Premedical Education

To the Editor: We write to describe an approach that potentially solves many of the problems of premedical education discussed by Kanter in his May 2008 editorial1 and in the article by Gross et al. 2 These problems include outdated and excessive premedical coursework requirements, heightened concentration on science courses to increase the likelihood of performing well on the MCAT, pressure to maximize grade point averages (GPAs) to gain a competitive edge when running the admission gauntlet, and premedical advising focused on getting students into medical school rather than nurturing the full breadth of competencies needed to succeed during their subsequent training.

Over one third medical schools have adopted a baccalaureate–MD program option that offers admission to capable high school students and addresses many of the cited ills of premedical education. The AAMC admissions guidebook notes that one of the main purposes of such programs is “to permit highly qualified students to plan and complete a broad liberal arts education before initiating their medical studies.”3 These programs frequently obviate the need for MCAT-specific coursework by dispensing with the MCAT as an admission requirement or by modifying performance thresholds. They also ameliorate the pressures to maximize GPAs and to focus the college years on gaining admission.

While baccalaureate–MD programs target many of the problems identified by Kanter and Gross et al, it is not clear if the graduates of such programs are more likely than traditional premedical program graduates to become the “creative and independent thinkers who have the capability and passion to tackle the most important problems in medicine” whom Kanter seeks. Our suspicion is that graduates of the two types of program are not clearly distinguishable, and here at the Northeastern Ohio Universities Colleges of Medicine and Pharmacy we are undertaking a study to test that hypothesis. If there are no meaningful differences, then we will need to look elsewhere to determine why (or if) premedical education is not fulfilling its potential to appropriately prepare the next generation of competent and caring physicians.

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References

To the Editor: We read your editorial from the May 2008 issue of Academic Medicine with great interest. We agree that it is time to look again at what premedical requirements are needed to attract the most appropriate students for a career in medicine. As family medicine teachers of medical students, we are concerned that the current premedical requirements particularly discourage students who may choose primary care as a career. We struggle with the declining interest in primary care, especially family medicine, every day. We feel that, given the importance of primary care for any health system,1 the declining numbers of primary care physicians represent a real crisis in health care. There are many areas, particularly in rural America, that have poor access to health care. Family physicians provide not only an invaluable service in underserved areas but also the most service compared with that given by other primary care specialists.2 In fact, family medicine physicians are currently the most-recruited physicians in the country. Students who are often attracted to family medicine are older, from rural areas, and come from a lower socioeconomic status,3 but in some schools, admission requirements that may be disadvantageous to these students exacerbate the lack of primary care interest. Also, bright, creative, and humanistic students, whether or not they aced organic chemistry,4 should be especially encouraged to apply to medical school, where, hopefully, they will choose primary care careers.

We appreciate your bringing forward the discussion of medical school admission criteria, but we feel strongly that we need to expand the discussion to talk about how to recruit and what incentives medical schools can give to premedical students who are more likely to go into primary care and family medicine.

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References

To the Editor: The latter half of the 19th century was a period of reform in medical education. The philosophy of education changed from memorization of a finite amount of
information to a system that promoted critical thinking. Flexner expounded this philosophy in his 1910 survey (known as “The Flexner Report”), a document that had a profound impact on the function and structure of medical schools in the early 20th century. Many of the changes implemented at that time persist. I agree with Dr. Kanter that premedical education is again in need of reform, but with one caveat: premedical education is but one piece of an outdated system. The changes to premedical education must be a part of changes to the entire medical education continuum. And they should be no less fundamental than Flexner’s.

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To the Editor: As a former premed philosophy major who evolved into a radiologist who does biomedical engineering research and now works as a medical school vice dean for academic affairs, I strongly agree with your May editorial on the necessary parts of reform of premedical education. My response is, “Let’s get started!” We don’t have enough doctors for the health care needs of our population. If we are to meet those needs, one of the crucial tasks will be to attract even more of our best and brightest students to careers in medicine.

I believe a task force of the AAMC should be charged with addressing all of the elements of reform you raise in your editorial. Perhaps the reform you suggest can be accomplished before we all retire!

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In Reply: Eaglen and Penn point out that baccalaureate–MD programs, by nature of their design, address many of the problems of premedical education which I and others have identified. They also note that since about one quarter of U.S. medical schools offer a baccalaureate–MD option, there is a fertile environment in which to compare the effects of this program with a traditional premedical education. Of course, one of the most difficult challenges will be to develop valid and reliable ways to determine whether students develop into “creative and independent thinkers who have the capability and passion to tackle the most important problems in medicine,” the goal I stressed in my May editorial. Margo et al raise the issue of how premedical requirements may influence the recruitment of students who are more or less likely to choose a certain career pathway. I agree that this is an important area in need of further research. Kahn reminds us that premedical education is one part of a continuum and that there is value in examining reform across the spectrum of medical education. And Pisano encourages those of us who write about the need for reform to “get started” as soon as possible, and recommends that the AAMC play a role. I agree with Pisano that wonderful ideas are not enough, but must be complemented by fine deeds.

In addition to these letters, I received a number of informal responses, both verbal and written, to my call for renewed attention to the quality of premedical education. I am delighted to see that a discussion about reforming premedical education is gaining momentum.

Steven L. Kanter, MD
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In Reply: Professor Eaglen and Dean Penn offer one response to the problems of premedical education we described in our May 2008 article. Certainly, eliminating the enormous hurdle between undergraduate education and admission to medical school will reduce the relentless competition that defines the life of today’s premedical student. Freed from the need to keep their grade point averages above 3.70 and from the frightening demands of the MCAT, undergraduates can choose to explore nonscience courses and alternative learning experiences at home and abroad.

But we do not believe that baccalaureate–MD programs are a panacea for what ails the education of the next generation of physicians. We fear that these programs would displace, not eliminate, the pressure on young, would-be physicians. The shift to combined programs would simply move the competition to the high school years. High school GPA (with the requisite number of advanced placement courses) would replace college GPA, and the SAT and the ACT would replace the MCAT. Younger, less-mature students would be drawn into the competition, forced to commit to medicine before they had the chance to develop socially, emotionally, and intellectually.

Our research suggests that what premeds need most—be they college or high school students—is encouragement to reflect on their desire to become a physician. Baccalaureate–MD programs may provide some kind of structured reflection on career choice, but 15-, 16-, and 17-year-old students are not mature enough to fully explore their reasons for choosing medicine. Premeds need to think deeply about why they are seeking to become healers. This means exploring everything from their psyches to the organization of society. They must ask themselves: Do I want to become a doctor because of my deep-seated fear of illness and death? Because of the status advantages offered by the MD degree? Because other career choices are too risky or unavailable in the current economy?

Premeds also need to be able to reflect on how the experience of seeking admission to medical school is shaping their character. With limited life experience and insufficient grounding in the social sciences and humanities, high school students are ill prepared to think through the sources of their desire and the forces that influence
who they are becoming. By moving younger students into the premed track, baccalaureate–MD programs make more difficult the kind of careful reflection required to become a skilled and compassionate physician.

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Correlation Is Not Causation

To the Editor: In a report published in the June issue, the authors state that “[r]equired medical school research experiences . . . may promote subsequent research productivity” and that “[t]his information is useful to medical school leaders.”

However, the data presented by the authors do not support that conclusion. An alternative explanation for this correlation is that it is highly likely that students sufficiently motivated to achieve publication or presentation while at medical school will retain that motivation and ambition to continue their research endeavors postgraduation. This study is undermined by the lack of a control group. If the authors had presented data from a randomly chosen group of students who had been instructed not to perform any medical student research and who subsequently had been less productive, then the authors’ conclusion would be supported. I appreciate that conducting such a study would be very difficult and would arguably be unethical even if it were possible. Nevertheless, the authors should have been more cautious about drawing conclusions from the data they presented.

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Reference

In Reply: We agree with you that correlation does not imply causation. Although we do believe an association between publications related to required research during medical school and subsequent publications is plausible, causality cannot be established using our study design.

We did not claim causation in our presentation of Results or in the Discussion. Rather, we discuss our findings using tentative terms such as “might stimulate pursuit of further research” or “association,” speculate about potential meanings of our findings, and offer alternative explanation for findings. We maintain that our results do suggest that “[r]equired medical school research experiences . . . may promote subsequent research productivity.” Inasmuch as a controlled trial has not been published, we believe this information is useful to medical school leaders, although conclusions drawn will need to consider other viable explanations.

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Involvement of Academic Health Centers Abroad

The globalization of academic medicine is occurring at a rapid pace, and will take on dimensions both foreseen and unforeseeable. Merritt et al.¹ have summarized nicely the diversity of actions being taken currently by several U.S. academic health centers (AHCs) to accommodate the changes wrought by globalization and to expand their reach and impact abroad via the traditional core missions of AHCs: education, research and patient care. Merritt et al.’s basic arguments about the risks and rewards of overseas ventures ring true with the experience my Duke colleagues and I have gained in Singapore.² To develop an overseas operation to the standard of the parent AHC requires a clear commitment of top-tier faculty, management, and staff from the parent AHC, some of whom take residence abroad, and an exquisite clarity of expectations among all stakeholders.

I take some issue with the authors’ division of the different types and intensities of foreign operations by U.S. AHCs into four “development stages,” since a requirement for organic maturation of one to another is not apparent. Development stages, in my opinion, should more appropriately refer to the sequence of actions that (1) build the necessary relationships (2); establish a clear mutual understanding of goals, processes, governance and resources (3); identify the founding team members (both the individuals from the parent AHC and their overseas counterparts) (4); implement the required startup actions; and (5) advance, enlarge, and bring to maturity the components of a plan. As an advocate for globalization of my own AHC, I certainly hope that Merritt’s statement that “global involvement could, in the coming decades, serve as a new metric for leadership and influence in health care, education and research” will prove prophetic.

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References

In Reply: I thank Dr. Williams for his thoughtful comments. The articulation of the four “development stages” was a framework that was not intended to characterize an organic maturation process for a particular institution. Rather, the intent was to reflect stages, or “levels,” of involvement that an organization can attain. While some organizations may evolve along a path that may be reflective of the stages, others can start immediately at the highest stage. The University of Pittsburgh Medical Center is a good example with their first international
commitment to own and operate a joint-venture transplant hospital in Sicily. The framework recognizes distinct sets of activities with varying levels of commitment while also recognizing the fact that academic health centers can develop internationally along the three missions of education, research, and/or clinical care. The five points raised to reflect development components for a relationship or venture abroad are well articulated and critical for success.

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Family Medicine Education in Argentina

To the Editor: After reading the excellent article on family medicine in Brazil in the July issue,1 I was struck by the similarities and differences in the family medicine situation in my own country, Argentina.

In both countries, there are great pressures on medical students to become specialists rather than generalists, and one of these pressures is the influence of specialist teachers during medical training. However, in Argentina, there is an additional pressure: the fragmented health care system, composed of three subsystems, each serving different sectors of the population and each financed differently.2 The subsystem that is linked to the high- and middle-income sector attracts more physicians and gives greater financial rewards to those who are specialists.

As in Brazil, there are forces at work to promote family medicine and to expose students to the satisfactions of humanistic care, although it is an uphill battle. Each of Argentina’s 26 medical schools is, to a greater or lesser degree, struggling to find ways to provide more humanistic training for its students. Some Argentinean professionals participate in the Latin American Association of Family Medicine Professors. And, since 2000, there has been an Argentinean Federation of General and Family Medicine.

Undoubtedly, compatibility between the health care system and the medical education system, simultaneously backed by governmental decisions and actions and by professional associations and federations, seems to be the best option. Brazil has understood the challenge whilst Argentina is still on the way.

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