

Characteristics of MD Matriculation in American Universities

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Abstract

Characteristics of MD matriculation in American universities lie in cooperation between Association of American Medical Colleges and Medical Schools on campus. AAMC highlights its role in three aspects, arranging Medical College Admission Test, providing American Medical College Application Service, entrusting to conduct Criminal Background Check. Medical School takes its part by proclaiming premedical courses and identifying applicants with attributes essential for medical education. The outcome of cooperation is having satisfying matriculants. The essence underlying is the professionalism permeated in medicine profession.

Keywords

MD Matriculation, Association of American Medical Colleges, Medical Schools, Professionalism

1. Introduction

Matriculation of postgraduates in schools of American universities is a process of cooperation with different professional organizations inside and outside the University, such as, the cooperation between Law Schools and Law School Admission Council (LSAC), the one between Dental Schools and the American Dental Association (ADA) and the American Dental Education Association (ADEA), the one between the Schools of Public Health and Association of School & Programs of Public Health (ASPPH), and the one between Nursing Schools and American Nursing Cooperation of the Hospital Association (ANCHA). The cooperation between Medical Schools and Association of American Medical Colleges (AAMC) shares similarities with those mentioned above as a well-specified procedure in matriculating applicants applying for MD program in American universities. By observing two parties' complementary functions and interpret-

ing outcomes of their cooperation, this paper aims to find characteristics underlying in MD matriculation in American universities.

2. Functions by AAMC

AAMC came into existence as a not-for-profit association in 1876 and gained its foothold in Washington, D.C. ever since. Its membership now includes 172 accredited Medical Schools in America and Canada, more than 70 faculty societies and academic confraternities, over 400 health systems, teaching hospitals and medical centers for veterans. It also serves the community consisting of nearly 180,000 regular faculty members, over 140,000 residential physicians and 92,000 full-time medicine learners (AAMC, 2020A). The important role AAMC plays in MD matriculation manifests in three aspects, arranging Medical College Admission Test (MCAT), providing American Medical College Application Service (AMCAS), and entrusting third party to conduct applicant screening by Criminal Background Check.

2.1. Arranging MCAT

AAMC has been responsible for arranging MCAT for over 80 years. The test consists of 4 parts: 1) Biological and Biochemical Foundations of Living Systems (BBL); 2) Chemical and Physical Foundations of Biological Systems (CPBS); 3) Psychological, Social, and Biological Foundations of Behavior (PSBB); 4) Critical Analysis and Reasoning Skills (CARS) (AAMC, 2020B). Questions in 4 segments aim to test examinees on basic concepts in biology, organic chemistry, general chemistry, physics, the capacity for problem solving and critical thinking. Specifically, MCAT aims to identify, with following four categories of questions, about applicants' knowledge and skills essential to advance the work in medicine field: 1) With various presentations by tables, diagrams, graphs or formula, to test applicants' knowledge on 10 basic concepts listed in MCAT guidelines by AAMC, and to examine their capacity to apply specific principles to problem solving; 2) With questions on social and natural facts, to test how applicants can utilize theories to explain the phenomena, judge the explanation, evaluate the deduction, or draw the conclusions; 3) With questions testing their ability to conduct research, to detect applicants' ground for research methodology—applying theories, advancing perceptions on the base of previous findings by fellows, proposing hypotheses and reasoning with data, highlighting the logic or gap needing future actions, and even adhering to ethics; 4) With questions needing reasoning with data, to have applicants demonstrate their ability to describe data, distinguish errors in research, compare variables and explain causal associations, perceive the uncertainty and consequent inferences (AAMC, 2020C).

Segments with wide coverage of MCAT are designed to encourage applications by those taking courses inside or outside the natural sciences, or those from various concentrations. Applicants have multiple chances to take part in

the test in a same year from the end of January to early September at the accessible locations all over the world so that they can get scores as satisfying as they want. Outcomes can be seen 30 to 35 days later than test day. AAMC has specific procedures converting scaled scores when scoring the exam. With no additional penalty for wrong answers or unanswered questions, what examinees have done correctly on multiple-choice sections is counted as raw scores, which are later converted into MCAT scaled scores from 118 (lowest) to 132 (highest) for each part. Normally, applicants with 35 to 37 right answers will have 123 scaled scores, those with 46 to 48 right answers can have a converted score of 128, and so forth. An examinee can have a total converted score ranging from 472 to 528 with the combination of four sectional ones. A survey on Medical School admission officers reveals that many schools prefer to accept MCAT scores less than three years, using following adoptions: 1) Some Medical Schools average respectively all MCAT total scores and sectional ones in various valid years; 2) Some weigh the latest test scores; 3) Some consider all sets of scores and note progresses; 4) Other schools highlight the best total points or combine all the best sectional grades. Anyway, a Medical School can take full advantage of the standardized examination and scaled scores to observe as part of implications of academic preparation to evaluate applicants applying for MD program on campus.

2.2. Providing American Medical College Application Service (AMCAS)

American Medical College Application Service (AMCAS) is the AAMC's centralized processing service for Medical School application, providing simplified process with a single submission of one packet of application information. Most U.S. Medical Schools take AMCAS as the primary application approach for their first-year entering classes. AMCAS provides its service in 2 main ways.

2.2.1. Collecting Application Materials

Collecting application materials is the primary service AMCAS delivers. Any applicant is required to complete the application packet with following information before deadline and certify that the information he has delivered is current, complete, and accurate (AAMC, 2020D):

- 1) Identifying Information. Including applicant's name, ID numbers, birth and sex.
- 2) Schools Attended. Including applicant's high school and college information (major/majors, minor/minors, degrees, or any college/university registered for at least one course).
- 3) Biographic Information. Including basic information regarding citizenship, legal residence, language proficiency, self-identified ethnicity and race, parent(s) or guardian(s), siblings, and criminal convictions (if any).
- 4) Academic Records. Including records about acceptable courses the applicant has attended, grades and credits he has earned for each course.
- 5) Work and Activities. Including extracurricular activities or work experiences,

honors, or publications that the Medical School(s) he is applying for would be interested in (a maximum of 15 experiences, including “the most meaningful ones”).

6) Letters of Evaluation/Recommendation. Including contact information of letter authors who will be writing to assess the qualities, characteristics, and capabilities of the applicant.

7) Medical Schools. Including any Medical School the applicant wants to submit application packet to.

8) Personal Statement. Including causes or motivations to select the medicine profession, and supplementary interrelated information (e.g., hardships or barriers that have blocked or resulted in the significant fluctuations in his educational pursuits).

9) Standardized Tests. Including acceptable MCAT scores delivered automatically by the system, and any additional test information required for admission, such as GRE scores.

2.2.2. Converting GPAs

Due to the fact that applicants come from different institutions with different grading systems, AMCAS converts their undergraduate academic records to AMCAS grades on the base of transcripts released by institutions they have attended, which makes AMCAS GPA different from official records provided by their institutions. Nevertheless, it provides Medical Schools with a standard way to compare various applicants' academic performances. The conversion includes following steps (AAMC, 2020E): 1) Create a worksheet for each academic status (freshmen, sophomore, etc.) (See **Table 1** as an example). 2) List credits for courses presented on the transcript. 3) Follow AMCAS Grade Conversion Chart, select the AMCAS grading type and corresponding weight for each class (AMCAS grades are classified into 9 classes: A, AB, B, BC, C, CD, D, DE, F, given AMCAS weights respectively: 4, 3.5, 3, 2.5, 2, 1.5, 1, 0.5, 0. Those graded B+, C+, D+/C- or DF will be taken in the same hierarchies as AB, BC, CD or DE, and be given corresponding weights). 4) Use **Table 2** to convert credits in a quarter hour system to semester hours (if any). 5) Calculate the Quality Points for each class by the formula: AMCAS Weight * Semester Hours = Quality Points. 6) Calculate the GPA for each Academic Status with the formula: Total Quality Points/Total Semester Hours = GPA. 7) Calculate the Cumulative GPA. 8) Underline all of the Biology Courses, Chemistry Courses, Physics Courses and Math Courses (BCPM), and calculate BCPM GPA with the formula listed above. 9) Calculate all other courses (AO) not classified as biology, chemistry, physics, or math in the same way. 10) GPA calculations come out on the printable portion of an application as soon as AMCAS has done the grade conversion. Suppose the GPA for BCPM in three semesters an applicant has got are 3.16, 3.17, 4.00 respectively with 19, 24, 8 semester hours, GPA for AO is 4, 4, 3.94 with 6, 11, 15 semester hours, total GPA are 4, 3.47, 3.47, 4 respectively with 6, 30, 39, 8 semester hours, then his verified cumulative undergraduate GPA for BCPM is

Table 1. Worksheet for each academic status: freshman (as an example).

| Course | Transcript Grade | AMCAS Grade | AMCAS Weight | * Semester Hours | = Quality Points |
|----------------|------------------|-------------|--------------|------------------|------------------|
| Total Freshman | | | | | |

Resource: Association of American Medical Colleges (AAMC, 2020E). AMCAS Application Grade Conversion Guide. Washington DC: Association of American Medical Colleges.
<https://students-residents.aamc.org/media/7761/download>

Table 2. Conversion values from quarter to semester hours.

| Quarter | Semester | Quarter | Semester | Quarter | Semester | Quarter | Semester |
|---------|----------|---------|----------|---------|----------|---------|----------|
| 0.5 | 0.3 | 3.0 | 2.0 | 6.0 | 4.0 | 12.0 | 8.0 |
| 1 | 0.7 | 3.5 | 2.3 | 7.0 | 4.7 | 15.0 | 10.0 |
| 1.5 | 1.0 | 4.0 | 2.7 | 8.0 | 5.3 | 20.0 | 13.3 |
| 2.0 | 1.3 | 4.5 | 3.0 | 9.0 | 6.0 | | |
| 2.5 | 1.7 | 5.0 | 3.3 | 10.0 | 6.7 | | |

Resource: Association of American Medical Colleges (AAMC, 2020E). AMCAS Application Grade Conversion Guide. Washington DC: Association of American Medical Colleges.
<https://students-residents.aamc.org/media/7761/download>

3.30 with 51 semester hours, verified GPA for AO is 3.97 with 32 semester hours, total verified GPA is 3.56 with 83 semester hours.

2.3. Conducting Applicant Screening with Criminal Background Check

The purpose of MD Program is to produce the qualified professionals in medicine. While according to “Section V: Requirements for Full Licensure” in Essentials of a State Medical and Osteopathic Practice Act (13th Edition) by Federation of State Medical Boards of the United States (FSMB), one of the minimum requirements for full licensure for the independent practice of medicine is that the outcome of the criminal background check on the applicant should be satisfactory (FSMB, 2012). To ensure that MD graduates have qualification to be fully licensed, AAMC requires that any Medical School applicant with the facts of pleading guilty and being convicted shall not conceal it from AMCAS and the Medical School he applies for. What’s more, AAMC recommends that applicants be subject to a criminal background check and that the findings be an important reference for conditional admission decisions. Certiphi Screening Inc. wins out to be entrusted to conduct criminal background check to screen applicants.

As a sub-company of Vertical Screen Company, Certiphi Screening Inc. exclusively serves the demands to screen applicants for health care community (Vertical Screen, 2020). Embracing this specialized turf, it interprets the indus-

try's hiring objectives, ever-changing challenges and compliance landscape, which enables it to develop a full suite of products and services tailored to the unique screening needs in the health care environment. During the process of a criminal background check, Certiphi Screening Inc. conducts the searching over the various records, databases to ensure positive identification or complete, easy-to-read details about an applicant. Firstly it verifies the Social Security Number to confirm the identifying information. Then it looks into County Criminal Records, Statewide Criminal Records, Federal Criminal Records to check if the applicant has any serious or minor offenses. Next it scans over 375 million criminal records in National Criminal Database to investigate if the applicant has any criminal background. And then following a search of National Sexual Offender Database to see if the applicant has any conviction of sex offenses, it flicks through U.S. Department of Health and Human Services Office of Inspector General List of Excluded Individuals/Entities to identify if the applicant has been excluded from health care program or not. If necessary or applicable there will be a call investigation to examine if the applicant has any dishonorable military service or international criminal record (AAMC, 2020F).

Although any applicant has the right to decide whether or not to be investigated, a criminal background check is part of the Medical School admission process unless he waives the chance. For an applicant with a criminal record, he will not necessarily lose the chance of being admitted, though. He will surely fail the qualification if he conceals it. Certiphi Screening, Inc. usually procures a background report on early decision program applicants once they are accepted and on all other applicants at the point of acceptance after January 1st every year. To ensure the legality of its action, Certiphi sends an email to each applicant for a written consent. Once the report is completed, any applicant checked will have ten (10) days from receiving it to question improper information before it's released to his designated Medical School (s), as Federal Fair Credit Reporting Act has specified that any applicant checked has the right to know the outcome and require the check report on him is accurate and fair, or he has the right to sue to the court.

3. Roles by Medical Schools

AAMC plays an important role in the process, though. It is Medical School that makes the admission decisions with following specific steps.

3.1. Proclaiming the Premedical Course Prerequisites

Medical Schools do not specially incline to science graduates, those from other majors are not necessarily in disadvantageous position when applying, as long as they have profound science preparation for further professional training. MCAT scores partly exemplify it, though. Required premedical courses that applicants need to have completed or are completing at the time of applying are of course in order. Coursework in following field is always expected to present in AMCAS

application packet: 1) biology; 2) chemistry; 3) humanities, social and behavioral sciences; 4) physics; 5) mathematics. Specifications for courses in Medical Schools are similar. Usually applicants are expected to have completed at least one year of biology and physics coursework respectively, to demonstrate record of one-year attendance on both general chemistry and organic chemistry courses. Laboratory experience in the mentioned courses and at least two writing-intensive courses in the humanities or the social/behavioral sciences are usually the indispensable specifications. Some Medical Schools have additional requirement for one year mathematics coursework.

3.2. Identifying Applicants with Attributes Essential for Medicine

Upon receipt of the various supporting documents submitted by the applicants, the Admission Committee sets out to go through applications and sort out applicants for interview subject to the following factors: 1) Academic excellence. Admission Committee tries to identify sufficient evidence that the applicant is academically excellent enough and ready for professional training so that he can have an access to medical education; 2) Computer literacy. Admission Committee takes it as a must since it's an essential skill for medical practice. Applicants are expected to know how to take good advantage of information technologies to gain information, to interact with others or to carry out the treatments; 3) Communication skills. Admission Committee believes that coursework by a specific applicant in Humanities and Social Sciences can lay foundation for communication skills. The academic records are expected to be able to demonstrate his proficient and smooth interaction skills in spoken and written English. Additional skill to converse in multiple languages is strongly preferred; 4) Teamwork skills. Medicine is a profession requiring strong and ever-present collaboration. The experience working with others towards shared goals, whether for academic assignments or for extracurricular tasks adds values. Admission Committee prefers the application documenting significant teamwork experiences. 5) Aptitude. Usually letters of recommendation about the applicant are viewed as indications of promise and suitability for a medical career.

Decision about who is eligible for an interview rests with Admission Committee. Selected applicants for interview are notified by the Committee with available interview dates as well as information about the day itself. It all depends if they are invited to campus, or to a regional representative of the committee for fear they live at some distance from campus. Interview program takes a full day, making up of presentations, lunch, a tour, an individual interview with members of Committee, meetings with some of current students or alumni (if for a regional interview). Admission Committee convenes meetings once a month at interview intervals, discussing the outcomes and releasing admission decisions on a rolling basis.

The following attributes demonstrated in interview is what Committee counts in making admission decisions: 1) the skills to carry out physical checkup with various approaches, to understand, describe and record the current symptoms,

to trace the history of the disease, to communicate effectively with patients and their families; 2) the potential to succeed in such segments of MD Program as course instructions, professional lectures, laboratory work, ward rounds, clinical care, etc.; 3) the demonstration to assume multiple roles as a member in society, in the profession and as an individual; 4) the virtue to work properly in delicate interrelationships with sincerity, reliability, temperate, gentleness, affinity and integrity; 5) the ability to restrain the impulse and show professional judgment even in the case of spiritual or physical exhaustion. In conclusion, what Admission Committee looks for in an applicant are motor functions, conceptual, integrative and quantitative capacities, the ability to observe and communicate, personal qualities as sympathy, honest, solicitude for others, skills for interpersonal interaction, interest and initiative, all of which are also the essentials in Technical Standards suggested by Special Advisory Panel on Technical Standards for Medical School Admissions convened by AAMC, (Memorandum #79-4) in January, 1979 (AAMC, 1979).

4. Outcomes of Cooperation

The matriculation for MD Program rests with many factors, among which the following indicators stand out: 1) standardized test scores; 2) essential academic work in an accredited institution, satisfying specific competencies and required premedical courses; 3) a Bachelor of Science (B.S.) or Bachelor of Arts (B.A.) degree from an accredited institution; 4) attributes specified by Technical Standards. Cooperation between two parties contributes to having satisfying matriculants.

4.1. Having Academically Excellent Matriculants

One of the outcomes of cooperation is having satisfying matriculants ready for medical training for future qualified physicians stock. MCAT scores and GPA are explications for quality of first-year class. Statistics from AAMC show that GPAs for Matriculants to U.S. Medical Schools from 2017 to 2020 are: 1) GPA for Science: 3.64, 3.65, 3.66 and 3.66; 2) GPA for Non-Science: 3.79, 3.8, 3.1, 3.82; 3) GPA for Total: 3.71, 3.72, 3.73 and 3.73. Against AMCAS weight, listed GPA is no doubt convincing evidence for applicants' good performance in their undergraduate work. Besides, MCAT mean scores by matriculants to U.S. Medical Schools from 2017 to 2020 are 510.4, 511.2, 511.5, 511.5, MCAT sectional scores are: 1) MCAT CPBS: 127.6, 127.7, 127.8, 127.8; 2) MCAT CARS: 126.9, 127.1, 127.1, 127.0; 3) MCAT BBLs; 127.9, 128, 128.1, 128.1; 4) MCAT PSBB: 128, 128.3, 128.5, 128.6 (AAMC, 2020G). Take a close look at scores in effect from May 1, 2019 to April 30, 2020, mean scores that year are 511.5, 127.8, 127.1, 128.1, 128.5 in order as shown above. Summary of total score and sectional scores shows that the percentile ranks for total mean scores 511 and 512 are 83 and 85 respectively, the ones for MCAT CPBS scores 127 and 128 are 76 and 85, the ones for MCAT CARS scores 127 and 128 are 82 and 90, the ones for MCAT BBLs scores 128 and 129 are 84 and 90, the ones for MCAT PSBB scores 128 and

129 are 81 and 88 (AAMC, 2020H).

4.2. Ensuring Diversity in MD Matriculants

Diversity is another agenda on Committee's memo. The essence of diversity commitment by Medical Schools in MD admission is to ensure equal access to rights, privileges, and opportunities without regard to race, color, gender, sexual orientation, religion, age, national or ethnic origin, political beliefs, or veteran status. Diversity in MD matriculants is first and foremost reflected in genders and race/ethnicity. Statistics by AAMC show that in 7 years from 2010 to 2016, men comprised the majority of first-year medical students, with weak gap though. The proportion of women came from behind in 2017, when for the first time, women accounted for 50.7 per cent. On the milestone this year, steady gains in the Medical School admission of women has been a very positive trend in the following years (AAMC, 2020I). However, some sort of balance still continues (See Table 3).

AAMC has been collecting race and ethnicity data since academic year 2013-2014. Table 4 shows that Medical Schools keep on matriculating youth from diverse races. Some groups remain underrepresented though, American Indian or Alaska Natives, Asians and matriculants from other races increased in most years. The number of matriculants from Black or African Americans and that of Hispanic, Latino, or of Spanish origin have been increasing steadily, with 10.5 per cent to 2117, and 8.6 per cent to 2678 respectively in 2020 (AAMC, 2020J). With an exceptionally diverse patient population, Medical Schools take it as their responsibility that student composition must be reflective of their patients so as to meet the demands from diverse communities.

Table 3. U.S. medical school matriculants, 2010-2020 by sex.

| Year | Total | * | Men (%) | * | Women (%) | * |
|------|--------|------|---------|-------|-----------|-------|
| 2010 | 18,665 | 1.5% | 53.1% | 3.5% | 45.9% | -0.7% |
| 2011 | 19,230 | 3.0% | 53% | 2.9% | 47% | 3.2% |
| 2012 | 19,517 | 1.5% | 53.6% | 2.6% | 46.4% | 0.3% |
| 2013 | 20,055 | 2.8% | 52.8% | 1.3% | 47.2% | 4.4% |
| 2014 | 20,343 | 1.4% | 52.2% | 0.3% | 47.8% | 2.7% |
| 2015 | 20,631 | 1.4% | 52.2% | 1.3% | 47.8% | 1.5% |
| 2016 | 21,030 | 1.9% | 50.2% | -2.0% | 49.8% | 6.2% |
| 2017 | 21,339 | 1.5% | 49.3% | -0.3% | 50.7% | 3.2% |
| 2018 | 21,622 | 1.3% | 48.3% | -0.6% | 51.7% | 3.2% |
| 2019 | 21,869 | 1.1% | 47.6% | -0.5% | 52.4% | 2.7% |
| 2020 | 22,239 | 1.7% | 46.2% | -1.3% | 53.8% | 4.1% |

Resource: Association of American Medical Colleges (AAMC, 2020I). 2020 FACTS: Applicants and Matriculants Data (by Legal Residence and Sex), Applicants, First-Time Applicants, Acceptees, and Matriculants to U.S. Medical Schools by Sex, 2011-2012 through 2020-2021. Washington DC: Association of American Medical Colleges.

<https://www.aamc.org/data-reports/students-residents/interactive-data/2020-facts-applicants-and-matriculants-data> * Percent Change from Prior Year.

Table 4. U.S. medical school matriculants, 2013-2020 by race.

| Matriculants | Year | | | | | | | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | * |
| American Indian or Alaska Native | 173 | 202 | 196 | 194 | 205 | 218 | 230 | 248 | 7.8% |
| Asian | 4163 | 4320 | 4619 | 5121 | 5166 | 5486 | 5431 | 5543 | 2.1% |
| Black or African American | 1396 | 1412 | 1576 | 1771 | 1775 | 1856 | 1916 | 2117 | 10.5% |
| Hispanic, Latino, or of Spanish Origin | 1826 | 1859 | 1988 | 2203 | 2295 | 2319 | 2466 | 2678 | 8.6% |
| Native Hawaiian/Other Pacific Islander | 64 | 70 | 69 | 65 | 68 | 75 | 95 | 80 | -15.8% |
| White | 11,421 | 1187 | 11,769 | 12,363 | 12,138 | 12,481 | 12,042 | 11874 | -1.4% |
| Other Race/Ethnicity | 714 | 747 | 713 | 710 | 697 | 727 | 717 | 850 | 18.5% |
| Unknown Race/Ethnicity | 1383 | 1151 | 938 | 341 | 765 | 394 | 1073 | 1094 | 2% |
| Non-U.S. Citizen/Non-Permanent Resident | 264 | 300 | 329 | 269 | 275 | 280 | 272 | 276 | 1.5% |
| Total Unduplicated Matriculant Count | 20,055 | 20,343 | 20,631 | 21,030 | 21,338 | 21,622 | 21,869 | 22,239 | |

Resource: Resource: Association of American Medical Colleges (AAMC, 2020J). 2020 FACTS: Applicants and Matriculants Data (by Race and Ethnicity), Applicants, Matriculants, Enrollment, and Graduates to U.S. Medical Schools, 2011-2012 through 2020-2021. Washington DC: Association of American Medical Colleges.

<https://www.aamc.org/data-reports/students-residents/interactive-data/2020-facts-applicants-and-matriculants-data> *Percentage Change from 2019 to 2020.

Table 5. Matriculants to U.S. medical schools by primary undergraduate major, 2020-2021.

| Primary Undergraduate Major | Matriculants | Primary Undergraduate Major | Matriculants |
|-----------------------------|--------------|-----------------------------|--------------|
| Biological Sciences | 12,845 | Humanities | 832 |
| Physical Sciences | 2240 | Specialized Health Sciences | 784 |
| Social Science | 1991 | Math and Statistics | 156 |
| other | 3391 | | |

Resource: Resource: Association of American Medical Colleges (AAMC, 2020G). 2020 FACTS: Applicants and Matriculants Data (by MCAT Scores and GPAs), MCAT and GPAs for Applicants and Matriculants to U.S. Medical Schools by Primary Undergraduate Major. Washington DC: Association of American Medical Colleges.

<https://www.aamc.org/data-reports/students-residents/interactive-data/2020-facts-applicants-and-matriculants-data>

Besides sociologically diverse, another distinct diversity in matriculants is that they are from various undergraduate majors. Medical Schools view diversity in academic experiences as a vital constituent for a fruitful learning environment, a potential ground for further study in medical practice, a critical aspect for developing creative solutions to health care challenges, advancing cutting-edge biomedical research, designing and implementing innovative teaching modalities in medical education. **Table 5** shows statistics in 2020 demonstrating that matriculants that year come from diverse undergraduate majors: 12,845 matriculants from Biological Sciences; 2,240 from Physical Sciences; 1,991 from Social Science; 832 from Humanities; 784 from Specialized Health Sciences; 156 from Math and Statistics; 3,391 from other majors (AAMC, 2020G).

5. Conclusions: Characteristics of MD Matriculation

Characteristics of MD matriculation in American universities lie in cooperation between Association of American Medical Colleges (AAMC) and Medical Schools

on campus, during which each party has complementary functions. Superficial outcome of collaboration between AAMC and Medical Schools in MD matriculation is having satisfying matriculants. The essence underlying the process is the professionalism permeated in medicine profession.

Each profession has at its foundation a social contract between that profession and society. Professionalism is the means by which members of that group fulfill the obligations of that profession's social contract (John, Charles, & Susan, 2009). Medicine, committing to the well-being of patients locally and globally, is a distinctive profession, containing dimensions in Occupational-Professional Model by Ronald Pavalko: autonomy, intellectual technique, relevance to social values, complexity of training, motivation, commitment, and ethical values (Pavalko, 1988). Professionals focusing on pathological mechanism and physiological phenomenon, devote to disease prevention and treatment through clinical care and research. The practice, based on cognition of both body and techniques, is complex and thus needs a body of specialized knowledge and profound training. Thanks to the fact that laymen can not challenge the authority by "insiders", the profession thus acquires the right and power of autonomy while meeting the demands from society. Medical Schools, providing vigorous, systematic and specialized training, are for those passionate about becoming highly skilled, patient focused clinicians, or researchers committed to shedding light on some of today's toughest health challenges. Faculty there diagnose and identify new comers fitting for the profession, pilot educational models, develop new curricula catering to emerging needs in health care, and prepare thousands of leaders and compassionate caregivers shaping the fields of science and medicine throughout the world with their expertise and passion. Both Medical Schools and teaching hospitals give impetus to progress of health care to safeguard the health of people. Professional associations set threshold and ethical norms, monitor compliance, guarantee quality of their members with guidelines and standards. They partner with its member institutions heading for fairness and justice in health care, helping out public health crises, and ensure there is a diverse, inclusive, and culturally responsive physician workforce meeting the demands from diverse groups of people. They are also the leading voice of the member institutions with the public and before Congress, federal regulatory agencies, executive branches. The goods of the profession from its self-regulation is that public can trust that the profession is acting in the best interest of patients in an ethical and accountable way.

Medical professionalism, defined in Medical Professionalism in the New Millennium: a Physician Charter by ABIM Foundation, ACP-ASIM Foundation & European Federation of Internal Medicine (2002), with a set of 3 principles and 10 responsibilities, covers issues of ethics, social justice, knowledge and competencies. Elements of such are woven into the phases of matriculation. Required MCAT scores and experiences in premedical courses demonstrate that matriculants have the foundation for going further in the body of knowledge. Extracur-

ricular activities, work experiences, letters of evaluation/recommendation serve as indications of promise and suitability for their medical career. Attributes, highlighted in Technical Standards and diagnosed in interview and in subsequent coursework, are a window into the possibilities if future members have talents to be trained with professional skills. Criminal background check is not only the way to screen, but a means to instruct future member significance of compliance. Access to Medical School itself is a finite resource. Justice in education partly contributes to justice in medicine profession since matriculants (potential physicians) from diverse groups provide more potential for access to care for various groups. Medical professionalism underlies medicine's contract with society. Combing through matriculation process in the cooperation between AAMC and Medical Schools, detailed specifications and steps not only turn out high selective matriculants with pre-admission instruction, but set the base for future practice of professionalism by the potential members as well.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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