

Recruiting Students for Medicine

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The applicant-to-acceptance ratio in the nation's 127 medical schools has slowly but steadily declined during the last decade to 1.7:1 (60.5% acceptance rate) for the 1987-1988 academic year. The 28 123 applicants in this academic year represent a decrease of 3200 applicants from the previous year. The decline in the number of applicants is even more striking because it occurred despite the welcome increase of female applicants between 1965 to 1988 (36% of the entering class in the 1987-1988 academic year). The laudable changes in the Medical College Admission Test (MCAT) examination, which take effect in 1991, will not solve this problem. We believe that the causes of the flight away from medicine as a career are several and represent the combined effect of changes in the practice of medicine itself and their negative impact on the profession, as well as deeply-seated shifts in values, attitudes, and aspirations among the young people in our society. We discuss several factors concerning the phenomenon in question and offer some suggestions concerning solutions for this important problem. Our goal in this brief essay is to stimulate discussion and awareness among physicians concerning medical school admissions and to galvanize into action the medical profession and other key persons who are keenly interested in high-quality health care for our people.

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"Of all the works of man, few can be more complex, or potentially more important to society, than the business of creating physicians." Hilliard Jason, 1972 (1).

When I (MCG) arrived in North America in 1958, I was awed by the great foundations of the health-care system, both in basic-science research and clinical medicine. The quality of medical education in the United States and the meticulous organization of post-graduate training, with its strict requirements for program accreditation, have been and continue to be one of the greatest achievements in our country. Here is one undisputed pre-eminence of the free world with U.S. medicine at its apex. This precious heritage has been developed and maintained mainly by impressive human talent in the basic sciences relevant to medicine, in medical school faculties, and in our research establishments, including the National Institutes of Health, the university medical centers, the Department of Veterans Affairs Medical Centers and Research Service, the pharmaceutical industry, and other institutions.

The most crucial need for maintaining excellence in our health care is recruiting the best and the brightest of our students for admission to medical schools. The Association of the American Medical Colleges (AAMC) and the medical schools themselves have systematically worked to refine the process for selecting them. In 1984 the AAMC published the report (2) of the Project Panel on the General Professional Education of the Physician (GPEP). The report, based on the premise that "all physicians regardless of specialty require a common foundation of knowledge, skills, values and attitudes," describes the knowledge, skills, and values of physicians considered vital for patient care of high quality. One of the specific recommendations of the Panel was the addition of an essay section to the Medical College Admission Test (MCAT). The MCAT Evaluation Panel recently completed a full-scale review of the format and content of the MCAT. Beginning in 1991 the MCAT should include only four tests: Biological Sciences, Physical Sciences, Verbal Reasoning, and a Writing Sample (essay). Up to this point the MCAT test has had six sections: Biology, Chemistry, Physics, Science Problems, Reading Skills Analysis, and Quantitative Skills Analysis. The new test will be shorter and is designed to emphasize the value of critical thinking, logical reasoning, problem-solving, and communication skills in both medical education and practice.

The Problem

A disconcerting and intriguing phenomenon of the last 20 years has raised enormous concern for the future of American medicine: The steady decline of the number of U.S. citizens applying to our medical schools (3). The steadily decreasing number of applicants has dropped the applicant-to-acceptance ratio to an unacceptable level. This ominous phenomenon cannot be ignored by our medical profession. It is all the more troublesome in that it developed despite a dramatic and welcome increase in the number of women entering medical school between 1965 and 1985 (4), from 8% to 32%. The number continues to increase; over 36% of the entering class in the 1987-1988 academic year were women (3).

For the 1987-1988 academic year 28 123 persons applied to U.S. medical schools, which represents a decrease of 3200 from the previous year. The applicant-to-acceptance ratio was 1.7:1 (60.5% acceptance rate). Despite the falling numbers of applicants, their quality, as evidenced by grade-point averages and MCAT scores, appears to be high (3). The message to the medical profession becomes clear, however, when we review the applicant-to-acceptance ratio in some other fields. Consider the MBA degree program at the business school of the University of California, Berkeley. In 1988 there were 2518 applicants; 551 persons were accepted and 229 of them were enrolled, a ratio of 9:1. The median grade-point average was 3.54 and the median score on the Graduate Management Admission Test (GMAT) was 650. (Burk DM. Personal Communication.) Another interesting comparison is with the military academies, West Point, the Naval Academy, and the Air Force Academy. In the class of 1991 (entered 1987), West Point admitted 1365 (9.4%) out of 14 993 candidates, the Naval Academy admitted 1315 (8.4%) out of 15 565 applicants, and the Air Force Academy admitted 1348 (10.6%) out of 12 711 applicants! The Scholastic Aptitude Test (SAT) averages for the candidates for the three academies were, respectively, verbal 560, 583, 579, and mathematics 640, 664, and 665, which are well above the SAT national averages of 430 for verbal and 476 for mathematics (5).

Why has medicine decreased in its appeal as a career? We need to identify the causes of this flight away from medicine as a profession. Petersdorf (6) has already outlined some of the relevant factors in this regard.

I (MCG) have been a program director in internal medicine for 19 years. Fourteen years ago I initiated a unique premedical program designed to assist women, members of minority groups, and other students attending colleges and universities in the East Bay area of central California. I have interviewed thousands of practicing physicians, residents, and medical and premedical students. As a practicing rheumatologist (BJB) in a thriving community in the East Bay and at a busy and active private hospital (John Muir Medical Center) I have discussed attitudes toward medicine with practicing physicians, allied health personnel,

resident physicians, and premedical students.

College preprofessional advisers often do not understand and do not trust the selection criteria the medical school admissions committees claim to use (2). They tend to steer the brightest students into graduate studies and, more often than not, onward into industry. High school and college students lack factual information about medical school studies. The preponderant views among students are of long years of study and training that lead to a professional life of unending demands on leisure time and to a family life marked by an always-absent father or mother too busy taking care of patients. The material incentives, such as the high earnings in certain specialties, have lost their appeal. These incentives have even created resentment within the profession itself, resentment that diffuses outwards from physician parents to their sons and daughters.

Medicine is being inexorably commercialized in private practice and in hospitals. News organs focus on hospitals "going belly up," on bankrupt Health Maintenance Organizations (HMOs), on relentless increases of malpractice premiums, on sensational malpractice cases with awards up to seven figures, and the stream of predictions about a huge doctor glut in the coming few years. A continuous national campaign focuses on the cost of health care absorbing 11% of the gross national product and still rising, a cost indirectly attributed to the irresponsible behavior of physicians portrayed as being in charge of the total health-care process with scant discussion of costly new technologies, hospital and labor costs, and expensive treatments.

The rising cost of medical education leads increasingly to need for student loans. The great debts incurred by many medical students amount to thousands of dollars by their graduation.

The profession sees itself as under pressure from all sides: from the state and federal governments, the legal profession, and third-party payers. There is an aura of drastic decline in financial security and of a great decline in prestige in the community. These are coupled with perceived enormous demands on personal energy and time. Therefore, many practicing physicians now loudly advise against medicine as a profession. This is advice to their children and to their friends' children. Some appear to believe that by presenting discouraging attitudes to young aspiring students they will reduce the possibility of a physician glut and thus reduce future competition in their community. Others are frustrated with paperwork, third-party payers, high overhead, and high malpractice premiums, and they consciously or unconsciously unload their frustrations on everyone who will listen by being grossly pessimistic about the future of medicine in general. These views of physicians may be notably potent in influencing young students against a medical career.

Medical schools appear to be failing to try to counteract some of these negative factors. They too are under duress due to financial difficulties and difficulties of their faculties in obtaining research grants. The

pure practice plans in some medical faculties directly compete with practicing community physicians. This shift away from the traditional roles in tertiary referral centers has further decreased the prestige and attractiveness of the profession in some academic centers.

Many practicing physicians and medical school faculties almost totally lack management skills, which leaves them almost totally at the mercy of the nonphysician administrators in medical centers and hospitals, who control resources and make all the vital decisions on patient care. A few HMOs (for example, Kaiser Permanente) and truly private institutions have physicians who participate in decision making.

The length of study required for a career in medicine is excessive and increasing. Why should bright senior high-school students in the United States be willing to make a serious commitment to the 13 years of study required to become, for example, a cardiologist (4y + 4y + 5y)? Cultural factors and peer pressures play decisive roles. Impatient 17- and 18-year-olds are affected by the Epicurean philosophy prevailing in everyday life and the erosion of the ethic of public service. Our society expects too much from its young people, who receive a plethora of contradictory signals, and asks, in this case, that they spend 13 long, tedious, rough years of asceticism, when all kinds of shortcuts are available in other professions. Our contradictory society cannot entice its young into a medical career on the basis of altruistic enthusiasm alone.

Today's demands in patient care are enormous. Patients and relatives have become more vocal and demanding. A good example is in obstetrics: the young mother expects a perfect baby. Anything less is the fault of the obstetrician. Another example is in geriatrics: Relatives who may not have seen the elderly patient for years "are appalled with the lack of progress and recovery" and at "the lack of warmth from doctors and nurses". Today's well-trained and very capable physicians are "cold and distant."

The media have whipped up unrealistic expectations of the health-care system in general and physicians in particular. Even patients with disease arising from bad habits such as smoking, alcohol abuse, and drug abuse expect to be taken care of by the health-care system without question; they believe they can abuse their bodies at will and then go to Mr. Fix-it who will take care of everything. Young premedical students, not only medical students and residents, have difficulty with such attitudes.

The dramatic changes since 1950 in diagnostic and treatment methods have generated considerable stress and strain for practicing physicians. The medicolegal problems of the last decade tend to force the practice of medicine into defensive responses. Before 1950 the main goal in many illnesses was to make the diagnosis and to predict outcome. Today many areas of medical practice involve a multiplicity of interventional and therapeutic methods. The increasing complexity of the treatment of hypertension is a good example: It requires an extensive knowledge of many drugs, drug interactions, and metabolic effects. The need to be a

perpetual student in an era of steadily expanding scientific and technological information cannot be appealing to the young.

With the increasing cost of patient care and the widespread lack of medical insurance, some patients expect physicians to treat not only physical illness but also economic problems. Heavy social and economic burdens for patients and the profession are arising from exploding scientific and technological advances, changing societal attitudes towards health care, ethical dilemmas of life support, the enormous emerging era of organ transplantation, and the looming rationing of health care.

Finally, we wish to bring into a sharp focus what we call the "demystification factor," which has changed the physician's indispensability and standing in medical centers and the community alike. Technological advances have attracted bioengineering and computer specialists. The intensity and sophistication of patient care has augmented the role of allied health and paramedical personnel. The necessary emphasis on cost effectiveness and quality assurance has brought more managers into the medical scene. Ambulatory care, drug and alcohol detoxification, and the handling of trauma in the nations' cities, roads, and freeways by fire department and ambulance personnel, who by law "control the scene," have directly involved in patient care an army of persons who have not been to medical school and not taken the Hippocratic Oath or its Geneva equivalent.

How can this ominous trend be reversed? We need changes in medical and college education, and some changes will be expensive. We need concerted efforts in recruiting at the high school and college levels by many individuals and many organizations.

What Can Be Done?

1) The recruiting points for medical school admission are the senior high school and the freshman and sophomore college years. Medical school orientation begins there, and this is where the focus of the recruiting effort by medical schools should be. Presentations by medical school faculty carefully chosen for lucid, eloquent, and persuasive discussion with the students can be extremely effective. For many years one of us (MCG) has undertaken this task with great success, at UC Davis, UC Berkeley, and other campuses.

2) Communications and close contacts between medical school and college faculties should be augmented both from above and at the grass roots. Pre-professional college advisors should be specifically encouraged and rewarded; frequent contacts between them and medical school admissions committees should be facilitated. Undergraduate college faculties and preprofessional advisors are the key to success in university campuses, and their understanding and trust should be diligently cultivated.

3) Medical schools should provide senior high-school and undergraduate college students with a well constructed and informative brochure providing factual information about medical studies and the gratifica-

tions of a physician's life. It should emphasize the multipotentiality of the MD degree, which is conducive to careers in clinical practice, academic medicine, government medicine, administration, and in basic or clinical research.

4) Medical school faculties and other biomedical societies and organizations should launch factual campaigns in the media to present a balanced view of the dynamics of medicine as a profession. The profession should undertake systematic efforts both locally and in Washington to bring to the attention of elected officials and to the national administration the need for innovative measures to facilitate recruiting the best and the brightest into medical schools.

5) State and county medical societies should directly and vigorously communicate the problem at hand to all practicing physicians in this country. Behind The Iron Curtain there is a well-known dictum: "The worst enemy is the enemy from within." Practicing physicians are not knowingly the enemy, but some of them unwittingly do not help the recruiting process.

6) Medical centers should develop premedical programs for senior high-school and college students. A program of this kind has been highly successful at the Department of Veterans Affairs, Martinez Medical Center since 1975. The students register as volunteers at the Medical Center, work in various areas of the hospital, and attend conferences, including morning report, medical grand rounds, and others. They form a class that meets for an hour on Saturday mornings at the Medical Center for a lecture series providing overviews on clinical medicine, on basic sciences, and on general topics designed to shape leadership qualities, values, and attitudes with emphasis on public service. Medical school faculty, deans, hospital administrators, elected officials, and other prominent citizens participate. The special gratifications and rewards of a career in medicine are brought into a sharp, positive, and impressive focus. In effect we have opened our thriving medical center to youth from high schools and colleges, including UC Berkeley and UC Davis. The results have been astonishing. The students learn by example from the faculty and guest speakers who volunteer their time on Saturdays for these discussions. The students invite their parents and siblings to join them when topics of general interest are scheduled. Students have even returned for residency training and after board certification, again as consultants. This unique program has helped students and has generated a great amount of good will in the East Bay community for the VA Medical Center and the UC Davis School of Medicine. This program has been described twice in the Congressional Record, first in 1976 (7) and a second time in 1983 (8).

7) The entire profession should mobilize itself: medical school faculties, the AAMC, state and county medical societies with active participation of practicing physicians and hospital staffs, the American Medical Association, the American College of Physicians, the American College of Surgeons, and all other powerful organizations of the biomedical establishment. Our great national organizations in medicine should

develop and implement recruiting programs to include university campuses, community colleges, and high schools, with a singular goal in mind: to identify, motivate, inspire, and win over the best and the brightest for a career in medicine. Our medical schools in particular should quickly get into the business of recruiting the best students from college and university campuses. High school and college students should be invited to register as volunteers at university medical centers and permitted to attend lectures and presentations.

8) As financially healthy sectors of the biomedical establishment, drug companies should be asked to participate and contribute financially to the recruiting process in support of the profession.

9) The period of study in college and medical school should be shortened by two years. There is overlap and repetition between the four years of college for a baccalaureate degree and the first two years in medical school. The last two years in high school could also be abbreviated for a career in medicine. Whereas the average time for the medical school curriculum requirements is 152 weeks, 22 medical schools offer a combined college-medical school program with an average length of 256 weeks. These programs should be reviewed and probably implemented in all medical schools.

Conclusion

The American people deserve none but the best and most talented students to prepare to be the physicians of tomorrow. We must show the youth of this country, through practical and systematic steps, the rewards and gratifications of a career in medicine. The current trend away from careers in medicine can be reversed if we harness the capacity for problem-solving so characteristic of our society.

The views expressed in this article are personal and do not necessarily represent the views of the University of California or the Department of Veterans Affairs.

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Dear Dr. Geokas:

Thank you for sending me a copy of your informative article entitled "Recruiting Students for Medicine." What with all the crises we are facing in health care, it is disturbing to read that this country is having trouble producing the kind of quality physicians we have come to expect.

This country owes a large debt to the physicians who have not only healed our common wounds but also have consistently discovered the solutions to the ceaseless waves of pestilence afflicting the human race.

In order to meet the challenge of a high-tech service economy, this country needs a workforce proficient in science and mathematics. However, we cannot afford to experience a decline in the quality of our medical students. I am pleased to know that you have several substantive ideas of how to tackle this problem. I am especially enthusiastic about pre-med programs for high school seniors and college underclassmen, which I know that you have found to be very effective in reaching "the best and brightest" at your program in Martinez.

Thank you for keeping me informed on this issue. I want to congratulate you for your continued commitment to the future of medicine in this country. I am hopeful that the medical community will take the concrete steps necessary to head off this problem. Please feel free to contact me again with respect to your concerns on this or any other issue.

In friendship,

A handwritten signature in black ink that reads "Barbara Boxer". The signature is fluid and cursive, with the first name being the most prominent.

BARBARA BOXER
Member of Congress



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October 12, 1989

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Dear Doctor Geokas:

Thank you for your invitation to be a guest speaker for undergraduate pre-medical students. I am delighted to accept your invitation. I also want to thank you for sending me a reprint of your article in the Annals of Internal Medicine, however, it was not necessary for you to do so. I already had a reprint and actually used some of your information in a speech which I made to our faculty on the first Tuesday of October of this year addressing the State of the College.

December 2, 1989 is not a date which I can accept because I will be addressing the New York Hellenic Society on that day. However, I am free on December 9, 1989. I would be happy to either give a scientific talk (my specialty area is diabetes and endocrinology), or I can address the topic of the future of physicians in American medicine with emphasis to raising questions which pre-medical students might have. You can tell me which is preferable. Again thank you very much for the invitation. I look forward to hearing from you.

Sincerely,

Manuel Tzagournis, M.D.
Vice President for Health Services
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MT/sep



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Dear Dr. Geokas:

Thank you very much for your note of September 15 and the reprint of your essay entitled "Recruiting Students for Medicine." I most certainly agree with you that the declining quantity and quality of the applicant pool for admission to medical schools in the United States is an extremely serious issue that deserves consideration and response. Many of the organizations of American medicine have, in fact, been grappling with the problem, and I have myself been serving on a task force of the AAMC that will probably issue a report on this matter within the next several months.

In considering the problem, there is an extraordinary diversity of opinion regarding etiology and optimal therapeutic interventions. Proposed remedies span a universe of approaches of highly variable feasibility. Certainly, there is general agreement that there has been a marked falling off of interest among American high school students and college undergraduates in scientific careers in general; curiously, interest in careers in the biomedical sciences has not deteriorated quite so much as has that in engineering and the traditional hard sciences. Because of this fact, there have again been multiple remedies proposed to try to increase awareness of and excitement in science at various stages of the educational process, including intervention with junior high school and high school students. All of these ideas have merit; all of them require substantial commitments of resources, most importantly, of time.

We at Stanford have developed a few activities that are designed to deal with some small segments of the larger problem, especially with respect to underrepresented ethnic minorities. I would suggest that further communication with Stanford about these matters of shared concern might be pursued most expeditiously with Dr. John Steward, Associate Dean for Student Affairs, whose office is principally involved in these activities.

Sincerely,

David Korn, M.D.

DK/sp