



Robert J. Alpern

A PRESCRIPTION
FOR FUTURE
PHYSICIANS

RETHINKING THE COLLEGE CURRICULUM.

Derek Dudek

A revolution in biomedical science has transformed medicine, yet premed course requirements have not changed in decades. Robert J. Alpern, dean of Yale University School of Medicine, served as co-chair with Sharon R. Long, former dean of Humanities and Sciences at Stanford University, of the 22-member Committee to Establish the Scientific Foundation for Future Physicians. Organized by the Association of American Medical Colleges and HHMI, the committee was charged with making recommendations to bring standard premedical and medical school curricula in line with the practice of modern medicine.

Why change medical school preparation for undergraduates now?

The same premedical requirements have been in place for 40 years or more, and while many students have made it through the curriculum and gone on to become good physicians, others who could have become outstanding physicians have been held back. The courses are often too difficult or not interesting enough. They're seen as barriers rather than opportunities to teach material in exciting ways. Organic chemistry in particular is perceived as the course that determines who should go into medicine, but we don't want course requirements to be the gate that keeps students out.

And the issue is larger than medicine. When premed students are unhappy with required courses, all too often other undergraduates thinking about research careers become dejected along with them. That's driven many aspiring scientists away.

The committee called for replacing premed course requirements with what it terms "scientific competencies." What do you mean by that?

Physicians today need to be scholars of science whether they pursue research or not. So we started out by defining specific competencies all physicians should attain in medical school. We then worked back from there to define the broader competencies an undergraduate will ideally acquire before entering medical school, like applying quantitative reasoning and mathematics to describe phenomena in the natural world or explaining how biomolecules contribute to the structure and function of cells.

For medical school applicants, competencies might be achieved through a variety of courses or educational experiences. We want to give colleges freedom to teach in the most interesting ways they can. This will make the courses more relevant for undergraduates interested in medicine and biomedical science in general and bring students to medical school better prepared to learn the science they'll need throughout their careers.

For instance, undergraduates need much more preparation in statistics and the handling of large databases, yet the bulk of students take calculus, which is much less important. Similarly, biochemistry is so much more important for medicine today than organic chemistry, yet it is not universally required in undergraduate programs.

Ultimately, won't this come down to a specific set of courses or some other well-defined requirements a student will need to prepare for the MCAT [Medical College Admission Test]?

The appearance of this report couldn't have been better timed because another committee is reviewing the MCAT. To be frank, the MCAT will define specifics of the competencies to be tested. Changes to the test will drive changes in the curriculum—they need to change together to bring about reform. The critical element will be changing the MCAT and giving colleges enough lead time to rewrite courses to prepare students for the changed test.

Changing undergraduate and medical school curricula won't be easy, will it?

We thought there'd be enormous resistance to the proposed changes, but every medical school dean we surveyed was wildly enthusiastic. The same is true for most undergraduate faculty. The students I have spoken with have all said, 'Can't you do it faster?' Resource-rich schools are not waiting; they're making changes already. With the help of HHMI and other organizations, we want to make sure less wealthy colleges have the resources they need to make the changes. Underrepresented minorities come disproportionately from those schools, and we don't want to cut off that pipeline of future doctors and researchers.

Realistically, it will take at least five years and some say ten to have every student arrive at medical school with the competencies we'd like. It's not going to happen overnight, but when it does, I think it will represent a major transformation in medical education.

INTERVIEW BY MARC WORTMAN. A physician-scientist, Robert Alpern focuses his research on the regulation of kidney transport proteins. The AAMC-HHMI report, published in June, is available at www.hhmi.org/grants/sffp.html.