



## CHINESE AND AMERICAN PREMEDICAL EDUCATION:

### *Are They Really So Different?*

**Christopher Magoon, B.S.**

*Third-Year Student  
Perelman School of Medicine*

After graduating from college, I worked for a rural education nonprofit in Southwest China while I prepared to complete all the requirements for medical school. Coming from what I thought was a rigorous academic experience in undergraduate education, I marveled at the apparently greater intensity of the Chinese educational system. To prepare students for the next round of state-sponsored exams, classes routinely lasted from 7 a.m. until midnight. As I watched students endure the long days, I had the impression that I would have become a different person if I had gone through the Chinese schools; they were more cut-throat, grade obsessed, and self-serving. The difference between my own experience in Ohio's public schools and that of a Chinese student felt as broad as the cultural divide between us.

Then, I became a premedical student and could see that the United States system of preparing future physicians for medical school paralleled the essence of the Chinese educational system. Having now completed my premed requirements in a postbaccalaureate program and gone through half of medical school, I can say there are even more similarities between the Chinese educational system and American premedical education than I could have imagined before entering the organic chemistry lecture hall.

Every June, Chinese high school seniors take a college entrance exam that will determine their futures: the *gaokao* (pronounced "gow-kow"). This infamously tricky test, recently described in *The Guardian* as the world's toughest school exam, is the culmination of years of intense studying. Students spend months prepping, often isolated from their families and the rest of society. Study time is valued above all else. Some even hook up to IVs to eliminate the need for meal breaks.

Rather than complain of the long hours spent studying, my friends who took the *gaokao* felt frustrated by how little relevance the material had to their future academic and professional lives. "It was all worthless memorization—my time would have been better spent playing video games," one of my colleagues who

scored among the highest in his province told me. Still, the stakes are high. Only about half will pass and be admitted into a university, and those who want to be accepted into a top tier institution must score near the very top. Every year Chinese newspapers fill with reports of *gaokao*-related suicides.

It's not hard to see how this pressure cooker of an educational system could produce what many in the West have come to think of as quintessentially Chinese: diligent and gifted at memorization but lacking creativity and interpersonal skills. In a system where mastery of the test is valued over a grasp of the material, the actual knowledge gained is minimal, even for those who score well. The test, in its essence, is more a tool of resource allocation than a measure of academic achievement.

Just as the *gaokao* has roots in China's imperial examination system, the American premedical curriculum harkens back to a previous era. The past century has seen unprecedented medical advances and yet the premedical curriculum is a result of the Flexner Report, released in 1910, a time before antibiotics, oral contraceptives, reliable blood transfusions, or the discovery of DNA, which ushered in the era of gene therapy. By the 1930s, the core components we see today—physics, chemistry, biology, and organic chemistry—were normalized. These disciplines, especially physics and organic chemistry, have "little relevance to medical practice or translational science," in the words of Dr. David Muller, Dean of Medical Education at Mount Sinai.

Despite the dubious relevance, good grades in these classes are essential to be admitted into one of our 141 medical schools. One study found that 78 percent of premeds who left the premed track did so because of a low grade in organic chemistry. Over half of those who apply will not be accepted to a single medical school. As a result, grade competition among premeds is fierce. The difference between the average applicant overall, and the average applicant who was accepted to medical school, was a mere 0.15, or half the difference

between an A and an A-. For many students, classes become about the GPA rather than about the material. As one 2008 study published in the journal *Academic Medicine* concluded, premeds “describe their premedical years as more of a competition than a journey.”

This competition leads to what has been described in *The New England Journal of Medicine* as “premed syndrome,” which is characterized by unsociability and extreme grade consciousness. Predictably, the premed lifestyle sends many students running towards humanities seminars, especially those who think learning should be a joyful endeavor and want to use college as a time for intellectual exploration.

Studies also show that those most likely to be “weeded out” are those of racial and ethnic groups that are underrepresented in medicine—those the medical profession should be trying to attract.

When life revolves around grades, mental health suffers. Premeds have higher levels of depression than the general college population, especially among women and minority premed populations, according to the *Journal of Clinical Psychology*.

Those who complete the premed classes must take the Medical College Admissions Test (MCAT), which covers the entire premed curriculum. This test is make-or-break, even for those who have a high GPA. In 2013, the mean score for admitted MCAT students was near the 85th percentile. Those who score below the 50th percentile are unlikely to be accepted to any medical school. One shudders to think of all the excellent would-be doctors who do not pass the MCAT, or who change paths because of a low grade in organic chemistry, or who avoid the field altogether because of the premed culture. And the converse is no rosier: those charged with managing health and human disease are in that privileged position, at least partially, because they happened to be good at physics and organic chemistry.

Physician readers will no doubt appreciate that the challenges of their daily working lives rarely hinge on a

perfect understanding of entry level physics or organic chemistry. In my own experience, I have found that my hobbies of birdwatching and learning Mandarin have prepared me better for medical school than the premedical system.

Most frustratingly, calls for premed reform have been sustained and widespread. Over the past 70 years, major medical groups have called for change, with celebrated 20th century physician Dr. Lewis Thomas echoing many other medical leaders, in a 1978 article describing the undergraduate premedical system as “baleful and malign, nothing less.”

Pressured partially by a shortage of physicians, changes are happening. Mount Sinai admits many students based on a “FlexMed” program that largely does away with premed restrictions. In some cases, medical schools waive the MCAT requirements for students coming from postbaccalaureate programs. To the credit of the Penn Perelman School of Medicine, where I am a student, I never had to take the MCAT and was able to spend that time and energy on personal passions, which serve me better in the hospital than an understanding of organic chemistry ever has. Still, the average premed student exists in the same system that was in place before hospitals had computers.

The American premed system, like the Chinese educational system as a whole, is designed to allocate scarce spots in higher education rather than give students a body of knowledge from which they can shape their lives. I have seen this turn many students on both sides of the Pacific into grade obsessed competitors who are deeply afraid they will not make the cut. Of course, the outcomes for those who do not secure a spot differ drastically: most American premeds who change to a less-demanding major go on to get their baccalaureate degree, while a Chinese student who does not attend university is often relegated to the world of an unskilled laborer. Still, we gawk at such stale pedagogy in China, priding ourselves as superior in critical thinking, while we’ve crafted a similar system in our own back yard.

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Christopher Magoon  
Perelman School of Medicine  
772 S. Harshaw St.  
Philadelphia, PA 19146  
330-495-3335  
christopher.magoon@uphs.upenn.edu