

The MCAT, redux

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After much fanfare and anticipatory anxiety, the Association of American Medical Colleges (AAMC) began offering the revamped Medical College Admission Test[®] (MCAT[®]) April 17, 2015.

Considerable effort and discussion went into trying to create an exam that accurately measures desirable qualities in prospective medical students and physicians.

My own experience with this test dates back to 1974 when I first took the exam as a junior in college. In 1983, I found myself on an admissions committee and took the exam again to understand the applicant perspective. That experience was the subject of "The MCAT Revisited," a 1984 Occasional Notes piece in the *New England Journal of Medicine*.¹

Since then, I have had an eclectic career that has included various clinical and administrative positions at two medical schools; a path that has intersected with various standardized tests. Along the way, I have obtained a Master's degree in Public Health, passed the board exams in two specialties and one subspecialty, and re-certified twice. I am now a teacher and advisor to pre-med students in a post baccalaureate program.

As I contemplated advanced study in Public Health, I took the 2014 MCAT so I would have a test score on record for use on applications. The release of the new test intrigued me, so I also took the new version. In addition to the goal of improving my score, I was interested in better understanding the recent attempts at revision, and the totemic significance that the test has taken on the lives of my students.

I have completed four MCATs over 40 years; perhaps a dubious achievement, but also a unique one that may provide some useful and interesting perspective on the evolution and value of the exam.

The test experience

The application process is now entirely electronic, and the cost of the test has gone from \$40 to \$300 in 32 years. Just signing up for the exam proved to be arduous. When I registered online they quickly recognized me from my prior encounters. My retaking of the exam this time required a special dispensation, as I do not currently fit into the narrow box of “applying to medical, dental, or other health professional schools.” The web page initially took my application—and credit card—without question, but a month before the exam date, I got a brusque certified letter from the attorney-director of MCAT Security and Compliance questioning my suitability and motives. I viewed this as a thinly veiled inquisition, and replied with candor that my reasons were twofold: the notion of someday applying for additional graduate study in Public Health, and that my longtime academic interest in pre-med education and counseling had piqued my curiosity enough to make me want to take the new exam. I did note in my response that I had written about my experience before, and might do so again.

A tense few weeks followed, and it was not until I sent a follow-up query that I was granted admission, just eight days before the exam date. The letter of permission summarily and aggressively rejected my academic interest as an acceptable reason to take the exam, but did grant me the right to use my score for graduate school applications.

Prometric is a private company that has a monopoly franchise for MCAT administration. In order to take the test, you must go to one of their sites when they have a seat available, which may require travel. In my 2014 scheduling, I was unable to find a place within 100 miles of my home, which includes the entire Washington, DC metropolitan area. My students tell me that their experience has been akin to buying concert tickets; they log on when slots first open, and try to get in line fast enough to get a suitable

place and date.

In light of the limited competition for the first 2015 date, I got my choice, a featureless office park outside of Richmond, Virginia, in a complex which seems to host mostly dentists’ offices and well-to-do specialty surgeons. The crowd was mostly twentysomethings, a grim looking bunch, casually dressed.

Prometric centers are not uniquely MCAT hosts, so there can be people there for other exams. There were few other MCAT takers on my test date, so I shared the exam center with a varied crowd, including a guy taking the truck brakes section of the Automotive Service Excellence certification.

Examinees get a phone call the day before the exam from one of the test site staff cheerily confirming the date and time, and once again, going over security rules and regulations. These are far more rigorous than those required for airport antiterrorist measures or penitentiary prisoner visitation.

The test center has lockers where you store everything, except your clothes, the locker key, and your photo ID. Your ID is checked repeatedly, along with a real-time photograph and computer fingerprints. These biometric parameters are reviewed each time you leave the room, and when you return to the test. You also must go through a security check each time you re-enter the room, which includes being wanded by a metal detector, everting all pockets, lifting pant legs, and otherwise going through a body search which makes TSA screeners look like amateurs.

The premises are under photo and audio surveillance at all times, including public areas. They did let in a non-MCAT taker with a cane who needed it to walk, but only after a detailed and humorless inspection of his medically necessary device.

MCAT takers ahead of me in line were horrified to discover they had to surrender their water bottles (this taps into my classroom rant about millennials who feel certain they will become critically dehydrated during a 45-minute lecture so they arrive bearing all manner of commercial hydration devices, a manufactured need economists must love.)

In addition to emptying my pockets and all detectable body cavities, I was required to give over my wristwatch (45-years-old, analog, manual wind) and later forced to spit out a contraband toothpick, which video surveillance detected in my mouth a few minutes into the exam.

The #2 pencil and paper answer books are on the trash heap of history. This test is all mouse and screen. The writing sample has been eliminated, so there is no need for a

keyboard. At the end of each section, you have the chance to review, but you forfeit the right to go back in to a section once you have moved past it.

The exam is really hard. This test is not for the timid, anxious, or unprepared. For me, it was nearly six hours of mostly misery. I cannot imagine taking it under the more typical pre-med student's high-stakes circumstances. The complexity, depth, and inscrutability of the questions amazed me. The specific content is closely guarded by the AAMC, and I have sworn on multiple occasions not to reveal any details.

The AAMC guidelines state that the test will cover four subjects: Biological and Biochemical Foundations of Living Systems; Chemical and Physical Foundations of Biological Systems; Psychological, Social, and Biological Foundations of Behavior; and Critical Analysis and Reasoning Skills. My test led off with the physical science portion, about as demoralizing a beginning as I have ever had on an exam. It required some detailed knowledge of formulas and other facts, and I was completely unprepared. I completely guessed on one-third to one-half of the questions, and was able to narrow down the rest to a few logical looking choices.

The behavior section was a bit easier. It contained passages lifted from scholarly works in the fields of psychology, sociology, and anthropology. The answers can be directly gleaned from the text offered, but it does require a level of sophistication and reading comprehension that is challenging.

The biological systems section tries to be a little more medically related, including some organ physiology and actual diseases. Critical analysis and reasoning covered a broad range of complex concepts, typically providing raw data and asking for interpretation and analysis.

A new feature since the 1983 exam is an opportunity at the end that allows the taker to void the results. The fees are not refunded, but the score is never noted or reported. A few of my students have been so gripped by anxiety and concern over poor performance that they exercised this option.

The significance of this test in the minds of potential medical school students cannot be overemphasized. Students report that they feel their chances of admission pivot on their MCAT score, and most are devoting between 100 hours and 300 hours to specific MCAT study, along with untold dollars spent on courses and materials. The average tuition for preparation courses is about \$2,000, and range from open access web content to a residential 11-day immersion course for as much as \$13,000.²

This obsession with achievement is not entirely new. A recent obituary of a contemporary pointed out that one of the highlights of her life had been the attainment of an almost perfect MCAT score, more than 40 years before her death.

It turns out that some of my fellow test takers are not exactly keeping to their sworn secrecy pledge, using the anonymity of the Internet to provide real-time details and reviews.³ Following the test, they quickly hit the blogosphere reporting that there were few physics questions, but lots of molecular biology, genetics, and detailed nucleic acid problems. Many of the questions were described as deep in the weeds of gene expression, and the differences between various organic structures. They also complained that the much-vaunted social sciences questions did not address real life interpersonal issues as much as they tested knowledge of academic theories and literature interpretation.

Aligning the test with a changing curriculum

I am left again, as I was 30 years ago, to ponder the utility and value of this test. The original justification for standardized testing was that it could level the playing field by giving all applicants a common experience, and provide a relative measure of performance across a broad spectrum of preparation circumstances. This rationale has lost its validity as there are now dozens of different times and places where these tests can be taken, and each test is presumably somewhat different.

Considering the recent changes in curriculum in many medical schools relative to the reported content of this exam, is there much utility, or validity, at all?

The entire exam seems dry and unimaginative. It has no soul or personality, and seems to have abandoned the earlier attempts at linking questions to physiology or medicine. How different is the science portion from the corresponding advance placement exam? If college level science proficiency is what is really being tested, then those exams might serve the same purpose and provide a less stressful and more comprehensive look at subject mastery. Also, the knowledge of research, and the names of standard theories in psychology and sociology don't necessarily translate to empathy or kindness. While the exam may be relevant and fresh to those just finishing an undergraduate science course series, how does this sort of knowledge or testing relate to future success as a physician?

The earlier assertions that the MCAT predicted success in the first two years of medical school now seem less relevant since many schools have abandoned classroom

basic sciences for a heavily case-based, pass/fail curriculum. Pass/fail has even taken on a different significance, as medical school students say that nobody really fails, they call the grading system “pass now or pass later.” If the MCAT simply predicts success on the standardized United States Medical Licensing Examination, then could we use past SAT or ACT performance instead?

Could we borrow from those who have been deeply involved in standardized testing at the college admission level? A recent study of the SAT found that students who chose not to submit their scores did just as well in college as those who did submit scores. Bill Hiss, retired Dean of Admissions at Bates College in Lewiston, Maine, said, “To think you are going to design any single standardized test that will capture human promise for higher education is simply a trip up a blind alley.”⁷

The field is crowded with high achieving applicants who can cram and learn test-targeted information, yet we constantly long for them to display their humanism. We need more programs similar to that at Icahn School of Medicine at Mount Sinai,⁴ where the MCAT is de-emphasized, or even ignored, in the admissions process.

A booming industry

Unfortunately, many stakeholders are aligned as a considerable force that benefits from keeping the status quo in place. The MCAT constitutes big business, generating substantial revenue for the AAMC, Prometric, and a lucrative and largely unaccountable industry.⁵ A Google search for “MCAT prep” comes up with more than 700,000 hits. It is hard to know how much revenue is generated by this array of online, written, and in-person test preparatory courses. The Kaplan test prep organization, one of the oldest and largest companies, reported revenues of \$304 million in 2014.⁶

The other industry that benefits directly from the current MCAT-featured pre-medical school requirements are college and university science departments. What would enrollment in undergraduate physics and organic chemistry courses look like if these classes were not required for premed students?

In the world of handheld electronic devices that provide instant access to facts, why do we bother to teach and test factual knowledge at all? If, as it has been recently posited in *Doonesbury*, “search is the new learn,” is there any point in putting prospective physicians through a meat grinder of fact based classes and exams, only to discover that they have moved away from memorizing facts to wanting to

know how to use them in a proper fashion?

I am not at all relieved or delighted by this new attempt at a more relevant version of the MCAT. I am concerned about the obvious social, financial, and language discrimination that takes place in the run-up to the MCAT, and the actual content of the exam. Even beyond the cost of preparing for the test, which cannot be affordable for all aspirants, the questions are complex, and they must be particularly difficult for students who are not native English speakers.

I am again disappointed in this test. As a prerequisite for graduate study other than medical school, it is an overblown and largely irrelevant exercise. I would have been more appropriately evaluated had I taken the Graduate Record Exam as a preamble for additional Public Health study.

As an observer of the medical school admissions scene, I am even more discouraged. We are farther away from offering an instrument that measures the intelligence, social skills, cultural sensitivity, and general awareness of the world around, all qualities that we seek to find in our colleagues and our physicians.

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