What is the future of that resource? Today, a modest fraction of the nation is enrolled in prepaid medical care systems and funded through capitation, but over the next decade that segment will grow. Consider capitation versus the relative largess of fee-for-service dollars in terms of potential for contribution to academic practice plans. It seems likely that the next major crisis in funding the academic department will spring from decimation of the practice plan, a result of the continuing growth of health maintenance organizations (HMOs) and the concomitant disappearance of fee-for-service dollars.

This loss of dollars through more limited overall payment is partly an outgrowth of the corporatization of medicine, with its shift of power from the doctor to the payer. This shift has other consequences for teaching and learning. With growth in size and influence, for example, large hospital chains have moved from the small community hospital into tertiary care. Their power to influence teaching might be seen, for example, in
Heart surgery in Louisville where Humana established its program not in the university hospital which it was in fact managing. Corporate policy called instead for location of heart surgery in a nonteaching hospital where academic issues appear to be in some competition with well-thought-out business plans. Since teaching and learning and the research scholarship which underlies those activities flourish best in an atmosphere of inquiry sustained by the leisure to think and the freedom to follow one's intellectual pursuits, it seems likely that what scholarship abides in that differently prioritized corporate environment must differ from the life of the mind in the university.

It is not the for-profit characteristic that exercises such influence; the power derives from the size and economic influence of the organization and the demands of its business plans. To the extent that a not-for-profit HMO or any payer of care does business with an individual teaching hospital, it may exercise a significant influence on teaching and learning. At a time when occupancy is declining and most hospitals are looking for larger market share, any major payer can create disruption by moving patients from a teaching hospital to another institution. To the extent that such patients were meaningful to the teaching effort of the first institution, an academic impact will be felt. If predictions are correct that payment and delivery of health care will soon be aggregated into the hands of a very few large corporations, it follows that much of the environment for clinical education may wind up in those same few hands. I suspect such corporations will concentrate on shorter term economic interests, putting aside more fundamental matters for another day, to the detriment of medical education and scholarship. Yet the quality of the practitioner and the extent of the knowledge available to him or her are the basic capital wealth of medical care; teaching and research abandoned at the behest of today's bottom line may thus prove the ultimate in thoughtless accounting for the future.

In summary, we have begun by considering two separate topics: the challenge of providing medical education at lower cost and the impact of cost control pressures on medical education. For the first-cost effectiveness in medical education - we have only begun to make serious inquiry, and there is no obvious solution in the wings. As for what is happening to medical education as a result of today's economic pressures, the view from the teaching hospital registers a profound and pejorative impact not only under the hospital's roof but in the ambulatory setting as well. Of even greater concern is the corporatization of medicine, with decisions made by organizations not only distant from the university but also more likely to neglect long-term concerns on the quality of medical manpower and its knowledge base, in the interests of more immediate economic goals. So many decisions begin with the economics of care but have consequences which promise to enmesh teaching and learning,
research, the very integrity of medical schools and teaching hospitals, and, of course, patient care. As a society we shall be obliged to scrutinize most dispassionately the outcome of our present-day revolution in medical care delivery and financing. If we revel in the short-term savings but disregard their full consequences, we do so at the ultimate peril of the health of the nation.

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