

In reply to Phillips: We appreciate the kind words from Dr. Phillips about our recent report of current data on the cost of medical school and the resulting education debt of medical school graduates. We focused on current data in order to inform the discussion on these topics, which is often lively and opinionated. Her perspective on how debt can influence a medical school's "culture" is both interesting and invaluable, because while we work on behalf of U.S. medical schools, we do not work at one.

Regarding the perception that some students may conclude "a primary care career is not financially feasible," this concern was the motivation for our recent article in this journal¹ which addressed this topic directly. The article concluded "a primary care career remains financially viable for medical school graduates with median levels of education debt" and describes the trade-offs necessary for graduates with higher debt totals to pursue primary care. Furthermore, as the article and our recent report both document, there are two new federal repayment plans (Income Based Repayment and Pay As You Earn) that not only base borrowers' monthly payments mainly on their income, regardless of their debt level, but also offer the potential for loan forgiveness after a number of years, which make them particularly attractive for graduates considering primary care.

Regarding the "relationship between specialties' potential income and U.S. graduates' preferences," in Table 9 of our report, we compared the specialty intentions of graduates with different debt levels and found the percent interested in family medicine and pediatrics was remarkably consistent across all debt levels.² In fact, the specialty choice of medical school graduates makes a fascinating subject. As shown in Figure 3 of our report, the Association of American Medical Colleges annual survey of graduating students consistently shows that, while financial factors play a role in specialty choice, the key factors include "a student's personal interest in a specialty's content and/or level of patient care, desire for the 'controllable lifestyle' offered by some specialties, and the influence of a role model in a specialty."²

We admire Dr. Phillips's commitment to primary care and wish her well as she

continues to work directly with medical students facing this important career choice.

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Prediction Bias in the MCAT Exam

To the Editor: Davis and colleagues¹ concluded that their analyses of Medical College Admission Test (MCAT) performance across different racial/ethnic groups "do not ... point to bias in the ... predictive value of the MCAT exam." To the contrary, I contend that the data show that the MCAT exam *overpredicts* the future performance of underrepresented minority (URM) students, as measured by Step 1 passage and timely graduation from medical school. Previous data similarly indicated that the MCAT exam overpredicts the preclinical grades of URM students.²

Rather than be satisfied that the MCAT exam is *not biased against* URMs, however, we should ask why there seems to be a predictive bias *in favor of* URMs. Most likely, the answer will not be as simple as construct-irrelevant test content but, instead, will suggest problems that extend beyond the exam itself.

The potential explanations are multiple. First, there may be differential validity in the measures of success used, such as bias within Step 1 of the United States Medical Licensing Examination or other assessments required for graduation.

Second, URMs may actually be underperforming in medical school, whether as a result of differences in socioeconomic status, institutional racism, stereotype threat, racial

microaggressions, or other selectively negative influences and dispositions.

Third, prediction errors arise from selection procedures performed on groups with different mean predictor scores.³ These artifacts can magnify when selection occurs on variables not in the prediction model or when different cutoff scores are used for different groups.^{4,5} Specifically, schools may be using supplementary criteria that actually predict poorer likelihood of academic success to admit URMs preferentially (at rates higher than their MCAT scores would predict).

More research is needed to dissect the contributions of each of these factors. The results may hold important implications for policies in the admission and education of diverse groups of medical students.

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Desperately Seeking Flexner: Time to Reemphasize Basic Science in Medical Education

To the Editor: The medical education community is currently engaged in an intensive review and revision of current models for physician training. New medical school curricula feature a substantially increased focus on communications, administrative, and teamwork skills designed to enable tomorrow's doctors to interact more

effectively with patients and seamlessly collaborate within today's evolving care delivery structure.

These curriculum revisions are occurring as a new age dawns in medicine. Genomics, proteomics, and metabolomics will enable physicians to examine patients with a comprehensiveness unimagined by their forebears. Access to personalized data for each patient will yield more accurate diagnoses and the selection of optimized treatments. The ability to directly observe subtle perturbations in metabolism and gene expression will transform our capacity for the early detection and treatment of cancer, diabetes, atherosclerosis, hypertension, and Alzheimer's, among others.

To leverage these revolutionary developments, future physicians will

require the type of firm grounding in basic sciences recommended by Flexner¹ in 1910. Paradoxically, recently many medical schools have substantially reduced basic science education. Although acceleration of the preclinical curriculum has the obvious benefit of giving students more time to develop clinical skills, we believe that this approach will have the unintended consequence of preventing the majority of future physicians from understanding the genomic, proteomic, and metabolomic data that patients can now obtain. In addition to training in clinical and interpersonal skills, we urge our colleagues to reemphasize basic science in the preclinical years. This will allow us to train individuals who will be able to practice molecular medicine and collaborate with basic research scientists to leverage new information

and technologies to advance biomedical knowledge and practice.

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