



◆ Director, Center for the Advanced Study of Ethics, Georgetown University

## Medical Education: Time For Change—Yes—But . . .

*Edmund D. Pellegrino, M.D.*

---

FEW INSTITUTIONS ARE AS SINGULARLY RESISTANT TO CHANGE AS MEDICAL education and practice. Yet even in the face of this proverbial inertia, the American Board of Family Practice has made remarkable progress. In a mere 20 years, it has created a new specialty with its own Board and its own model of recertification. It has gained entry into the zealously guarded precincts of the medical curriculum. Finally, and most importantly, it has qualified thousands of new physicians for that most desperately needed and most difficult to obtain of medical services—general and family care.

There is much to be proud of, much to celebrate, and much to confound the skeptics who predicted failure or an early demise to the bold venture Nick Pisacano and his colleagues conceived 2 decades ago. To be sure, there still are residua of doubt even amid the unprecedented success. Academicians still question the intellectual integrity of family medicine. Third-party payors seriously disvalue the time, effort, and skill demanded of a competent generalist. The public still seeks out the specialist first. Family practitioners often underrate their contributions and seek security by mimicking the less desirable traits of the specialties.

But in one form or another, family practice—or, better still, the generalist—will not disappear. I hesitate to disagree with so astute and venerable a prophet as Eli Ginzburg, but no matter what happens to technology, politics, economics, and even medicine, the human need for a physician who can “put it all together” will survive. The generalist meets a fundamental unchanging need of sick persons. Indeed, specialization, which so many regard as the nemesis of general medicine, is the most potent reason for its permanence. Even in the “Star Trek” world of super technology, Captain Kirk and his crew need Dr. McCoy to interpret, advise, and “care” for them.

My task this afternoon is not to sing the praises of family medicine or to justify its existence. Rather, I am supposed to offer some comment on what we have heard. Given the knowledge, experience, authority, and eloquence of the speakers in this symposium, my task is formidable. To indulge in a detailed critique would be to invite the danger of superficiality or cavil.

Instead, I will offer a few thoughts that came to my mind as I listened, thoughts that touch on some things directly and some tangentially.

The first thought that occurs insistently in this, as in every discussion of medical education, is the recurrence of the same diagnoses and remedies over at least the last half century. Let me take as a starting point the carefully done and thoughtfully crafted Report of the Commission on Medical Education of the Association of American Medical Colleges, which was published in 1932.<sup>1</sup> This was the product of a stellar group of educators under the leadership of the then president of Harvard, Lawrence Lowell. That report called for change, as urgently as our speakers did today.

Let me recite some of the defects this commission targeted for reform—rigidity and overcrowding of the curriculum; not enough free time; too many lectures; too much specialized detail; overemphasis on teaching rather than learning; no correlation between subjects; memorization rather than grasp of concepts; topics selected by teachers' interests rather than relevance to practice; meaningless laboratory work; neglect of social, humane, and economic aspects of care; separation from the intellectual life of the university; too much departmental autonomy; and a serious disjunction between societal need and the doctor's education. The remedies are just as familiar: interdisciplinary teaching, time to read and think, emphasis on self-learning and lifelong habits of study, making medical education a continuum, teaching a common body of knowledge, adding the social sciences to the curriculum, and changing the attitudes of faculty and administrators rather than manipulating the curriculum.

These themes have become a veritable doxology that medical educators now recite almost automatically. These same themes recur in subsequent studies of medical education.<sup>2-5</sup> They dominated the annual meetings of the

Council on Medical Education of the AMA before they were discontinued. They figure prominently in hundreds of impassioned articles pleading the urgency of the need for change. They underlie the "experiments" in medical education in the new schools of the 1960s and 1970s,<sup>6</sup> in the Case Western Reserve Program,<sup>7</sup> and the "New Pathway" at Harvard.<sup>8</sup>

Despite this unanimity, most curricular innovations have suffered decline or have quietly disappeared, usually without resistance even by their protagonists. The behavioral sciences, interdisciplinary teaching, self-learning, early introduction to patients, community medicine, the 3-year curriculum, problem solving, the problem-oriented record, longer elective periods, etc., have come, gone, or atrophied in many schools. There are notable exceptions, of course. But clearly, the half-life of each medical educational reform is short, the tendency to revert to type is seemingly irresistible, and human enthusiasm for sustaining change is short-lived.

I mention all of this not like Ecclesiastes to show that there is nothing new under the sun or that all is vanity. That would be irresponsible, given the importance of the topic, and hypocritical, given my personal involvement in curricular reform. I still feel change is in order, but change based on a more critical scrutiny of some of our assumptions than has been customary in the past. I agree with the title of this conference "Medical Education: Time for

---

*... the half-life of each medical educational reform is short, the tendency to revert to type is seemingly irresistible, and human enthusiasm for sustaining change is short-lived.*

---

Change," but only after a more searching look at some of our "salvation" themes.

We must ask ourselves why, with so many good minds at work and with so much good intention, so little permanent change has been effected? Are our diagnoses of the defects in error? Are the remedies sound? Are we too naive about the practical politics of academic change? Some would say that the obstacle is faculty self-interest and intellectual chauvinism. Others point to the academic bureaucracy or to an insufficiency of fiscal or personnel resources. Some focus on student apathy. Still others point to the intrinsic intractability of the problem—how to compress an ever-expanding mass of material into a seriously limited time. They say the gravitational pull back to the old curriculum is rooted in an ineradicable time-content conflict that no reform can resolve. Some or all of these reasons for failure may be valid. Each of us has a favorite theory. Unfortunately, we lack the data on the etiology and anatomy of the dissolution of curricular innovations needed to support our theories.

There seems to be a natural history to educational reform: every innovation starts with an initial period of enthusiasm; this is followed by a period of implementation when the defects and problems appear. As the complexity of these problems emerges, there is a gradual waning of enthusiasm. The innovation is modified or allowed to slip into a quiet demise. This natural history needs better delineation. There are enough past case histories to supply the subjects for such a study. But we must not wait too long or both the record and the people involved in them will no longer be available for examination.

Before we enter another period of educational salvation through curricular reform, we must learn more about the anatomy of failure. A philanthropic foundation would do well to support such a study, rather than funding still another "exciting" new program based on the same assumptions that have not fared so well in the past. Needless to say, the anatomy of a success would be equally significant, provided a suitable success story of long enough duration could be found. In any case, reflections on our past failures could be salubrious. They can provide a little humility, make us a little less self-righteous, and a little more selective in our goals.

Educators do need humility about the extent of their influence on a physician's education and subsequent performance in practice. We may be taking ourselves far too seriously. Students come to us with their own values and background intellectual experiences. They have lived, and will live, in the world outside academia for most of their professional lives. Education can have an enormous impact to be sure. One could hardly be a teacher without this conviction. But it is pretentious to think that the shape of practice and patient care turns ultimately or solely on what we teach.

The residency years and the years of practice are far more powerful shapers of attitude, character, and competence. Physicians acquire a professional identity when they become members of a group with a defined interest and a way of life they have chosen themselves. Both the good and bad experiences of medical school are easily erased by the example of the peers in the specialty field we select as our own. Only those few articulate medical students who write books about the horrors of their medical education can make a profession of being medical students. Like pubescence, medical school is a transient phenomenon. It is morally irresponsible for medical students to blame their medical education for their failures of competence or character. But it is also morally irresponsible for educators to excuse themselves of the bad example

they give or the “abuses” medical students perceive they suffer in medical schools.<sup>9</sup>

I am *not* suggesting that educators can be indifferent to what and how they teach. Medical schools have serious moral obligations to provide the best education possible in a competent and humane way.<sup>10</sup> But they can misidentify moral accountability with curriculum rigidity. This applies to the “conservatives” who cannot resist teaching all they know in mind-anesthetizing lectures that have been the bane of students probably since Hippocrates’ time. It applies to those sincere idealists who look to medical education as an instrument for transforming students, faculty, medical practice, and social values in one sweep of a magic curriculum. It is relevant, too, for students who are convinced that their experiences are the only source of truth.

Each cherished item in the credo of curricular reform could benefit from a dose of firm but gentle skepticism, lest it becomes a seductive slogan. Slogans are useful as stimulants to change, but not necessarily as a right prescription for effective change. Let me select just two examples of widely held assumptions to illustrate the point I am making: integrated teaching and student selection. Both have been advanced as part of the agenda for rejuvenating the generalist.

**I**NTegration and correlation of knowledge. No one faced with the mountain of detail that constitutes the content of the clinical and basic sciences today could quarrel with the urgency of integrating that knowledge. No one can reasonably deny the importance of integrated knowledge for good medical practice. But how much integration can the faculty effect for the student? Seeing connections is a highly personal and internal affair that comes at different times and in different ways to each student. Further, these connections usually come only when we have a need for them and when we have a defined core of interest around which to organize disparate items of information. “. . . it is not desire which leads to knowledge but necessity.”<sup>11</sup> Students therefore face an intellectual dilemma. If they have chosen a specialty, they will “integrate” mostly what is relevant to that specialty. If they have not, they have no frame to which the details can be attached. In both cases, the possibility of integration across some broad body of knowledge that should be “common” to all physicians is compromised.

Moreover, how convincing as integrators are faculty members who are specialists? Few faculty members embody genuinely integrated knowledge. When faculty members engage in interdisciplinary teaching, they do so, paradoxically, as specialists. Each appears on the scene as master of a cell of knowledge that, joined to the other cells of special knowledge, is supposed to make a body of integrated knowledge. But what the student actually sees is a faculty unable to integrate even within, to say nothing of between, disciplines. The connections in interdisciplinary teaching are often designed to fit a curricular plan rather than some logical connection. The constrained juxtaposition of details is never convincing. The student must see the purpose of making the connection.

The same difficulty confronts the clinician as the basic scientist. Who has not met a group of clerks or house staff for rounds and been asked, “What kind of cases do you want to see?” To suggest that we might be willing to see any clinical problem is to invite incredulity and the conviction that no “pearls” are to be harvested from *this* attending. House staff and students are looking for a way to put a mass of details in order. But they and their teachers too often overlook the most effective focus for integrating medical knowledge—the

needs of a particular patient. They end up seeing the patient's care as a congeries of poorly organized specialty consultations, laboratory and imaging data, and disjointed histories. Attendings who are specialists fortify this impression. The fragmentation already experienced in the basic sciences carries over into the clinical forum.

The one intellectually sound core for integrating medical knowledge is the generalist function. But this function is poorly taught, poorly understood, and poorly practiced. I have described its intellectual content elsewhere.<sup>12</sup> Suffice it to say that the most serious deterrent to integrating medical knowledge is the lack of interest in, or mastery of, the generalist function among clinical faculty members. How seriously can a student take attempts at correlations of information when no faculty member teaches a whole course but only bits of a course, when the student is examined over a breadth of knowledge few faculty members any longer possess, and when the generalist has no visibility at the intellectual center of clinical teaching?

When we speak of integrating knowledge, we are speaking of the central intellectual attributes of the liberally educated person—the capacity to put things in order, to see relations, to assign relative importance to each detail, and to know how to use each detail prudently. We are liberally educated only when we can do this without our teachers. This is probably what educators are hoping for when they speak of fostering independent study. Sadly, this kind of education in the liberal arts is difficult to find in the colleges. Even the most diligent medical teacher may not be able to repair this prior defect in the student's education. It is hard to give a liberal education in medicine if the basic attitudes of mind of the liberal arts are not there to work with.<sup>13</sup>

My skepticism is not intended to depreciate or trivialize serious efforts at integration. Rather, I believe that some of the assumptions about integration need reappraisal. Such reappraisal would, I contend, lead to a simpler, more targeted, and more effective approach to curricular change. In the basic sciences, for example, as in graduate school—which so many educators wish to emulate—one professor should organize and teach a whole course. This gives the mass of detail some unity, some selectivity, and some idea of relative importance. The competent teacher can give one notion at least of the connection between topics, readings, assignments, discussions, and examinations. A teacher who exhibits integrated knowledge will also say more powerfully than any team teaching that it is possible to have a grasp of the essential elements of a discipline.

To be sure, the student will lose the advantage of exposure to a specialist in every field. Integration will be seen through the eyes of only one teacher. The student may draw a poor teacher, but the risk will be balanced by the fact that the student will have some unified perspective on the whole discipline. To develop one's own synthesis, a student needs to see how someone else puts the details together. Then, the student can account, respect, modify, and thus effect a personal synthesis.

Organizing and teaching this way will not appeal to faculty members burning to describe their latest research efforts. Some will be horrified by what they deem to be its pretensions or insulted by not being able to exhibit their own research. Others, however, might welcome the opportunity to refresh their

---

*The one intellectually sound core  
for integrating medical  
knowledge is the generalist  
function.*

---

own intellectual batteries with a reimmersion in their mother discipline. To their surprise, they may see new or forgotten correlations of their own.

My convictions on this point derive from personal experience. Most of my medical life has been spent teaching in medical schools. Like others, I taught my specialty and my research interests. Ten years ago, I began in addition to teach graduate courses in philosophy and ethics. This was a new challenge. I had to design a whole course, provide all the lectures, select all the readings, counsel all the students, and read all their term papers. This was an exciting challenge. Teaching a whole medical school "course" should be just as exciting. Maybe—wonder of wonders—someone might teach a course in internal medicine. If we really think there is still a place for general internal medicine, someone ought to be able to teach it! The more detailed knowledge of the specialist will come in due course: such things as consultations and specialty rounds.

The most effective way to teach the integration of medical knowledge is at the bedside. Here, the necessity for correlating information and putting it in order is obvious. The "need" that Ortega deemed essential to the student learning is urgent. So is the other ingredient, an organizing framework to which disparate sources of data can be attached, namely, the needs of *this* patient for assistance.

The methodology for effecting integration is that in which the generalist clinician should excel—i.e., the craftsmanship and organized thinking of the clinical approach. This is the sadly neglected "low" technology of the history, the physical examination, the critical use of ancillary data from

imaging, the laboratory, consultants, and the capacity to put all of this together in a plan of management that is then made intelligible and entered into by the patient. "High" technology without this "low" technology soon overreaches itself to the peril of the patient and the stagnation of the critical faculties of the clinician. Generalists must, in fact, be critics for all the recommendations converging from a variety of sources in their patients.

Familiarity with the generalist function is what is common to the much publicized "undifferentiated physician." It is the "common denominator of general and specialty practice" pointed out in the AAMC report of 1932.<sup>1</sup> This should be the major objective of the clinical years. But to be effective and convincing, it must be taught by practice under close supervision by generalist physicians in university teaching hospitals. It is here that the generalist who can fulfill the need Paul Brueker so eloquently describes<sup>11</sup> is so urgently needed.

But integrated teaching must be accompanied by integrated patient care. Unless generalists are visible, their functions well performed and needed by patients and colleagues, the intellectual challenge cannot be appreciated or students attracted to it. The absence of a sufficient number of generalists, sufficiently well equipped for this kind of care, in the university setting is to my mind more important in discouraging students from entering this field than the lower rate of remuneration.

Clearly, this is not the kind of teaching that can be left to the resident who is himself still mastering the basic steps or, worse still, has never seen them adequately performed. This kind of teaching cannot be done by attending

---

*Unless generalists are visible, their functions well performed and needed by patients and colleagues, the intellectual challenge cannot be appreciated or students attracted to it.*

---

physicians who make rounds and disappear. It is a full-time occupation for generalists. It must be present at every level of care to which the student is exposed—primary, secondary, and tertiary.

I am heartily in support of John Benson's call for one family of generalists.<sup>15</sup> I have argued that the family bond between them is a challenging intellectual activity, more challenging than any specialty can provide. But I believe we must not confine generalists to primary care. Their integrating function is as much or more needed in the university hospital as it is in the ambulatory clinic.<sup>16</sup> What we need desperately, to convince students of the importance of the generalist, as well as to teach what integration of knowledge means, is a visible role for the generalist in every arena of care, especially in university hospitals where fragmentation is the commonest cause of inappropriate and even improper care.

**S**TUDENT SELECTION. WHEN ALL ELSE FAILS, EDUCATIONAL REFORMERS turn to student selection as the answer. If the method fails, look to the material. Many are convinced that some of the more troubling defects of physicians as persons are remediable by more careful selection of students for admission. If we want more humanistic doctors, more of them interested in primary care, and more of them ethically sensitive, then, it is reasoned, we should select students who major in the humanities or social sciences, who are women or members of minority groups, and who are well rounded, are not "grinds," and have had courses in ethics. This is a superficially attractive but conceptually flawed assumption.

For one thing, exposure to courses in the humanities, social sciences, or ethics does not make a person compassionate, virtuous, or altruistic. A brief look at the behavior of humanists, ethicists, or social scientists all too frequently reveals an appreciable gap between what their discipline teaches and what its proponents do. I strongly advocate teaching ethics and the humanities in medical schools, but we must be realistic about what they can accomplish.<sup>17</sup>

Moreover, if we selected students on any of these criteria, premedical students would choose "humanistic" subjects for the wrong reasons. We already know that heavy concentration in the sciences does not correlate closely with a better grasp of the sciences in medical school. Too many science majors have taken science courses primarily to gain admission to medicine. If a subject is to engage a student, there must be genuine interest in the subject; otherwise, it becomes an obstacle or a ploy—both forgotten when the reasons for their existence are over.

Similarly, it is erroneous to admit women and minorities on the assumption that they will choose primary care over the specialties. To be sure, these groups should be admitted without prejudice or discrimination. This is a matter of justice. But because they have been barred from medical school and certain specialties in the past does not mean these groups do not have the same aspiration as the white male. Woman and minority persons should not be expected to carry the burden of the nation's need for generalists. To admit them to medical school with this expectation is to place an undue burden on them and to compound the injustices they have suffered in the past.

In the same vein, there is nothing about indulging in college athletics, campus politics, or even public service that assures a more humane physician

---

*Many are convinced that some of  
the more troubling defects of  
physicians as persons are  
remediable by more careful  
selection of students for admission.*

---

in later years. Nor is there a negative correlation between academic performance and compassion, as some seem to imply.

Finally, there are no reliable psychological tests that will enable us to predict which young persons will be compassionate or ethical in their practice years. Medical school applicants are like other young persons, examining the range of their interests, trying to match them against the requirements of a branch of medicine, and seeking models to emulate. It is unjust to exclude them from medical school because of some preconceived notion of what they will do 20 years later. They already face a lottery in the admission interview. To a degree that we do not always admit, admission depends on how well the applicant's interests and values match those of the interviewer.

We would do better by the student, the profession, and the public if we encouraged students to major in what interests them. There is no evidence that it makes any difference whether a student majors in astrophysics, music, or classical philology. By permitting students to choose for themselves, they will be better motivated and more interested in what they study. Our interest should be in how well they perform in whatever field they have selected for study.

I have chosen to focus on only two sets of assumptions about curricular reform, integrated teaching and student selection. Many of the other assumptions

---

*It is indeed time for change . . . but change will be futile, expensive, and self-defeating if we merely enter another cycle of curricular engraftment, graft rejection, and regrafting.*

---

of curricular high fashion need similar scrutiny. They are not necessarily incorrect but perhaps conceptually defective and unclear. What precisely do we mean by independent study, flexible curricula, liberalizing the medical curriculum, making it more socially relevant, and making it more like graduate education? These are ideas with a certain *prima facie* attractiveness, but they need to be conceptually unpacked before they are institutionalized in a curriculum. Likewise, a whole series of popular assumptions need closer scrutiny, e.g., that admitting more students with humanities

majors in college will "humanize" medicine, that minorities and women will do the same, that a medical school faculty needs to be involved in remunerative practice, that good faculty cannot be retained without incomes that match practice, that out-patient experiences will foster more interest in primary care, that putting the basic sciences with the college years and the clinical with the residency will improve both.

I do not think the usual "evaluation" built into many curricular programs answers these questions satisfactorily. Evaluation is useful in measuring short-term effects, but not the longer term reasons for survivability or failure. Often the questions are framed in too limited a way and not directed at the validity of the underlying educational assumptions. At this juncture, some combination of a deeper criticism of the assumptions, combined with a knowledge of why remedies agreed upon for 50 years have not taken hold, seems more in order. It is indeed time for change, as the title of this conference suggests, but change will be futile, expensive, and self-defeating if we merely enter another cycle of curricular engraftment, graft rejection, and regrafting.

Let me close by again congratulating the American Board of Family Practice for its extraordinary accomplishments. The American Board of Family Practice had the courage not to go with the tides of the times. When Dr. Pisacano came to Kentucky, the Board was still a gleam in his eye. Those

of us familiar with academic medical politics knew he and his colleagues would have to swim upstream, always an exhausting exercise, which has defeated many a brave new program. They did not submit to the overwhelming power of specialization or to the corrosive influence of the economic and social forces militating against the generalist.

Nick's success is a tribute to his courage and dedication to what he was convinced was needed to improve the care of the sick and the health of the family. He and his colleagues showed, too, that powerful as they are, economic and political forces need not shape medicine unless we ourselves are unwilling to take an active role in molding our own future.

The academic landscape of the last 20 years is littered with the skeletal remains of brave curricular innovations that failed to survive. But we do not see family medicine among them. I believe family medicine will be one of the few "innovations" to become a permanent fixture in the medical curriculum because it meets a basic human need that will always be there. Its presence has already heightened, and will continue to heighten, the sensitivity of internal medicine to what it is to be a generalist. Frankly, I do not believe departments of medicine would have become interested in primary care or general medicine without the stimulus of Family Practice.

The American Board of Family Practice's success is clear and encouraging evidence that the improbable can become probable, and the merely possible can become the actual, if we are willing to work with imagination and persistence. *Ad Multos Annos!*

## REFERENCES

1. Rappleye WC, director. Medical education: final report of the commission on medical education. New York: Association of American Medical Colleges Commission on Medical Education, 1932.
2. Coggeshall LT. Planning for medical progress through education. A report submitted to the Executive Council of the Association of American Medical Colleges. Evanston, Illinois, 1965.
3. Cope O, Zacharias J. Medical education reconsidered. Report of the Endicott House Summer Study on Medical Education, July 1965. Philadelphia: J.B. Lippincott Co.
4. Higher education and the nation's health: policies for medical and dental education. Report of the Carnegie Commission on Higher Education, October 1970.
5. Association of American Medical Colleges. Physicians for the twenty-first century: the GPEP report. Washington, D.C.: AAMC, 1984.
6. Lippard VW, Purcell EF, eds. Case histories of ten new medical schools. New York: The Josiah Macy, Jr., Foundation, 1972.
7. Williams G. Western Reserve's experiment in medical education and its outcome. New York: Oxford University Press, 1980.
8. Tosteson DC. New pathways in general medical education. *N Engl J Med* 1990; 322:234-9.
9. Silver HR, Glicken AD. Medical student abuse. *JAMA* 1990; 263:527-32.
10. Pellegrino ED. Philosophy and ethics of medical education. In: Reich WT, ed. The encyclopedia of bioethics. Vol. 2. Riverside, NJ: Free Press, 1978:863-9.
11. Orgega y Gasset J. Some lessons in metaphysics. New York: W.H. Norton, 1969:18.
12. Pellegrino ED. The generalist function in medicine. *JAMA* 1966; 198:541-5.
13. *Idem*. The clinical arts and the arts of the word. *Pharos* 1981; 44:2-8.
14. Brucker P. A chance for the generalist. *J Am Board Fam Pract* 1990; 3(Suppl):15-27.
15. Benson J. Isn't It Time for One Family of Generalists? *J Am Board Fam Pract* 1990; 3(Suppl):29-37.
16. Pellegrino ED. Internal medicine and the functions of the generalist: some notes on a new synergy. *Clin Res* 1976; 24:252-7.
17. *Idem*. Teaching medical ethics: some persistent questions and some responses. *Academic Med: J Assoc Am Med Coll* 1989; 64:701-3.