STAGE ONE
APPLICATION

MARYLAND HIGHER EDUCATION COMMISSION

Stage One Application for Initial Approval
as an In-State Degree-Granting Institution

Name of Proposed Institution

Maryland College of Osteopathic Medicine

Mailing Address of Proposed Institution

1700 Cold Spring Lane
Truth Hall, Suite 409
Baltimore, MD 21251-0001

If a specific facility is yet to be identified, please provide at a minimum, the county or city in which you plan to operate.

Person to Contact For this Application:

Title: Barbara Ross-Lee, DO FACOFP, President & CEO

Organization: Maryland College of Osteopathic Medicine

Telephone Number: 443-885-2203 (Office); 516-263-98434 (Mobile)

Email: brosslee@MarylandCOM.org

Office of Academic Affairs
Maryland Higher Education Commission
6 N. Liberty Street, 10th Floor
Baltimore, Maryland 21201
(410) 767-3300

acadprop.mhec.@maryland.gov

STAGE ONE APPLICATION

Under the *Code of Maryland Regulations* (COMAR) 13B.02.02.06, there are two stages that a prospective institution shall complete before the Secretary of Higher Education may grant institutional approval to operate. The application process may take up to six months after the receipt by the Maryland Higher Education Commission of a completed Stage One and Stage Two application. The prospective institution shall complete the first stage before it may start the second stage.

(a) A prospective institution shall provide an initial, **Stage One Application** to the Secretary of Higher Education which requires:

(1) A demonstration of a compelling regional or Statewide need and demand to initiate specific academic degree programs in a specific geographical region of the State (see COMAR 13B.02.02.05).

(2) Evidence of adequate financial resources to establish and maintain and institution of higher education as provided in COMAR 13B.02.02.07.

(3) Additional information as the Secretary may require (see COMAR 13B.02.02.06F).

(4) The required Application Fee (see below).

(b) Upon submission of the Stage One Application it will be distributed to all higher educational institutions in the State for a thirty-day comment period. The Secretary shall consider all comments and objections received prior to making a final Stage One decision.

(c) The Secretary may ask the applicant for additional information in response to the comments and objections.

(d) The Secretary shall then make public the final decision on the Stage One proposal at a regularly scheduled meeting of the Maryland Higher Education Commission. If the Stage One proposal is approved, the institution shall proceed to complete and submit a separate follow-up, Stage Two Application.

****

This questionnaire, properly completed with the supporting documentation and a completed page one cover sheet, shall serve as the Stage One Application for approval to operate in Maryland under the *Code of Maryland Regulations* (COMAR) 13B.02.02.

I. SUPPORTING DOCUMENTATION.

☒ **Application Fee**. (COMAR) 13B.02.02.06D

The institution shall submit a non-refundable application fee in the amount of (a) $7,500 for up to two degree programs and (b) an additional $850 for each degree program over two programs. the institution's check should be made payable to: Maryland Higher Education Commission.

I hereby certify that the answers given in this application and its attachments are accurate and complete and further agree to comply with the Annotated Code of Maryland and State regulations governing the minimum requirements for degree-granting institutions operating in Maryland (COMAR 13B.02.02).

Chief Executive Officer Date Signature of 8/15/22

II. APPLICATION QUESTIONAIRE.

1. Proposed Programs. A detailed and accurate description of the prospective institution's proposed programs and operations shall be provided and will include: all degree and certificate programs to be offered; a description of the objectives of each degree and certificate including the modes of instructional delivery; a description of the student population to be served; the curriculum for each program to be offered; and the nature of faculty and resources required to support the programs. See COMAR 13B.02.02.06E(d).

✓ **INSTRUCTIONS. Please enter the requested information in the spaces provided below, or create an attachment (labeled "A-1: Programs") to this application with your responses to the following questions:**

(a) Provide a complete list of all the proposed programs and certificates to be offered. For each of these programs provide the following information:

(1) the full title of the program;
(2) all areas of Specialization.
(3) the degree or certificate to be awarded;
(4) the total number of credit hours (semester or quarter);
(5) the mode of instructional delivery;
(6) the curricular outline; and
(7) the educational objectives of the program.

1. Full Title of the Program
Doctor of Osteopathic Medicine

2. Areas of Specialization
N/A. There are no areas of specialization.

3. Degree to be Awarded
Doctor of Osteopathic Medicine (D.O.)

4. Credit Hours
160

5. Mode of Instructional Delivery
The mode of instructional delivery is in-person.

The first two years include:

- Lectures, real-time and pre-recorded.
- Small-group discussions
- Laboratories
    - Anatomy
    - Osteopathic Manipulative Treatment, (OMT)
    - Clinical skills (e.g., Objective Structured Clinical Exam) utilizing patient simulation, procedural mannequins/task trainers.

The third and fourth years include:

- Real-patient interactions in assigned, supervised clinical settings (hospitals, ambulatory healthcare centers, emergency rooms and urgent care centers, etc.). Student oversight will be provided by:
    - Physicians already working in the clinical settings, who will be appointed and assigned by MDCOM as adjunct clinical faculty
    - Preceptors in graduate medical education (GME) training services, under the supervision of GME faculty.

6. Curriculum
6a. Preclinical (Years 1 and 2)
The Doctor of Osteopathic Medicine degree is a four-year program composed of two preclinical years of instruction and two clinical years. During the preclinical years, students will participate in an active, in-person curriculum consisting of lectures, small-group sessions, and clinical skills laboratories that utilize simulated patients and mannequins/task trainers. The preclinical curriculum will be organized and sequenced according to the systems of the human body as follows:

- Musculoskeletal System
- Neurologic System
- Endocrine System
- Reproductive System
- Immunologic/Lymphatic System

- Integumentary/Exocrine System
- Circulatory System
- Respiratory System
- Renal/Urinary System
- Digestive/Excretory System

Lecture/discussion: Live or pre-recorded lectures will be delivered by faculty professors. Students will then discuss the lecture topics along with the learning objectives and aligned reading.

Clinical presentations/Case-Based Learning: Students in small groups will be assigned medical case scenarios. Each case will conclude with end-of-case presentations by all groups. Group discussions will be monitored by Faculty Facilitators who will ensure appropriate process and progress. ***See Appendix 1 for case examples.***

The Clinical Skills Laboratory teaches students to perform an Objective Structured Clinical Exam (OSCE) on standardized patients and to report their findings in a cogent manner. The clinical laboratory will include hands-on experience on peers, mannequins, and standardized patients. Students will be introduced to medical equipment and some common clinical presentations (coinciding with the system covered) and perform exams on increasingly complex standardized patients in various simulated settings. Skills needed in the third and fourth (clerkship) years, such as starting IVs and NG tubes, splinting, surgical scrub and sterile technique, and intubation will be taught during clerkship orientation at the end of the second year.

Osteopathic Manipulative Medicine (OMM) will be integrated into every case by region of the body and function. Students will develop osteopathic practice skills in the OMM laboratory throughout their preclinical years. Students are taught to give a complete osteopathic examination, which includes the musculoskeletal system, range of motion, palpatory skills, and specific treatment techniques (muscle energy, myofascial release, high-velocity thrust)

The Human Anatomy/Radiology Laboratory will facilitate full integration of structure and function throughout all systems over the preclinical years. Students will virtually dissect and study the human body and its systems using the most advanced simulation technology available for medical education. Student activities will align anatomical with radiological presentation (e.g. CTs, MRIs, ultrasound).

6b. Clinical (Years 3 and 4)

Third- and fourth-year students are trained in clinical settings. Years three and four are structured to deliver clinical education (skills and knowledge-application) through required and elective four-week placements (clerkship rotations) in specific medical specialty practices. Clerkships in the third and fourth years of the medical education continuum provide for a variety of clinical exposures and experiences, from one-on-one preceptorships in physicians' private practices to serving as team members in a tertiary care hospital. Integration of structural evaluations and osteopathic manipulative treatment is expected throughout all clerkships. There will be at least 12 required and 7 elective rotations scheduled in Maryland and regional clinical settings.

To meet the clinical needs of third- and fourth-year students, the proposed MDCOM is

developing clinical partnerships in the Baltimore area and throughout the state to train students in providing team-based, interprofessional patient care and in developing clinical, patient-interaction skills for the purpose of diagnosis and treatment of disease. We have identified 52 Maryland hospitals and medical centers, totaling more than 10,365 beds, which present opportunities for students to obtain clerkships as well as residency training. Clinical opportunities for partnership also exist throughout Maryland at Federally Qualified Health Centers (FQHCs), physicians' offices, community health centers, and clinics. ***See Appendix 2a for signed affiliation agreements and letters of intent from potential clinical partners, and 2b for letters of support.***

See Appendix 3 for the Tripp/Umbach Feasibility Study, which contains a detailed breakdown of potential clerkship sites.

See Appendix 4 for the Germane Solutions table listing regional hospitals with potential for medical education training.

Curricular Outline - Doctor of Osteopathic Medicine

YEAR 1

UGME 1 Course Number	Semester	Course Group	Course Title	Hours per Week	Duration [weeks]	Credits
OMK-SGD-501	1	SGD	Clinical Medicine I	6	16	6
OMK-PPCM-503	1	PPCM-I	Scientific Foundation of Clinical Medicine	6	4	1.5
OMK-PPCM-504	1	PPCM-II	Musculoskeletal Principles of Clinical Medicine	6	4	1.5
OMK-PPCM-506	1	PPCM-I	Forums I	5	18	6
OMM-DIS-507	1	LAB	Clinical Skills Laboratory I	2	8	1
OMS-OMM-508	1	LAB	OMM I	4	16	4
OMS-AR-509	1	LAB	Anatomy/Radiology Laboratory I	2	16	2
OMK-PPCM-552	2	PPCM-II	Neurologic/Psychiatric Principles of Clinical Medicine	6	4	1.5
OMK-PPCM-553	2	PPCM-IV	Endocrine - Reproductive Principles of Clinical Medicine	6	4	1.5
OMK-PPCM-554	2	PPCM-II	Immunologic/Lymphatic - Integumentary/ Exocrine Principles of Clinical Medicine	6	16	3
OMK-SGD-551	2	SGD	Clinical Medicine II	6	16	6
OMM-DIS-557	2	LAB	Clinical Skills Laboratory II	2	16	2
OMS-OMM-558	2	LAB	OMM II	2	16	2
OMS-AR-559	2	LAB	Anatomy/Radiology Laboratory II	2	16	2
					1st Year Total Credit	**40**

YEAR 2

UGME 2 Course Number	Semester	Course Group	Course Title	Hours per Week	Duration [weeks]	Credits
OMK-SGD-601	3	SGD	Clinical Medicine III	6	16	6
OMK-PPCM-602	3	PPCM-III	Circulatory - Respiratory - Renal/Urinary Principles of Clinical Medicine	6	16	6
OMK-PPCM-604	3	PPCM-III	Forums II	5.5	18	6
OMS-DIS-607	3	LAB	Clinical Skills Laboratory III	2	16	2
OMS-OMM-608	3	LAB	OMM III	2	16	2
OMS-AR-607	3	LAB	Anatomy/Radiology Laboratory III	2	16	2
OMK-SGD-651	4	SGD	Clinical Medicine IV	6	12	5
OMK-PPCM-652	4	PPCM-IV	Digestive/Excretory Principles of Clinical Medicine	6	4	1.5
OMK-PPCM-653	4	PPCM-IV	Behavioral/Mental Principles of Clinical Medicine	6	4	1.5
OMK-PPCM-655	4	PPCM-IV	Integrated Sciences of Clinical Medicine	6	4	1.5
OMK-PPCM-656	4	PPCM-IV	Advanced Health Perspectives	26	1	2
OMS-D1S-657	4	LAB	Clinical Skills Laboratory IV	2	12	1.5
OMS-OMM-658	4	LAB	OMM IV	2	12	1.5
OMS-AR-557	4	LAB	Anatomy/Radiology Laboratory IV	2	12	1.5
OMS-CORI	4	LAB	Clerkship Orientation	26	1	N/A
					2nd Year Total Credit	**40**

YEAR 3 - Clerkship

Course Title	Duration [weeks]	Credits
Surgery I	4	4
Internal Medicine	4	4
Family Medicine	4	4
Surgical Subspecialty Clerkship	4	4
Women's Health/OBGYN	4	4
Internal Medicine II	4	4

Psychiatry	4	4
Pediatrics	4	4
Osteopathic Principles & Practice III	4	4
Board Prep/Learning Consolidation	4	0
Residency Planning E&A Evaluation	4	4
Family Medicine II	4	4
	3rd Year Total Credit	**44**

YEAR 4 - Clerkship		
Course Title	**Duration [weeks]**	**Credits**
Elective/Selective	28	28
Emergency Medicine	4	4
OMM	4	4
	4th Year Total Credit	**36**

See Appendix 5 for an in-depth description of all courses and learning objectives

The Commission on Osteopathic College Accreditation (COCA) requires the program to be completed in no more than six years (150% of the expected and scheduled time to complete the curriculum).

7. Educational Objectives

The Maryland College of Osteopathic Medicine's program is designed for students pursuing a career in osteopathic medicine. Graduates of the program are eligible to sit for the Comprehensive Osteopathic Medical Licensing Exam (COMLEX). The Doctor of Osteopathic Medicine program is accredited by the Commission on Osteopathic College Accreditation (COCA). Students enrolled in the program will achieve seven program level objectives that are aligned with COCA's seven core competencies. The core competencies and program level objectives are listed below.

CORE COMPETENCIES	PROGRAM OBJECTIVES
Medical Knowledge	Interpret and apply established and evolving osteopathic, biomedical, clinical, and evidence-based principles in providing medical care to patients.
Communication	Demonstrate interpersonal and communication skills that reflect respectful, professional, empathetic, collaborative dialogue with the patient, patient's family/caregiver, and other health professionals.
Practice-based Learning	Continuously investigate, appraise, and apply evidence-based medical principles and practices, evaluate patient care practices, and assess one's personal disposition to enhance equitable care to patients and communities.

Systems-based Practice	Demonstrate an awareness of and responsiveness to the intricate and correlative nature between health care systems and patient care in the United States and across the globe.
Patient Care	Provide patient-centered care that is compassionate, culturally responsive, equitable, and appropriate for the effective treatment of illness and promotion of health consistent with osteopathic principles and practices.
Professionalism	Demonstrate a commitment to the highest standards of professional responsibilities, adherence to ethical principles, and cultural responsiveness to diverse beliefs and customs.
Osteopathic Principles and Practice/Osteopathic Manipulative Treatment	Diagnose and treat patients based on the principles of body unity, self-regulation, and the interrelationship of structure and function.

(a) Describe the student population which each program serves.

Mission Statement: The Mission of the proposed MDCOM is to produce caring, competent, diverse Osteopathic Physicians for all the specialties of medicine and to contribute to the expansion of the knowledge base in the biomedical sciences and population health.

Historically Black Colleges and Universities (HBCUs) and Hispanic-serving institutions make an important contribution to the diversity of the physician workforce. Of the 200-plus medical schools and regional campuses nationally (MD and DO), only four are deemed HBCUs. The public-private collaboration between the proposed MDCOM and Morgan State University will help attract a diverse applicant pool.

Recruitment Emphasis

- Focus on diverse sociocultural and socioeconomic students for a broader applicant pool
- Establish K-12 and undergraduate programming to create and expand a diverse candidate pool focusing on underrepresented minorities and marginalized populations (Black or African American, Latinx, indigenous populations, Native Alaskan and Pacific Islanders, rural, urban, LBGTQ)

Admissions Goal: Based on the MDCOM's mission, its admissions goal is to recruit students with diverse backgrounds, including underrepresented minority students, who live in Maryland and want to stay in Maryland. The MDCOM plans to educate 180 students per year. Selection of matriculants will be based upon two criteria: 1) preparedness and 2) readiness.

Assessment criteria for preparedness will include:

- Undergraduate grade point average
- MCAT Exam
- Successful completion of specific courses (following, below)

- Successful completion of the undergraduate portion of a seven-year articulated Bachelor of Science/Doctor of Osteopathic Medicine (B.S./D.O.) program, for those admitted to this program
- Post-baccalaureate preparation, if applicable (Many college graduates register for post-baccalaureate courses to better prepare them as applicants to medical school.)

See Appendix 6 for a graphic depiction of the mean GPA and MCAT scores of osteopathic medical students over the last four years, as calculated by the Association of American Colleges of Osteopathic Medicine (AACOM).

****See Appendix 7 for a description/sample articulation agreement for the B.S./D.O. program.***

Consistent with premedical coursework requirements for Colleges of Osteopathic Medicine (COMs), the proposed MDCOM will require:

- One year of biology
- One year of physics
- One year of English composition
- Two years of chemistry

Assessment Criteria for Readiness (interview)
Trained faculty interviewers will assess readiness according to the following criteria. Each candidate receives at least two separate interviews:

- Maturity
- Communication Skills
- Personal/Professional aspirations
- Commitment to length of training
- Problem-solving ability
- Motivation for a career in medicine
- Special qualifications (awards, work history, personal history, prior educational achievements)
- From diverse communities

(c) Describe the nature of the faculty and resources (library, facilities, equipment) that will be required to support each of these programs.

Faculty
Full- and part-time faculty will be hired for three academic departments based upon the number of approved students prior to full accreditation:

- Biomedical Sciences: 17 full-time faculty (with advanced degrees in biochemistry, histology, pharmacology, pathology, immunology, anatomy, physiology, microbiology)
- Osteopathic Manipulative Medicine: 5 full-time faculty, all D.O.s specializing in OMM
- Clinical Medicine: 14 clinical faculty (with advanced degrees in public health, gerontology, emergency medicine, pediatrics, family/internal medicine.
- 100% of full-time faculty will have terminal degrees (PhD or D.O.)

The number of full-time faculty produces a 10:1 student-faculty ratio in the preclinical years.

Clinical (adjunct) faculty will be appointed through the academic departments for each third- and fourth-year clinical training site. An expected 500 adjunct faculty will already be working at these sites.

The institution will also have specific staff including various department managers and associate deans, a librarian, academic and student services support, admissions, financial aid representatives, and administrative support staff.

Facilities and Equipment
MDCOM will be located in a new four-story building with an area of approximately 100,000 square feet on a five-acre site that currently resides on the Morgan State University campus. The site will fit into Morgan State's campus architecture and include faculty/staff/administrative offices, research labs, lecture halls, student breakout rooms, dedicated parking for faculty, staff, and students, as well as green space.

The new building will contain a high-tech medical simulation center that will include the most technologically advanced 3D anatomy visualization system for anatomy laboratory education.

The Osteopathic Manipulative Medicine (OMM) laboratory will hold at least 25 OMM tables. There will be at least 40 small-group rooms (20 per class in years I and II), each with the capacity to hold 12 students.

The facility will also include two lecture auditoriums -- each with seating for 200-225 people, labs, study spaces and faculty offices appropriate to the curriculum and sufficient for a student body of over 600 students.

Library
The medical library will be primarily digital, hosted on a web-based platform accessible to students and faculty.

See Appendix 8 for a graphic depiction of MDCOM facilities.

2. Educational Need. Before the Commission may evaluate an institution's readiness to operate or award new degrees in the State, the institution shall present evidence demonstrating the educational need to establish operations, offer programs, and award the degrees in question within the State. See COMAR 13B.02.02.05.

✓ **INSTRUCTIONS. Please enter the requested information in the spaces provided below, or create an attachment (labeled"A-2: Educational Need") to this application with your responses to the following questions:**

(a) **For each program** proposed in Section One above, what **"critical and compelling"** Regional or Statewide (Maryland) need and demand do these programs meet? [COMAR 13B.02.02.05C] In responding to this question provide documentation as indicated below:

(1) If the proposed programs serve an occupational need, present data projecting market demand and the availability of openings in the job market to be served by these new programs for which the institution is making application. This information will include:

(A) workforce and employment projections prepared by the federal and State governments:
(B) the availability of graduates in the State or region;
(C) marketing studies done by the institution or others;
(D) data from prospective employers on education & training needs and the anticipated number of vacancies expected over the next 5 years,
(E) material from professional and trade associations; and
(F) consistency with the Maryland State Plan for Postsecondary Education.

OCCUPATINAL NEED—KEY FINDINGS
(See the Tripp Umbach Feasibility Study, Appendix 3 for citations from that study)

PHYSICIAN SHORTAGES
Physicians are needed in Maryland due to increased population and an aging physician workforce.

Primary Care: According to the Health Resources and Services Administration (HRSA) Health Workforce, the need for more primary-care physicians is substantial. As of June 30, 2022,16,477 practitioners would be required to meet national primary-care physician needs, based on a population-to-practitioner ratio of 3,500:1. There are 7,956 Primary Care Health Professional Shortage Areas (HPSAs) throughout the United States, with 94.7 million people living within these areas. Maryland has 71 primary-care HPSA designations, with a total population of 1,640,870 within the HPSAs. Therefore, the state would need 326 practitioners to remove the designation. These numbers have increased substantially from the 2021 HRSA statistics cited in our feasibility report.

The Robert Graham Center forecasts that by 2030, Maryland will need an additional 1,052 primary-care physicians (PCPs), a 23% increase compared to the state's 2010 primary-care physician workforce. Components of Maryland's increased need for PCPs include 28% (303 PCPs) from increased utilization due to aging, 61% (651 PCPs) due to population growth, and 9% (98 PCPs) due to a greater insured population following the Affordable Care Act (ACA). Maryland: Projecting Primary Care Physician Workforce (graham-center.org)

Pressures from a growing, aging, increasingly insured population call on Maryland to address the current and growing demand for PCPs to adequately meet health care needs. The Robert Graham Center recommends bolstering the primary care pipeline by advocating for physician reimbursement reform, dedicating funding for primary care graduate medical education (GME), increasing primary care funding and training, and increasing medical school student debt relief.

Specialty Care: Factors driving specialty physician supply and demand include an aging population, aging physician workforce, static supply of physicians, and chronic illnesses. Medical specialty shortages that will pose a serious challenge to public health are emerging. The need for specialists will grow as the aging population becomes older and sicker. Several factors affected physician supply, demand, and staffing during and post-COVID-19. In the

months leading up to the pandemic, the following top five specialty areas were in high demand:
1. Neurology
2. Psychiatry
3. Gastroenterology
4. Hematology/Oncology
5. Dermatology

According to the AAMC's 2020 Physician Specialty Data Report, there were 23,429 patients per neurologist, 8,544 patients per psychiatrist, 21,426 patients per gastroenterologist, 20,366 patients per hematologist/oncologist, and 26,481 patients per dermatologist in 2019—***pre-COVID.*** Number of People per Active Physician by Specialty, 2019 | AAMC

The pandemic exposed great disparities in accessing health care and highlighted the significant role physicians play in the nation's health care infrastructure. The primary driver for increasing the physician workforce is the growing and aging population. From 2019 – 2034, the U.S. population is projected to grow by 10.6%, from about 328 million to 363 million, with a projected 42.4% increase in those 65 and above. Thus, demand for physician specialties that predominantly care for older Americans will continue to increase. The AAMC projects a shortage of between 15,800 – 30,200 surgical specialists (e.g., general surgery, GYN, orthopedic surgery); between 3,800 and 13,400 medical specialists (e.g., cardiology, oncology, infectious diseases, pulmonology); and between 10,300 and 35,600 other specialists (e.g., anesthesiology, neurology, emergency medicine, addiction medicine). AAMC Report Reinforces Mounting Physician Shortage | AAMC

The Covid Effect: The AAMC stated that COVID-19 is likely to have short- and long-term consequences for the nation's physician workforce, including changes in the specialties physicians choose, the educational pipeline, licensure, reimbursement regulations, how medicine is practiced, and workforce exit patterns. The COVID-19 pandemic has already highlighted shortages in specialty physicians, especially those with hospital-based specialties such as critical care, pulmonary care, and emergency medicine.

As a result of the profound disruption COVID-19 caused, The Physicians Foundation conducted a survey solely on the pandemic. The survey found that 8% of physicians had closed their practices. With more than 200,000 medical practices in the United States, that means about 16,000 had closed. Another 4% of doctors planned to close shop within 12 months. The survey also revealed that 61% of physicians often reported feelings of burnout, showing a significant increase since 2018. The closing of practices raises the threat of an even greater physician shortage than what is already expected. 2021-Survey-Of-Americas-Physicians-Covid-19-Impact-Edition-A-Year-Later.pdf (physiciansfoundation.org)

Additionally, as of 2020, more than one-third of Maryland physicians are 60 years or older (35.8%, up from 34% in 2018) -- the 13th highest rate across the country of physicians in this age group. Their retirement will leave a significant hole in the state's physician workforce, further impacting the ability of Maryland residents to seek care. For a state already experiencing physician shortages, an aging physician workforce will only increase the need. Undoubtedly, there will be a significant workforce shortage and the most effective solution will be to train more physicians. Maryland Physician Workforce Profile (aamc.org)

Maryland Department of Labor Occupational Projections for 2020 to 2030 show a need of 5,800 physicians over this 10-year period, or 580 openings annually in in the state.

Occupational Title	Employment				Separations		Total
	2020	2030	Change	Pct. Chg	Exits	Transfers	
Family Medicine Physicians	1,981	2,004	23	1.2%	320	225	568
General Internal Medicine Physicians	1,569	1,514	-55	-3.5%	248	174	367
Obstetricians and Gynecologists	707	616	-91	-12.9%	106	75	90
Pediatricians, General	948	883	-65	-6.9%	147	103	185
Psychiatrists	1,141	1,230	89	7.8%	191	134	414
Physicians, All Other; and Ophthalmologists, Except Pediatric	13,949	14,101	152	1.1%	2,254	1,581	3,987
Surgeons, Except Ophthalmologists	869	826	-43	-5.0%	136	96	189
							5,800

Maryland Department of Labor. (2020). Occupational Projections.

Addressing the shortage will require multiple approaches, including innovation in care delivery; greater use of technology; improved, efficient use of all health professionals on the care team; and an increase in federal support for residency training. According to the Maryland Higher Education Commission, Maryland's two non-military allopathic medical schools, University of Maryland - Baltimore and Johns Hopkins University, conferred 281 and 270 degrees in 2020 and 2021, respectively, for a total of 551 graduates over a two-year period. The projected shortfall is significant enough that no single solution will be sufficient to resolve physician shortages.

Institution Name	Degree Level	Program Name	2020	2021
University of Maryland - Baltimore	Doctorate Professional Practice	Medicine	166	151
Johns Hopkins University	Doctorate Professional Practice	Medicine	115	119
			281	**270**

Maryland Higher Education Commission. (2022). Trends in Degrees and Certificates by Program.

According to the Bureau of Labor Statistics, the growing and aging population is expected to drive overall growth in the demand for physician services. The table below shows the national demand for physician and surgeons at 24,900 from 2020 to 2030.

Occupational Title	SOC Code	Employment, 2020	Projected Employment, 2030	Change 2020-30
Family medicine physicians	29-1215	107,700	113,000	5,300
General internal medicine physicians	29-1216	55,500	55,100	-400
Obstetricians and gynecologists	29-1218	20,700	20,300	-400
Pediatricians, general	29-1221	30,200	29,600	-600

Psychiatrists	29-1223	28,100	31,600	3,500
Physicians, all other; and ophthalmologists, except pediatric	29-1228	412,100	430,800	18,700
Surgeons, except ophthalmologists	29-1248	41,500	40,300	-1200
Physicians and surgeons		**695,800**	**720,700**	**24,900**

Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Physicians and Surgeons.

Osteopathic medicine is the fastest-growing healthcare profession aligned with the need to address medical workforce shortages.

Accounting for approximately 11% of all physicians in the United States, Doctors of Osteopathic Medicine (D.O.s) bring a unique, patient-centered approach to every specialty across the full spectrum of medicine. There are 168,701 D.O.s and osteopathic medical students in the U.S. today. This past year, the number of D.O.s climbed to nearly 135,000—an 80% increase over the past decade. Approximately one in four U.S. medical students currently attends one of the 38 accredited colleges of osteopathic medicine teaching at 60 locations across the country.

Osteopathic medical schools provide a solid foundation in primary care, which their graduates carry with them into whatever specialty they practice. Osteopathic manipulative medicine (OMM) provides hands-on diagnosis and treatment that helps people achieve a high level of wellness by focusing on health promotion and disease prevention.

In 2021, 67% of all D.O.s were age 45 or younger. The diversity of students continues to increase – in 2019-20 10.7% of first-year enrollees were minorities compared to 7,2% in 2010-11. The number of female D.O.s also continues to trend upward each year. While roughly 43% of D.O.s are women, female physicians make up 74% of the D.O. population under age 45.

Annually, the number of D.O.s in medical practice continues to grow; however, this is in conjunction with the nation's growing physician shortage. D.O.s are ideal to take on a larger role in supplying much needed medical care nationally and in disenfranchised communities. Osteopathic Medical Profession Report - American Osteopathic Association; Reports Programs and Initiatives (aacom.org)

Maryland State Plan for Postsecondary Education

The proposed Doctor of Osteopathic Medicine program aligns with the goals outlined in the 2017-2021 Maryland State Plan for Postsecondary Education: Increasing Student Success with Less Debt.

Goal 1: Access

Ensure equitable access to affordable and quality postsecondary education for all Maryland residents.

MDCOM has established a Bachelor of Science/Doctor of Osteopathic Medicine (B.S./D.O.) program that enables qualified students to earn an undergraduate degree and D.O. degree in seven, rather than eight years. Program participants spend three years in a core curriculum of biochemistry, anatomy, physiology, microbiology, and cell and molecular biology, while working alongside professors on active research projects. They can also take advantage of

symposia and courses sponsored by MDCOM before applying to transition into the four-year medical school.

Our recruitment strategy for the B.S./D.O. program is to target diverse undergraduate institutions, including Historically Black Colleges and Universities (HBCUs), rural colleges/universities, and minority-serving schools or those with diversity initiatives. We will track our application data and program outcomes to better evaluate and revise the program. Morgan State University, an HBCU, has agreed to sign an articulation agreement that establishes a B.S./D.O. program in partnership with MDCOM.

Other MDCOM planned pathway (or pipeline) programs include a post baccalaureate medical school-readiness program, and a summer scholars program for high school students interested in practicing medicine.

These approaches will result in less student debt and aligns with Maryland's Next Generation Science Standards to engage students regularly and vertically in scientific literacy to meet college and career readiness benchmarks.

Goal 2: Success

Promote and implement practices and policies that will ensure student success.

MDCOM's D.O. program will be accredited by the Commission on Osteopathic College Accreditation for which students are expected to complete the program in four to six years. Academic and student support services will include academic advising, tutoring, mentoring programs, board exam preparation, career counseling, financial aid, and debt management counseling, as well as mental and physical health services. Guided by faculty facilitators, students will participate in research and scholarly activities based on their specialty interests. A learning management system will house all pertinent student information and academic resources necessary for student success.

Goal 3: Innovation

Foster innovation in all aspects of Maryland higher education to improve access and student success.

MDCOM is a public-private partnerships with Morgan State University intended to train high-quality diverse physicians matching into all specialties to practice in racially and culturally diverse communities. As the only osteopathic medical school in Maryland and the first established in partnership with an HBCU in the Delaware/DC/Maryland/Virginia region, MDCOM will increase the number of osteopathic physicians in the state of Maryland, the region, and across the country.

See Goal 1: Access, for a description of MDCOM's innovative pathway programs.

MDCOM will operate a high-quality, sustainable osteopathic medical school that meets the needs of the next generation of learners, teachers, and healthcare delivery systems by utilizing varied teaching modalities and state of the art equipment, and building clinical and research partnerships with community hospitals, health care institutions, and community-based providers. ***See appendices 2a and 2b: affiliation agreements, letters of intent and letters of support.***

(2) If some of the proposed programs serve societal needs (including the traditional liberal arts and non-occupational type programs) provide a description of how the proposed programs will enhance higher education in Maryland and contribute to the betterment of society in general.

SOCIETAL NEEDS—KEY FINDINGS (*See the Tripp Umbach Feasibility Study, Appendix 3, for citations from that study)*

DIVERSITY

As the U.S. population grows increasingly diverse, culturally appropriate care is a matter of national concern. More than half of all Americans are projected to belong to a minority group by 2044; by 2060, close to one in five of the nation's total population is projected to be foreign-born. However, the physician workforce is not on track to reflect these demographics. According to the American Medical Association, fewer than 10% of physicians throughout the U.S. are from an underrepresented minority group. Research from the AAMC shows that among active physicians, 56.2% identified as White, 17.1% identified as Asian, 5.8% identified as Hispanic, 5.0% identified as Black or African American and 13.7% were in the Unknown category. Figure 18. Percentage of all active physicians by race/ethnicity, 2018 | AAMC

Maryland throughout the years has grown to be more racially and ethnically diverse and currently ranks No. 4 overall for diversity, according to data provided by the U.S. Census Bureau. It is also now the most diverse state on the East Coast. According to the 2020 Census, the racial composition of Maryland is:

- White alone: 48.7%
- Black or African American alone: 29.5%
- Asian alone: 6.8%
- Hispanic or Latino: 11.8%
- Two or more races: 7.8%
- Native American: 0.5%
- Native Hawaiian or Pacific Islander: 0.1%

Race and Ethnicity in the United States: 2010 Census and 2020 Census

Maryland is one of the top four states with the smallest percentage population of whites; its Black or African American population is also the 4th highest in the nation, falling only behind Mississippi, Louisiana, and Georgia.

Diversity is an important goal in medical education; The proposed MDCOM mission and vision address this goal:

Mission Statement: The Mission of the proposed MDCOM is to produce caring, competent, diverse Osteopathic Physicians for all the specialties of medicine and to contribute to the expansion of the knowledge base in the biomedical sciences and population health.

Vision: The Vision of the proposed MDCOM is to prepare diverse and under-represented minority students who, as Osteopathic physicians, will contribute their perspectives to the practice of medicine in underserved communities, and thereby contribute to diminishing healthcare disparities and enhancing total population health.

It is important to note that while medical schools are attracting and enrolling more racially and ethnically diverse student bodies, the percentages are still far below the reflected representation needed in the medical arena to match the diverse U.S. population. According to the AAMC, the 2018-2019 medical school applicant pool was 46.8% White, 21.3% Asian, 8.4% Black or African American and 6.2% Hispanic, Latino, or of Spanish Origin.

According to the University of Maryland Baltimore's office of medical school admissions, 31% of students in its class of 2025 are from a racial or ethnic group that is underrepresented in medicine. Hopkins reports that 19% of students in its class of 2025 are underrepresented.
Office of Admissions | University of Maryland School of Medicine (umaryland.edu)
Meet the Johns Hopkins University School of Medicine Class of 2025! (hopkinsmedicine.org)

Historically Black Colleges and Universities (HBCUs) and Hispanic-serving institutions make an important contribution to the diversity of the physician workforce. Of the 200-plus medical schools and regional campuses nationally (MD and DO), only four are deemed HBCUs. The public-private collaboration between the proposed MDCOM and Morgan State University will help attract a diverse applicant pool.

HEALTH DISPARITIES

Health disparities in the U.S. are alarming: Racial and ethnic minorities have higher morbidity and mortality rates from chronic diseases. Data from the Centers of Disease Control and Prevention (CDC) report that although their death rate has dropped, African Americans are still more likely to die at early ages from all causes. African-American Death Rate Drops 25 Percent | CDC Online Newsroom | CDC

According to the latest Maryland Chartbook of Minority Health and Minority Health Disparities Data put out by the Maryland Department of Health and Mental Hygiene, the Black or African American population is 70 percent of Maryland's minority population and thus, data for that group is the most extensive among the minority groups. This allows for a more statistically sound analysis in that population. With this large a population, health disparities for Blacks or African Americans can be demonstrated in Maryland for a wide variety of issues:

- The age-adjusted death rate from all causes combined was 1.2 times higher for Blacks or African Americans than for Whites.
- Black or African American adults reported higher prevalence of diabetes, hypertension, and cigarette smoking.
- The rate of new cases of HIV for Blacks or African Americans was about 11.8 times higher than for Non-Hispanic Whites.
- The rate of new cases of AIDS for Blacks or African Americans was about 13.5 times higher than for Non-Hispanic Whites.
- The proportion of adults without health insurance was 2.1 times higher for Blacks or African Americans than for Non-Hispanic Whites.
- The percent of pregnant Black or African American women who received late or no prenatal care was about 1.8 times higher than the percent for White women.
- Blacks or African Americans were half as likely as Whites to have seen a provider for a mental health problem, despite having a greater rate of reporting poor mental health.

A study by the Maryland Office of Minority Health, which was presented at the 2019 Maryland Rural Health Conference, found that Infant mortality across the state was consistently about 2.5 times as high for non-Hispanic Blacks as non-Hispanic Whites, and higher for both Blacks and Whites in rural counties. 5-1-Infant-Mortality-and-Race-in-Rural-Maryland-Data-Lessons-Learned-and-Opportunities.pdf (mdruralhealth.org)

A 2020 study, titled "Health Equity and COVID-19 Data in Maryland" found that Blacks had higher disease prevalence for several relevant high-risk COVID comorbidities, were more likely to be hospitalized for COVID, and were more likely to die from COVID than Whites. Forensic Challenges in Determining Cause Of Death (maryland.gov)

African American and Hispanic doctors are more likely to have patients who share their race and/or ethnicity and have greater connectivity to those in underserved and disenfranchised communities. The *Maryland Office of Minority Health and Health Disparities* offers several resources that help address the social determinants of health and help eliminate health disparities.

(a) If similar programs currently exist in the State, what are the similarities or differences in terms of the degrees to be awarded, the areas of specialization, and the specific academic content of these programs?

There are currently three medical schools in Maryland: Johns Hopkins University School of Medicine, University of Maryland School of Medicine, and Uniformed Services University of the Health Sciences, which trains physicians for the U.S. military. All three are allopathic, or M.D.-granting, schools accredited by the Liaison Committee on Medical Education (LCME). The LCME is sponsored by the Association of American Medical Colleges (AAMC) and the American Medical Association (AMA). As the only osteopathic medical school in the state of Maryland and the first established in partnership with an HBCU in the Delaware/District of Columbia/Maryland/Virginia region, MDCOM will increase the number of osteopathic physicians practicing in **racially and culturally diverse communities.**

The proposed Maryland College of Osteopathic Medicine will be accredited by the Commission on Osteopathic College Accreditation (COCA), which is recognized by the U.S. Department of Education as the accreditor of colleges of osteopathic medicine. COCA currently accredits 38 osteopathic medical schools operating in 60 sites (for the 2021-22 academic year).

All allopathic and osteopathic medical schools are licensed by the states in which they reside, using the same process, and they share the pathway for residency training. The national Accreditation Council for Graduate Medical Education (ACGME) accredits residency and fellowship programs, confers recognition on additional program formats or components, and dedicates resources to initiatives addressing areas of import in graduate medical education.

Osteopathic medicine is the only medical profession that offers training based on a specific philosophy of health care. In addition to the competencies that medical students are expected to achieve, osteopathic medicine also delivers education related to the **four tenets of its philosophy:**

1. The body is a unit; the person is a unit of body, mind, and spirit.
2. The body is capable of self-regulation, self-healing, and health maintenance.
3. Structure and function are reciprocally interrelated.
4. Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function.

Unlike Allopathic medical training, these tenets are part of the academic preparation of osteopathic medical students. They acknowledge the importance of the musculoskeletal system and its role in health and disease.

The field of osteopathic medicine has a strong tradition of producing primary care practitioners who practice in medically underserved regions. Approximately 57% of practicing DOs are primary care physicians. Osteopathic Medical Profession Report - American Osteopathic Association

In U.S. News & World Report's annual ranking of medical schools for 2023:

- Five colleges of osteopathic medicine (COMs) were among the top medical schools for primary care.
- Among the medical schools with the most graduates practicing in primary care, DO schools comprised all the top five and eight of the top 10 schools on the list, with a total of 24 COMs in the top 50.
- DO schools comprised three of the top five and six of the top 10 medical schools with the most graduates practicing in rural areas, with 19 COMs in the top 50.
- Ten COMs were ranked in the top 50 medical schools with the most graduates practicing in underserved areas.

2023 Best Medical Schools - US News

3. Financial Resources. The institution shall provide evidence of adequate financial resources to establish and maintain an institution of higher education in a form and manner prescribed by the Secretary. See COMAR 13B.02.02.06E(b)(c) & .07.

✓ **INSTRUCTIONS. Please enter the requested information in the spaces provided below, or create an attachment (labeled: "A-3 Financial Resources") to this application with your responses to the following questions:**

(a) Provide a long-range financial plan for the institution, which includes (1) a four-year projection of anticipated income and expenditures that demonstrates that tuition and other sources of income shall be sufficient to provide a sound financial operation and assure diversity of intellectual interest and resources and (2) a preliminary budget for the school and its programs.

The Proposed Maryland College of Osteopathic Medicine Benefit, LLC (Applicant Status – Seeking Accreditation), "MDCOM" will be a private institution to be funded by accredited investors including foundations, individuals, health systems, universities and corporations.

Osteopathic medical schools are tuition supported and MDCOM will have sufficient class sizes and market-based tuition that will enable it to operate at a surplus beginning in its 4th year of operations with students.

While the new COM is building its student population, the operating losses will be supported from funding from investors and bond proceeds. In the initial application phase of the project, funding is provided by Medical Impact Company, LLC (MIC). The initial applicant stage of financial support of $1.0 to 2.0 million is expected to be covered by funding through MIC.

As required by the Commission on Osteopathic College Accreditation ("COCA") A proposed COM must demonstrate the existence of a minimum segregated, unencumbered reserve fund escrowed until one year after graduation of the first class of students and equal to the greater cash value of 1) $30,000,000; or 2) tuition multiplied by the approved number of students for the proposed COM multiplied by four years. This is in place to cover students shall anything happen to MDCOM
MDCOM has also received funding commitments from a broad collection of investors interested in supporting the new college of osteopathic medicine including 3 non-profit investors: Morgan State University's Foundation, Harrisburg University of Science & Technology and Meritus Health System. Additionally, MDCOM is working with an investment bank that has a specialty in raising both bond and equity funding for new COMs to identify later-stage financing including the anticipated funds for the new building to house the COM on the Morgan State University campus. MDCOM will be initially in leased space at Morgan State University (MSU) in Baltimore, Maryland. MSU will provide sufficient space for the needs of the faculty, students and staff under a market lease for the initial cohort of students (expected to be 90 students).

The COM will be supported by tuition and fee revenue.

Pricing for tuition and fees will be based on a peer review of out-of-state and private university costs for the program of study. Based on current market rates for D.O. programs, the MDCOM program expects to charge approximately $55,000 per year for its 4-year program. This is equal to the national median tuition of $55,020 for a private university / college medical degree as of 2020 according to the American Association of Osteopathic Medicine (AACOM).

The capital plan for the institution is approximately $50 million in property, plant, and equipment (PP&E), which includes the aforementioned 100,000 SF building and approximately $8 million in labs, technology, simulation technology and equipment.

The table below illustrates the Preliminary Budget for MDCOM. Management is anticipating having break-even operations on a sustained basis beginning with the fourth class of students. Medical Schools have one intake of students per year and therefore will have only a fraction of the future revenue from the first class of 90 students in year 1, and will steadily build in years 2, 3 and 4 when MDCOM will be generating tuition revenue for 4 classes of students. The investor and financial plan (both available equity and bond financing) will be sufficient to absorb these expenses and costs associated during the ramp up period.

In 2019, (accounting for applicants across MD and DO programs in the US) nearly 48,000 qualified students applied and did not enroll in a medical education program according to research by Tripp Umbach the nation's leading medical education feasibility expert. The projected demand for available seats in medical school is expected to continue. According to AACOMAS, applicant pool profile for the 2019 entering class, 193,119 individual school applications were received from 21,584 applicants for 7,672 COCA-approved seats. Given the

demand dynamic addressed above, MDCOM expects qualified applicants far in excess of the anticipated maximum approved class sizes of 90 for the initial cohort. MDCOM's enrollment strategy is to evaluate the anticipated 2000 applications to select students that align with the stated purpose of MDCOM and possess the undergraduate preparation, MCAT test scores and background to become physicians serving underserved populations in Maryland, the region, and nationally.

Since the only program will be the DO degree program, the institution is anticipating a maximum approved class sizes of 180 students per cohort. Enrollment for the first 2 years, however, will be at 50% and 75%, respectively of approved class sizes. By Year 5 of operations, the MDCOM enrollment in its D.O. program is expected to grow from 90 in the initial cohort to be approximately 650 students.

The MDCOM will continue to update the financial pro forma as the facility plans and the financial impact from other aspects of the medical school have been developed.

Proposed Maryland College of Osteopathic Medicine at Morgan State University (Applicant Status -- Seeking Accreditation)				
PRELIMINARY BUDGET ($000s)				
Operating Year (Students)	**1**	**2**	**3**	**4**
Medical School Enrollment				
First-Year Students	90	135	180	180
Second-Year Students	0	90	135	180
Third-Year Students	0	0	90	135
Fourth-Year Students	0	0	0	90
Total Medical School Enrollment	90	225	405	585
OPERATING REVENUES				
Tuition				
First-Year Students	$4,950	$7,611	$10,401	$10,661
Second-Year Students	$0	$5,074	$7,801	$10,661
Third-Year Students	$0	$0	$5,201	$7,996
Fourth-Year Students	$0	$0	$0	$5,331
Student Fees				
First-Year Students	$225	$348	$477	$492
Second-Year Students	$0	$232	$358	$492
Third-Year Students	$0	$0	$239	$369
Fourth-Year Students	$0	$0	$0	$246
Other				

Application Fees	250	250	250	375
Less: Uncollectables	-26	-66	-122	-181
Total OPERATING REVENUES	$5,399	$13,447	$24,604	$36,441
OPERATING EXPENSES				
Personnel Expenses				
Office of the Dean	$791	$811	$831	$852
Office of the President	1326	1341	1356	1372
Human Resources	125	191	195	200
Finance	344	436	507	520
Operations	0	47	94	96
Information Technology	588	602	617	633
Academic Affairs	1468	1951	2088	2229
Biomedical Sciences Department	1147	1856	2144	2433
Research	305	384	394	404
Inclusion	0	0	366	375
Osteopathic Medicine Department	1125	1385	1420	1455
Clinical Education Department	2338	3175	3763	4271
Student Affairs	795	815	1006	1029
Graduate Education	391	401	411	421
Total Personnel Expenses	**$10,743**	**$13,395**	**$15,193**	**$16,291**
Other Operating Expenses				
Clinical Expenses	$0	$0	$1,350	$2,835
Professional Expenses	3773	4586	4922	5461
Real Estate Expenses	1332	1396	3021	5047
Insurance Expense	330	353	364	373
Other Expense	0	0	0	0
Total Other Operating Expenses	**$5,435**	**$6,335**	**$9,657**	**$13,715**
TOTAL OPERATING EXPENSES	$16,177	$19,730	$24,850	$30,006
Operating Surplus / Deficit	**-$10,778**	**-$6,282**	**-$246**	**$6,435**

(b) If available, provide a certified copy of the institution or its parent institution's **most recent audited financial statement**. (Copy attached? ☐ Yes ☒ No)

Please note that the Institution will deliver the audit for the period ended 6/30/2022 when the audit report is completed this fall (expected by October 2022).

(c) List the name of the chief financial officer of the institution, giving (1) the preparation by education (institutions and degrees) and experience for his/her work and (2) his/her involvement with the operation of the institution's educational facilities and programs.

David Mohr, MBA is the Founding CFO for the proposed Maryland College of Osteopathic Medicine Benefit, LLC (Applicant Status – Seeking Accreditation). Mr. Mohr is a veteran of the higher education industry for over 20 years and has served as CFO for other (formerly) regionally accredited, nationally accredited and Title-IV eligible institutions in the United States. His CV and copy of Degree diploma from his highest degree obtained (Masters in Business Administration) are included as exhibits to this submission.

Mr. Mohr has also deep experience working with start-up colleges of medicine including the successful launch (2015) of the St. Luke College of Medicine in Mexico and was recently the founding CFO for the proposed Orlando College of Osteopathic Medicine in Florida, which successfully achieved its provisional state licensure in 2021 and as of the writing of this application, was notified that it is receiving its Candidate approval from the AOA | COCA.

****

Please Submit All Information To:

Maryland Higher Education Commission
Office of Academic Affairs
6 N. Liberty Street, 10th Floor
Baltimore, MD 21201
(410) 767-3300
acadprop.mhec.@maryland.gov (for electronic submissions)

APPENDICES

Appendix 1

Case Examples

CASE I

A Case Study of
Fatigue and Pallor

Case Number 00-000-1.00

Patient X

Case Writer
X, D.O.

Case Learning Concepts

Molecular Level (Biochemistry, Pharmacology, Genetics)

- *Hemoglobin synthesis and metabolism*

Cellular level (Physiology, Microbiology, Immunology)

- *Hematopoiesis/ Erythropoiesis*
- *Role of hemolysis in development of anemia*

Tissue level (Microanatomy, Embryology, Pathology)

- *Structure of red blood cells*
- *Hemolysis and red cell destruction*

Organ/Body System level (gross anatomy)

Person level (H&P, psychosocial elements, OPP, DDx, decision making, case management]

- *Clinical workup of suspected anemia*
- *Differential diagnosis of microcytic anemia*
- *Medical decision making: tertiary prevention measures for anemia*

Environmental/Society level (epidemiology, public health, preventive medicine)

e.g. – Epidemiology of hemoglobinopathies

Patient Profile

Patient X is a 38-year-old white female who presents to the primary care office with the complaint of fatigue.

Subjective

[Please access the video labeled **Patient X** – ***08.10.16*** that is posted on Akila for the week 1 Case-Based Learning (CBL) class]

Objective

Vital Signs

Temperature:	99.6 °F	Height: 5'4"
Pulse:	114 bpm	Weight: 130 lbs
Respirations:	18 resp/min	BMI; 22.3
Blood Pressure: 118/78 mmHg		

General Appearance

Alert and oriented; no acute distress; anxious; appears tired and pale.

HEENT:

Head:	normocephalic
Eyes:	PERLA, EOMI, fundi benign; pale conjunctiva; clear sclera
Ears:	tympanic membranes clear of inflammatory changes; external auditory canals patent
Nose:	no discharge or obstruction
Throat:	pale, moist mucous membranes; no pharyngeal inflammation; no tonsillar exudate
Face:	symmetrical; no maxillary or frontal sinus tenderness
Neck:	supple with no rigidity, tenderness, muscle spasm, or palpable masses; no lymphadenopathy; thyroid is not palpable; trachea is midline and movable; no JVD; no carotid bruits
Heart:	tachycardia; regular rhythm, without murmurs; S1 and S2 are normal; no S3 or S4
Lungs:	dyspneic with talking; lungs are clear in all fields without wheezes, or crackles
Chest:	no tenderness or deformity
Breast:	no masses or lymphadenopathy
Abdomen:	soft, non-tender; no masses; bowel sounds normal; healed longitudinal suprapubic post-surgical (c-section) scar and laparoscopic cholecystectomy scar noted
Rectal:	no masses, unusual tenderness, or evidence of frank bleeding; dark stool on glove, hemoccult positive
Back:	increased kyphotic and cervical curvature; decreased lumbar curvature; no scoliosis noted; range of motion is unrestricted in cervical, thoracic, and lumbar areas

Extremities:	pale nail beds; no cyanosis or clubbing; no edema or varicosities; no restriction of range of motion
Skin:	very pale; no rashes, unusual scarring or tumors
Genital:	no unusual tenderness, swelling or discharge noted
Neurological:	affect and orientation are appropriate; cranial nerves, sensory and deep tendon reflex evaluations show no abnormalities; no pathological reflexes are present

Osteopathic Structural Exam (OSE):

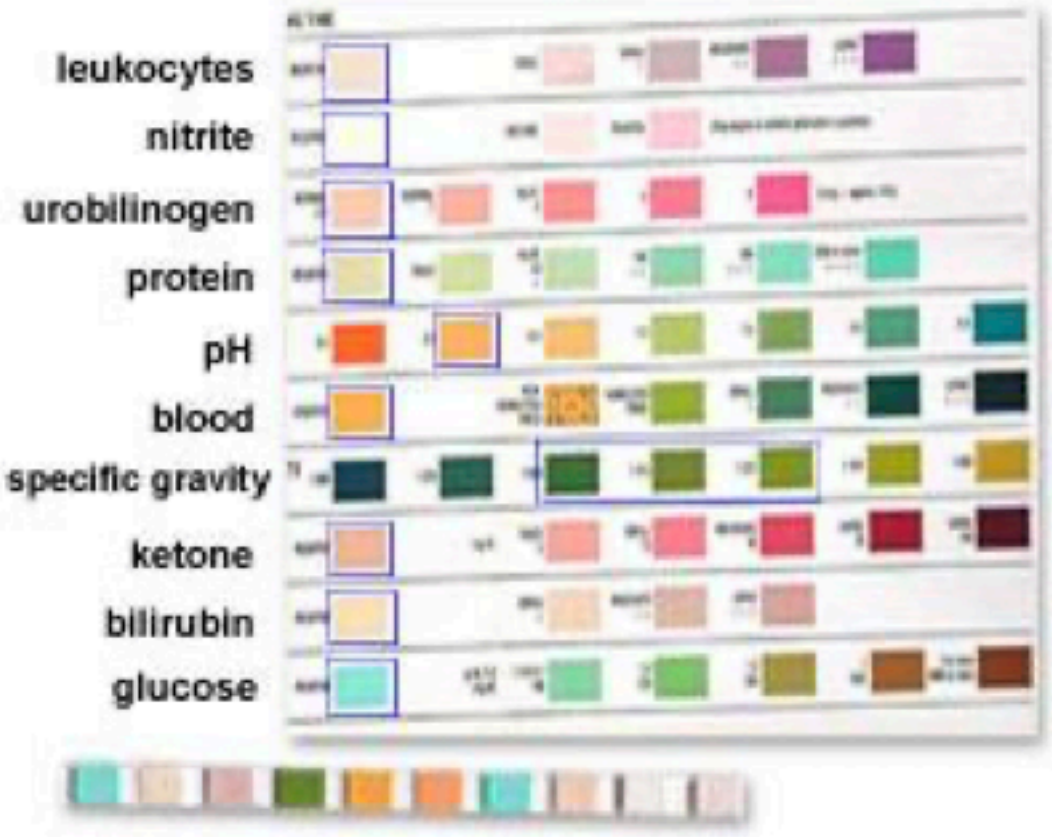
Seated/Standing exam: increased kyphotic curvature; Spinal Motion: no impaired ROM; Palpation: no TART findings

Office Screening Tests

Pulse Oximetry – 94%

Hematocrit – 24

Urinalysis: epithelial cells,
- Leukocytes per HPF – 2
- Erythrocytes per HPF – 2
- Nitrite – neg
- Urobilinogen – neg
- Protein (g/L) – neg
- pH –
- Sp Gr –
- Ketones – neg
- Glucose -- neg



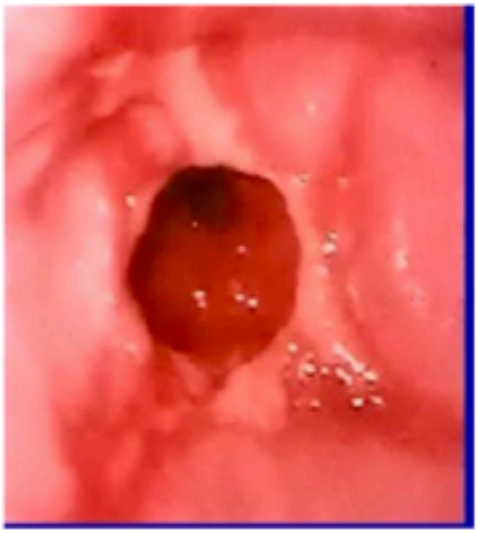
Diagnostic Studies

Test Name	Results	Normal
CBC		**[$29]**
WBC	6.8 $x10^3/mm^3$	4.5-11.0 $x10^3/mm^3$
RBC	3.90 $x10^6/mm^3$	4.0-5.5 $x10^6/mm^3$
HGB	6.5 gm/dl	12.0-16.0 g/dL
HCT	24.2 %	36.0-48.0 %
MCV	56.8 fL	80-100 fL
MCH	15.4 pg	27.0-34.0 pg
MCHC	26.6 g/dL	31.0-36.0 g/dL
RDW	21.4	10.8-14.8
PLT	530 $x10^3/mm^3$	150-450 $x10^3/mm^3$
Neutrophils	55%	40-70%
Lymphocyte	30%	22-44%
Monocyte	9%	4-11%
Eosinophils	3%	0-8%
Basophils	1%	0-3%
Reticulocyte count	2.4%	0.5-1.5%
Chemistries		**[$76]**
Na	136 mEq/L	135-148 mEq/L
K	4.7 mEq/L	3.3-4.9 mEq/L
Cl	99 mEq/L	97-110 mEq/L
CO2	29 mEq/L	22-31 mEq/L
BUN	26 mg/dl	8-25 mg/dL
Creatinine	0.6 mg/dL	0.6-1.1 mg/dL
Glucose	98 mg/dL	(fasting) 65-110 mg/dL

Pulse oximetry	92% on room air	95-100%
Sed rate	16 mm/hr	0-20 mm/hr
Serum Pregnancy	neg	neg
Erythropoietin	310.3 units/L	0.0-27 units/L
Thyroid Stimulating Hormone (TSH)	2.10 µIU/mL	0.32-5.0 µIU/mL
Ferritin	3 ng/ml	10-20 ng/ml
Serum Iron	10 µg/dL	50-170 µg/dL
Total Iron Binding Capacity (TIBC)	450 ug/dL	250-00 ug/dL

Esophageal Gastroduodenoscopy (EGD)

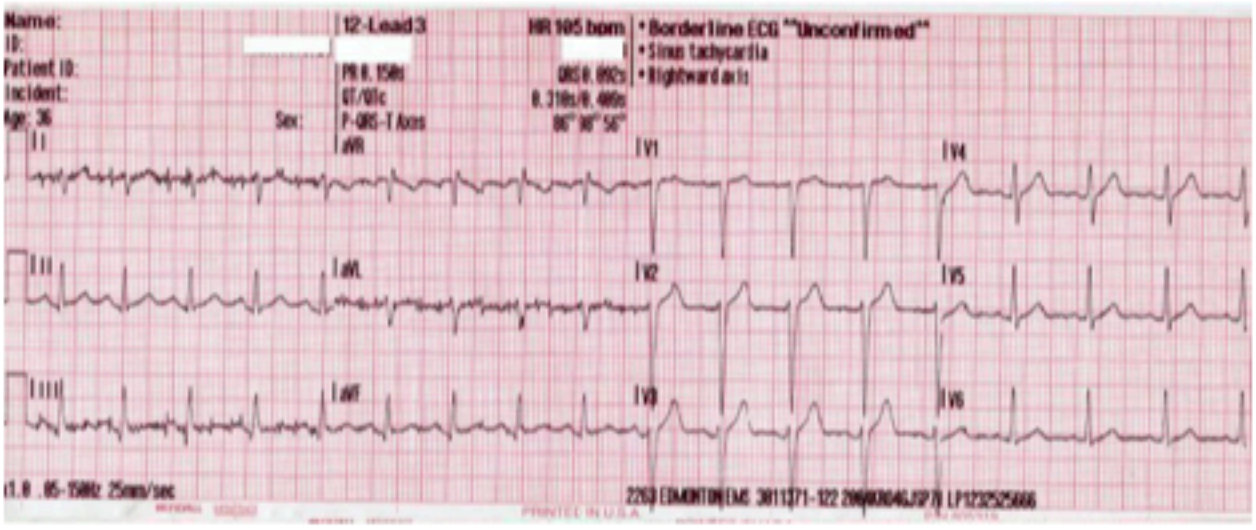
Esophageal Gastroduodenoscopy (EGD): revealed esophageal stricture with erosive esophagitis, Schatzki's ring at the distal esophagus.



http://www.slideshare.net/shaikhani/git-gerd-08-presentation

Schatzki's ring (http://emedicine.medscape.com/article/186561-overview)

ECG



Source: https://commons.wikimedia.org/wiki/File:12_lead_sinus_tachycardia_young.JPG

Discussion Questions

1. Construct a differential diagnostic list of clinical conditions that can present as pallor and fatigue accompanied by a low hemoglobin.

2. List Patient X's significant symptoms and identify the abnormalities in her physical exam. Explain the underlying pathological processes (molecular, cellular, tissue and organ levels) of each.

3. Using information from the history and physical examination to justify your choices, identify those clinical conditions in your differential diagnostic list that are supported by Patient X's clinical presentation, and discard those that lack substantial support. Explain your choices.

4. Explain the clinical reasoning for the diagnostic tests ordered for Patient X.

5. Interpret the results of the diagnostic tests listed and explain any abnormal values in terms of underlying molecular, cellular, or anatomical pathologies.

6. Describe the role of iron in the synthesis of hemoglobin, and discuss how it is altered in each of the following conditions:
   - iron deficiency anemia
   - anemia of chronic disease

7. Explain how the following compensatory homeostatic mechanisms ensure that Patient X is able to provide sufficient oxygen to her tissues
   - Increased erythrocyte production
   - Decreased hemoglobin-oxygen affinity
   - Increased cardiac output

8. Discuss the possible sites of bleeding which caused Patient X's anemia

9. Discuss the use of oral and parenteral iron for the treatment of iron deficiency anemia in terms of dosage, duration of therapy, frequency, and variable absorption of various forms

Resources
http://emedicine.medscape.com/article/202333-differential

CASE II

A Case Study of
Diffuse Pain

Case Number 17.17.05

Patient Y

Case Writer
Y, D.O.

Patient Profile

Patient Y is a 35-year-old white woman who presents to the primary care office with "pain all over."

Subjective

Chief Complaint/History of Present Illness:

"I need you to help me do something about this constant aching. It's like every muscle in my body is sore. It started about 6 months ago when I was in a car wreck. It wasn't that bad – I got "t-boned" by another car that ran a stop sign, and it totaled my car, but I wound up in the Emergency Room and everything was OK. I was really banged up with a few bruises on my side and my right shoulder, but nothing was broken. The doctor said I'd be sore for a while.

But it never really got better. I thought I was improving for about a week, and the bruising was going away, but then I started to ache all over again. It was almost like the flu, except I didn't have a fever and anyway I had a flu shot last fall.

At first it just seemed to be my upper back and shoulders – both shoulders, not just the left one that was so bruised. Then, it went to my low back. I thought maybe it was from sleeping on a bad mattress – the one we have is pretty soft and saggy – but we went out and bought a new mattress and that didn't seem to help. Then, about 6 weeks ago, my thighs started aching. It really made it hard to go up stairs. In the past month or so, it's starting to hurt in my joints and my calves. I can't play tennis anymore. I can't run.

It's worst in the morning. It gets better as the day goes on, but it seems to take forever. And it never really goes away completely. I'm just all stiff when I get up. Really– I walk to the bathroom like a 90-year-old woman!

Since I don't sleep, I'm tired all the time. Even though I don't do anything during the day. I'm so tired I think my brain is giving out. Last week, it took me hours to grade some of my students'' essays, which I should have been able to finish in about 20 minutes. I kept losing track of what I was doing. I just couldn't concentrate. It's not a sharp pain, like when my sacrum went out last year and you put it back into place. It's more dull and like a stiffness. Sometimes, at night, I get some tingly feelings in my feet, like my foot's "asleep." I tried Tylenol– nothing! Advil helped at first, and I tried a heating pad at night, but now I've stopped the heating pad and I'm taking about eight Advil a day and I barely notice any effect.

I had a trip to Haiti planned for 2 months from now – I am part of a group that is building a school outside of Port-au-Prince – but I think I need to cancel.

It's so frustrating because nothing I do helps and it's not going away and I just can't do any of the things I used to do!

I'm just hoping maybe some manipulation will help."

Past Medical History:	denies any significant past illnesses.
Injuries:	denies any significant past injuries.
Health Maintenance	immunizations for influenza 8 months ago; immunizations for tetanus, hepatitis A and B, and pneumonia within the past 2 years; TB test 5 years ago.
Medications:	Aside from the Advil mentioned above, and a daily multivitamin, she takes no prescription or non-prescription medication, on a regular basis.
Allergies:	denies any significant drug or environmental allergies.
Surgical History:	has had no surgery.
Hospitalizations:	has never been hospitalized.

Lifestyle

diet:	Strict vegetarian
exercise:	runs about 10 miles/week; works out regularly at a gym; unable to keep up exercise since onset of symptoms
sleep patterns:	usually sleeps approximately six hours nightly, but sleep is interrupted by symptoms.
caffeine use:	3-4 cups of coffee daily
alcohol use:	denies the use of alcohol.
nicotine use:	denies the use of nicotine
other substances:	denies the use of recreational substances

Family Medical History: Father died at age 52 of lung cancer; mother, sister, and brother have high blood pressure; mother (60 y/o) has arthritis; no history of stroke, heart disease, mental health problems, or alcohol/substance abuse.

Sexual History: monogamous with husband of 6 years; no children; feels safe and satisfied in her relationship; husband is very supportive

Social History:

Faith:	"We don't belong to any particular church."

Family:	"I've been married for 6 years. We have great marriage. My husband is in the military and he was shipped to Iraq 8 months ago, so that's a bit stressful. I miss him terribly because we used to do everything together. I'm trying to keep busy with my other interests, but it's just so hard! Im very close to my sister, who is also a military spouse, so that helps. My brother goes to school in Indiana. He's studying to be a doctor. He a lot younger than I am so we're not as close."
Friends:	"I have some really good friends that are very supportive"
Fun:	"I play music, and I'm director of the school Glee Club, so that's a good distraction for me."
Work:	"I'm a high school teacher."
Wishes:	"I wish my husband were back home"
Worries:	"that something will happen to my husband, and that this condition is permanent"

Review of Systems –

Besides what is recorded above, the patient…

- **Cardiovascular**
  … denies any recurrent chest discomfort, palpitations, dyspnea on exertion, orthopnea, paroxysmal nocturnal dyspnea, hypertension, edema, cyanosis, cardiac murmurs, phlebitis, varicosities, or claudication;

- **Respiratory**
  … denies any history of pain in or unusual drainage from the ears, nose, or throat; does not suffer frequent nosebleeds; denies recurrent chest pain, wheezing, chronic cough, hemoptysis, pneumonia, tuberculosis, fever, or night sweats;

- **Gastrointestinal**
  … admits to loss of appetite and about 12 lb weight loss over past 2 months; denies any history of recurrent abdominal pain, chronic indigestion, pyrosis, food dyscrasias, recurrent nausea, vomiting, diarrhea, constipation, hematemesis, abnormal stools, jaundice, hemorrhoids, or recent change in bowel habits;

- **Genital/Reproductive**
  … denies any history of genital lesions, sexually transmitted diseases, genital discharge, discomfort during sexual activity, or concern with libidinal drive;

- **Urinary**

  ... denies any problems with urinary urgency or frequency, dysuria, nocturia, hematuria, polyuria, facial edema, oliguria, recurrent kidney or bladder infections, kidney stones, incontinence, or urinary retention;

- **Musculo-Skeletal**

  ... was treated for sacral strain within the past year (OMM); denies previous episodes of recurrent muscular strains, injuries, chronic back pain, recurrent joint pains or swelling, joint infections, arthritis, weakness, atrophy, or muscle cramps;

- **Endocrine**

  ... denies any history of diabetes mellitus, thyroid disorder, polydipsia, polyuria, alopecia, excessively dry skin, temperature intolerance, or recent weight change;

- **Neuro**

  ... reports difficulty with concentration; denies any history of seizure disorder, stroke, paralysis, tremor, incoordination, paresthesias, syncope, gait disturbance, dysarthria, dysphagia, visual, hearing or speech problems;

- **Psych**

  ... denies any past history of nervous or emotional difficulties, chronic anxiety, depression, or hospitalization for psychiatric treatment.

Objective

Vital Signs:	Temperature:	*98.8* °F	Height: *68* inches
	Pulse:	*92* bpm	Weight: *118* lbs
	Respirations:	*12* rpm	BMI: 17.9
	Blood Pressure:	*122/78* mmHg	

General Appearance: Articulate; oriented; pleasant; tired; anxious; seems sad, but not despairing

HEENT:

- Head: normocephalic,
- Eyes: conjunctiva clear; pupils 3 mm in size, equal and reactive to light and accommodation; consensual light reflex intact; external ocular muscles intact; visual fields are appropriate; no nystagmus (vertical, horizontal or rotary) in the sitting position.
  funduscopic exam: normal light reflex, A:V ratio = 3:4., normal cup to disk ratio, with sharp disk margins and spontaneous venous pulsations; no AV nicking , and no hemorrhages, exudates, or papilledema.
- Ears: external auditory canals patent and clear of debris; tympanic membranes are pearly gray, and display normal cone of light and normal bony landmarks; no TM inflammation or perforation.
- Nose: no swelling of nasal turbinates; no nasal discharge; septum midline without deviation, or perforation.
- Throat: no pharyngeal inflammation or exudates; tonsils absent; uvula midline; tongue midline; dentition healthy; no oral lesions or leukoplakia.

Face: symmetrical; no maxillary or frontal sinus tenderness

Neck: supple with no rigidity, tenderness, muscle spasm, or palpable masses; no lymphadenopathy; thyroid is not palpable; trachea is midline and movable; no JVD; no carotid bruits.

Heart: apical impulse palpated in left intercostal spaces four and five, lateral to midclavicular line; regular rhythm; normal S1 and S2; no S3 or S4; no murmurs, gallops or rubs.

Lungs: clear to auscultation and percussion; full breath sounds bilaterally.

Chest: no tenderness to palpation.

Breast: deferred

Abdomen: no distention; no tenderness to palpation; no masses or organomegaly; no fluid wave; no hepatojugular reflux; no inguinal lymphadenopathy; bowel sounds present; no bruits auscultated;

Rectal: no masses, unusual tenderness, or evidence of bleeding;

Osteopathic Structural Exam: Tenderness to palpation of cervical, upper thoracic and lumbar paravertebral muscles bilaterally; multiple trigger points; cervical spine ROM is restricted in rotation (45 degrees right. 60 degrees lt), and flexion; thoracic ROM is unrestricted.

Extremities: tenderness of bilateral trapezius and suprascapular areas, and bilateral rectus femoris and hamstrings; no cyanosis or clubbing; no edema or varicosities; no restriction of range of motion;

Skin: no rashes, unusual scarring or tumors;

Genital: deferred

Neurological: affect and orientation are appropriate; cranial nerves, sensory and deep tendon reflex evaluations show no abnormalities; no pathological reflexes are present;

Psychiatric: oriented to time, place and person; affect and behavior are appropriate; appears sad when speaking of husband's absence; insight intact; mood is anxious; no evidence of thought disorder.

Patient Administered Screening Tests

Widespread Pain Index: 8
Severity Symptom Score
Part 2a: 6
Part 2b: 1

Generalized Anxiety Disorder Screen: 25

Depression Screening: consistent with depression

Discussion Questions

1. Construct a differential diagnostic list of clinical conditions that can present as diffuse joint and muscle pain.
2. List Patient Y's symptoms and identify the significant abnormalities in her physical exam. Explain the underlying pathological processes (molecular, cellular, tissue and organ levels) of each.
3. Complete the following patient screens for Patient Y as you think she would respond to the questions:
    a. Widespread Pain Index/ Severity Symptom Score (download and complete accompanying document)
    b. Generalized Anxiety Disorder Screen (http://www.anxietycentre.com/anxiety-tests/generalized-anxiety-test.shtml)
        - Go to website, complete the survey
        - Click "See Results"
    c. Depression Screening (http://screening.mentalhealthscreening.org/Military_NDSD)
        - Go to website, select "Take a Screening"
        - Select Depression screen (upper left)
        - Complete survey
4. Identify and discuss the significant aspects of Patient Y's history. Specifically, comment on the role of her recent motor vehicle collision on her symptomatology.
5. Patient Y is describing "chronic pain." Compare and contrast characteristics of the following categories of pain that comprise chronic pain syndromes.
    a. Nociceptive
    b. Neuropathic
    c. Inflammatory
    d. Central pain amplification
6. Using information from the history and physical examination to justify your choices, identify those clinical conditions in your differential diagnostic list that are supported by this patient's clinical presentation, and discard those that lack substantial support. Explain your choices.
7. List the diagnostic tests you would order for Patient Y. Explain the reasons for your choices.

8. Interpret the results of the diagnostic tests provided by the CBL facilitator and explain any abnormal values in terms of underlying molecular, cellular or anatomical pathologies.
9. Refine your differential diagnosis list based on the lab values, explaining your choices.
10. List any additional diagnostic tests that are needed to further refine your diagnosis, explaining the rationale behind each.
11. Construct a treatment and management plan for this patient.
12. Identify common barriers to treatment of chronic painful conditions and describe potential approaches to overcome these barriers.

Appendix 2b

Letters of Support

JOHN A. OLSZEWSKI, JR.
County Executive

GREGORY WM. BRANCH, M.D., MBA, CPE, FACP
Director, Health and Human Services

July 27, 2022

Re: Maryland College of Osteopathic Medicine (MDCOM) (proposed) at Morgan State University

To Whom It May Concern:

Please accept this correspondence as an official letter of support for the Maryland College of Osteopathic Medicine (proposed) that will be housed on the campus of Morgan State University. I recently met with John Sealey, D.O., Founding Dean, to learn about the proposed College.

The Baltimore County Department of Health and Human Services offers our support for the College as plans move forward. We are aware of the increasing need for physicians, particularly those from under-represented communities, who will provide care to individuals from those communities.

We support MDCOM's mission to produce caring, competent, and diverse Osteopathic Physicians for all Specialties of Medicine, while contributing to the expansion of the Population Health and Biomedical knowledge base.

The building and launching of MDCOM is important to our Department, as its vision is to prepare diverse and under-represented minority students. As Osteopathic physicians, these students will contribute their perspectives to the practice of medicine in underserved communities, and thereby contribute to diminishing health disparities, as well as enhance total population health.

We look forward to engaging with the proposed Medical School's faculty, students, and future physicians in furthering of MDCOM's initiative. This is an excellent opportunity to positively enhance, support, and economically impact Baltimore County and surrounding medical communities across the region.

Sincerely,

Gregory Wm. Branch, M.D., MBA, CPE, FACP
Director and Health Officer

6401 York Road, Third Floor | Baltimore, Maryland 21212-2130
Phone: 410-887-2702 | Fax: 410-377-9646 | TTY users call via Maryland Relay
www.baltimorecountymd.gov

Russel J. Kujan
Executive Director
1211 Cathedral Street
Baltimore, MD 21201
410-539-0872, ext. 3317

1211 Cathedral Street
Baltimore MD 21201
410-296-1232
410-539-0872, ext. 3318
Fax: 410-727-5967
E-mail: bcma@medchi.org
Website: bcmamed.org

July 29, 2022

RE: Maryland College of Osteopathic Medicine at Morgan State University

To Whom It May Concern:

Baltimore County Medical Association appreciates the opportunity to meet with John Sealy, D.O., to learn more about the proposed Maryland College of Osteopathic Medicine that will be on the campus of Morgan State University.

Our Association is encouraged by the prospect of having a new medical university housed in Baltimore, particularly, one that will address historic inequities in medical education and disparities in health and health care. Our physicians believe an institution that will educate and train physicians from under-represented communities, who will then provide care to patients in those communities, can change racial inequities in medical education and health care.

Baltimore County Medical Association is a component of MedChi, The Maryland State Medical Society, the largest physician membership organization in Maryland. As the statewide professional association for licensed medical doctors and doctors of osteopathy, we are dedicated to our mission to serve as Maryland's foremost advocate and resource for physicians, their patients and the public health. Our members included physicians from all specialties.

We look forward to working with the proposed College's faculty, students, and future physicians in furthering our mission and improving the quality of medical care in Baltimore County and the State of Maryland.

Sincerely,

James M. Williams, D.O.

James M. Williams, D.O.
President

BALTIMORE
Medical SYSTEM

July 28, 2022

Maryland College of Osteopathic Medicine at Morgan State University

To Whom it may concern,

Baltimore Medical System appreciated the opportunity to talk with John Sealey, D.O., Founding Dean, to learn about the proposed Maryland College of Osteopathic Medicine that will be housed on the campus of Morgan State University. We offer our support for the College as plans move forward. We are aware of the increasing need for physicians, particularly those from under-represented communities, who will provide care to individuals from those communities.

We support MDCOM's mission to produce caring, competent, and diverse Osteopathic Physicians for all Specialties of Medicine; and contribute to the expansion of the Population Health and Biomedical knowledge base.

The building and launching of MDCOM is important to our organization as its vision is to prepare diverse and under-represented minority students who, as Osteopathic physicians, will contribute perspectives to the practice of their medicine in underserved communities, and thereby contribute to diminishing health disparities; and enhancing total population health.

A Federally Qualified Health Center Program since 1984, Baltimore Medical System provides comprehensive primary healthcare services at eight primary care health centers in east and west Baltimore City, one health center in Baltimore County and eight school-based health centers. In 2021, BMS provided care for over 61,000 patients in under-resourced communities.

Throughout our 34-year history, we have diligently worked to make a positive impact on the patients and community we serve. We maintain numerous collaborative relationships with diverse organizations throughout the greater Baltimore area to meet the needs of our patients and the overall target population.
BMS contributes to the medical education of primary care physicians by hosting the St. Agnes Internal Medicine Residency Program. Residents from the hospital complete their three years of the required primary care continuity sessions at BMS. The residents care for their own panel of patients and receive supervision from St. Agnes Internal Medicine providers, who have privileges to care for patients at BMS. The residents are introduced to primary care in a community health setting and are encouraged to continue their medical career serving underserved populations

We look forward to engagement with the proposed Medical School's faculty, students, and future physicians in furthering of MDCOM's initiative, to positively enhance, support, and economically impact Baltimore City, Maryland, and its surrounding region's medical community.

Sincerely,

Shirley Sutton
President & CEO

The Ian J. Gray Building
3501 Sinclair Lane
Baltimore, MD 21213

PHONE 410.732.8800
FAX 410.276.3694
WEB www.bmsi.org

BCMS
Baltimore City Medical Society

1211 Cathedral Street, 3rd Floor
Baltimore, Maryland 21201-5516

(410) 625-0022
FAX (410) 385-0154
info@bcmsdocs.org
www.bcmsdocs.org

June 23, 2022

RE: Maryland College of Osteopathic Medicine at Morgan State University, Baltimore, MD

To Whom It May Concern:

Baltimore City Medical Society appreciated the opportunity to meet with John Sealey, D.O., Founding Dean, to learn about the proposed Maryland College of Osteopathic Medicine that will be housed on the campus of Morgan State University. We offer our support for the College as planning moves forward. We are well aware of the increasing need for physicians, particularly those from under-represented communities, who will provide care to individuals from those communities.

Baltimore City Medical Society is a component of MedChi, The Maryland State Medical Society, the largest physician membership organization in Maryland. Our members are from varied specialties and practice settings. We serve as a resource for physicians, their patients, and the public health.

We look forward to engagement with the proposed College's faculty, students, and future physicians in furthering our mission, and improving the quality of medical care in Baltimore City, the State of Maryland, and beyond.

Sincerely,

Camellus O. Ezeugwu, M.D., Ph.D.

Camellus O. Ezeugwu, M.D., Ph.D.
President

PERMANENTE MEDICINE®
Mid-Atlantic Permanente Medical Group

August 1, 2022

Re: Maryland College of Osteopathic Medicine (proposed) at Morgan State University

To Whom It May Concern,

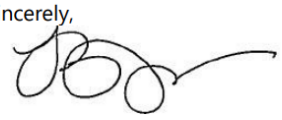
I appreciated the opportunity to talk with John Sealey, D.O., Founding Dean, to learn about the proposed Maryland College of Osteopathic Medicine (MDCOM) that will be housed on the campus of Morgan State University. I offer my support for the College as plans move forward. I am aware of the increasing need for physicians, particularly those from under-represented communities, who will provide care to individuals from those communities.

I support MDCOM's mission: to produce caring, competent, and diverse Osteopathic physicians for all specialties of medicine, and to contribute to the expansion of the Population Health and Biomedical knowledge base.

The building and launching of MDCOM is important to our organization as its vision is to prepare diverse and under-represented minority students, who, as Osteopathic physicians, will contribute their perspectives to the practice of medicine in underserved communities, and thereby contribute to diminishing health disparities and enhancing total population health.

I look forward to engagement with the proposed Medical School's faculty, students, and future physicians in furthering MDCOM's initiative to positively enhance, support and economically impact Baltimore City, Maryland, and its surrounding region's medical community.

Sincerely,



Tinisha J. Cheatham, D.O.
Physician in Chief
Baltimore Service Area

2391 Greenspring Drive | Timonium, MD 21093 | www.kp.org/doctor

Ascension
Saint Agnes
Hospital

July 28th, 2022

Re: Maryland College of Osteopathic Medicine (proposed) at Morgan State University

To Whom it may concern,

We, Ascension Saint Agnes Hospital, appreciated the opportunity to talk with John Sealey, D.O., Founding Dean, to learn about the proposed Maryland College of Osteopathic Medicine that will be housed on the campus of Morgan State University. We offer our support for the College as plans move forward. We are aware of the increasing need for physicians, particularly those from under-represented communities, who will provide care to individuals from those communities.

We support MDCOM's mission to produce caring, competent, and diverse Osteopathic Physicians for all Specialties of Medicine; and contribute to the expansion of the Population Health and Biomedical knowledge base.

The building and launching of MDCOM is important to our organization as its vision is to prepare diverse and under-represented minority students who, as Osteopathic physicians, will contribute their perspectives to the practice of medicine in underserved communities, and thereby contribute to diminishing health disparities; and enhancing total population health.

We look forward to engagement with the proposed Medical School's faculty, students, and future physicians in furthering of MDCOM's initiative, to positively enhance, support, and economically impact Baltimore City, Maryland and its surrounding region's medical community.

Sincerely,

Ed Lovern
President and Chief Executive Officer
Ascension Saint Agnes

Ascension Saint Agnes Hospital
900 S. Caton Ave
Baltimore, MD 21229
667-234-6000

BRANDON M. SCOTT
MAYOR
100 Holliday Street, Room 250
Baltimore, Maryland 21202

July 21, 2022

Re: Maryland College of Osteopathic Medicine (proposed) at Morgan State University

To Whom It May Concern,

We, Mayor Brandon Scott and Dr. Letitia Dzirasa appreciated the opportunity to meet with John Sealey, D.O., Founding Dean, to learn about the proposed Maryland College of Osteopathic Medicine that will be housed on the campus of Morgan State University. We offer our support for the College as plans move forward. We are aware of the increasing need for physicians, particularly those from under-represented communities, who will provide care to individuals from those communities.

We support MDCOM's mission to produce caring, competent, and diverse Osteopathic Physicians for all Specialties of Medicine; and contribute to the expansion of the Population Health and Biomedical knowledge base. We look forward to engagement with the proposed Medical School's faculty, students, and future physicians in furthering of MDCOM's initiative, to positively enhance, support, and economically impact Baltimore City, Maryland and its surrounding region's medical community

In service,

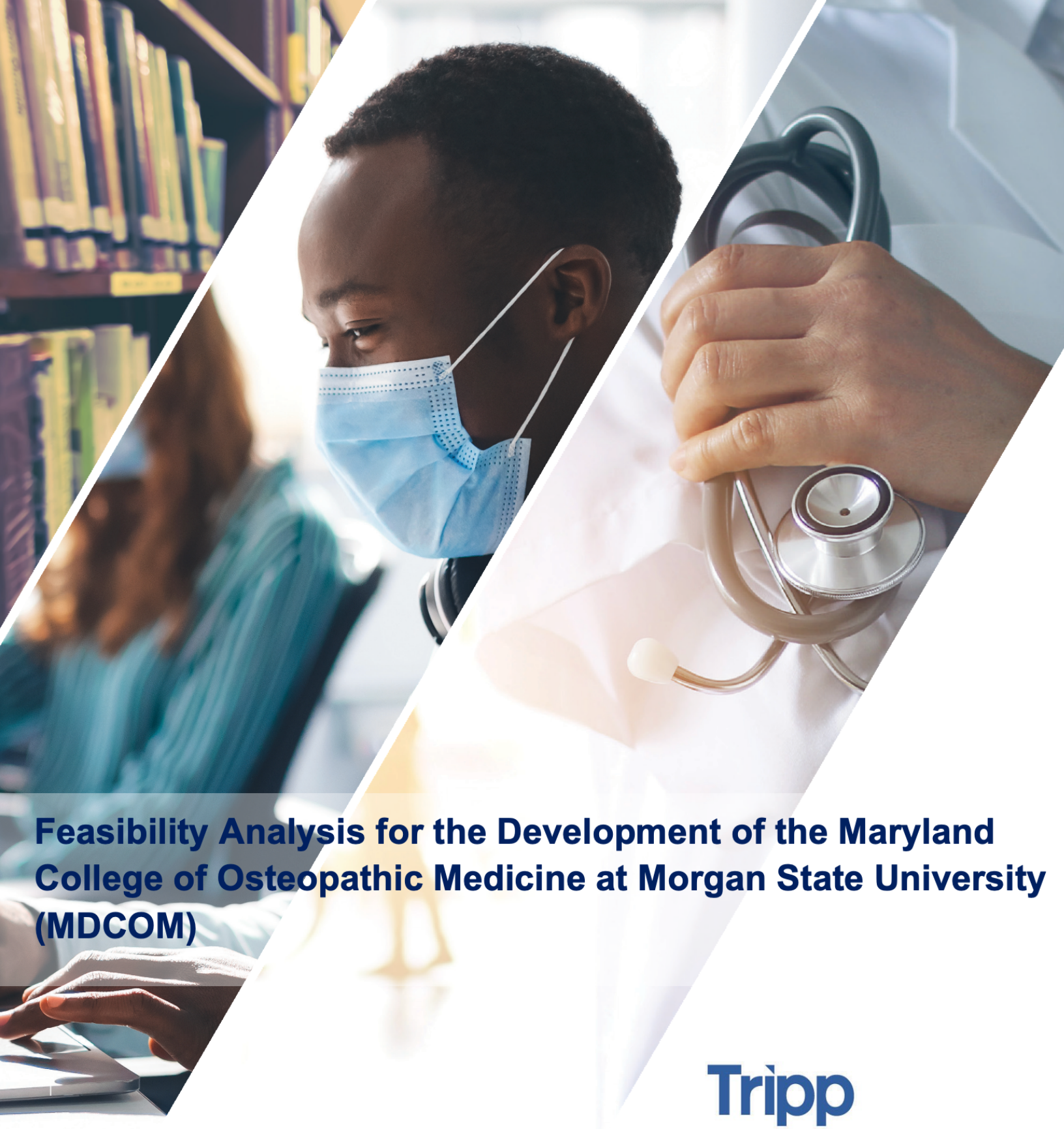
Brandon M. Scott

Mayor Brandon M. Scott

phone: 410.396.3835 fax: 410.576.9425 email: mayor@baltimorecity.gov

Appendix 3

Feasibility Study



Feasibility Analysis for the Development of the Maryland College of Osteopathic Medicine at Morgan State University (MDCOM)

Tripp Umbach

Turning Ideas Into Action

April 2022

Tripp Umbach
Turning Ideas Into Action

Table of Contents

Executive Summary

Introduction

Tripp Umbach[1] was retained by the proposed Maryland College of Osteopathic Medicine (MDCOM) at Morgan State University to analyze and independently assess the feasibility of an osteopathic medical school in Baltimore, Maryland. Tripp Umbach completed a comprehensive process involving secondary data analysis, review of the financial model, and economic impact projections. The purpose of this report is to evaluate the feasibility of developing a medical school that produces physician leaders who reflect the diversity and ever-changing multi-cultural environment of the patient population living in the region.

The feasibility evaluation is embedded in the MDCOM's mission to train high-quality diverse physicians who can match into all specialties of medicine and practice in racially and culturally diverse communities throughout Delaware, District of Columbia, and Maryland. The vision for the MDCOM is to provide community health — focused on interprofessional education[2], advanced technology and data, clinical experience in diverse community settings, and care models addressing social determinants of health (SDOH).[3]

The findings contained herein represent the professional opinions of Tripp Umbach based on assumptions and conditions detailed in this report. Tripp Umbach collected and analyzed primary and secondary data as appropriate to assess the need and feasibility of the development of a medical school in Baltimore. The feasibility report plays an integral role in furthering the ongoing planning efforts required if the proposed medical school applies for accreditation and requests approval from the American Osteopathic Association's Commission on Osteopathic College Accreditation (COCA). Specifically, this report allows the MDCOM leadership team to understand the overall healthcare needs of the state of Maryland as well as the benefits associated with the development of a campus to serve the state.

The report sets forth Tripp Umbach's findings with respect to the feasibility of an osteopathic medical school in Baltimore (referred to throughout the report as the proposed MDCOM).

[1] Tripp Umbach is the nation's most experienced consulting firm in academic medicine, serving national associations, 75 existing medical schools, more than 500 hospital systems, and 200 universities since 1990. Over the past 15 years, Tripp Umbach has been involved in the majority of medical school development and expansion projects in the United States, completing more than 30 similar studies that have led to 12 new medical schools.
[2] Interprofessional education (IPE) occurs when students from two or more professions learn about, from, and with each other to enable effective collaboration and improve health outcomes.
[3] Social determinants of health (SDOH) are the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.

Key Findings

Tripp Umbach's analysis supports the below key findings for the proposed Maryland College of Osteopathic Medicine. (Below in no particular order are the key findings.)

1. A Growing Diverse Population.

The U.S. population is growing more diverse as more than half of all Americans are projected to belong to a minority group by 2044 [4]; and by 2060, nearly one in five of the nation's total population is projected to be foreign-born.[5] Of the 200+ medical schools and regional campuses nationally (MD and DO), only four are considered Historically Black Colleges and Universities (HBCU). Diversity is an important goal in medical education as most medical schools face challenges such as trying to achieve a student body that is more diverse to adequately reflect the communities they will serve.

As such, African American, Hispanic,[6] and Asian doctors are more likely to have patients on Medicaid and patients of Hispanic physicians were more likely to be uninsured; therefore, physicians from diverse backgrounds have greater connectivity to those in underserved and disenfranchised communities.[7] Physicians from diverse upbringings have better cultural understanding as such these physicians can positively impact their ability to provide appropriate and effective patient care. Creating a diverse physician workforce can improve health outcomes and reduce health disparities.

2. Physicians are needed in Maryland due to increased population and an aging physician workforce.

The pandemic exposed great disparities in accessing health care and highlighted the significant role physicians play in the nation's health care infrastructure. The primary driver of increased physician growth is the growing and aging population. From 2019 – 2034, the U.S. population is projected to grow by 10.6%, from about 328 million to 363 million, with a projected 42.4% increase in those aged 65 and above. Thus, demand for physician specialties that predominantly care for older Americans will continue to increase.[8] The American Association of Medical Colleges (AAMC) projects a shortage of surgical specialties (e.g., general surgery, obstetrics and gynecology, orthopedic surgery) between 15,800 – 30,200, medical specialties (e.g., cardiology, oncology, infectious diseases, pulmonology) between 3,800 and 13,400, and other specialties (e.g., anesthesiology, neurology, emergency medicine, addiction medicine) between 10,300 and 35,600 physicians.[9]

---

[4] Any group other than white alone.
[5] U.S. Census Bureau
[6] The U.S. Census Bureau collects Hispanic and Latino orgina data in accordance with the 1997 Office of Management and Budget (OMB) standards on race and ethnicity. OMB requires federal agencies to use a minimum of two ethnicities in collecting and reporting data: Hispanic or Latino and Not Hispanic or Latino. OMB defines Hispanic or Latino as a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race.
[7] U.S. World News and World Report
[8] American Association of Medical Colleges
[9] Ibid.

There were a number of factors that affected physician supply, demand, and staffing during and post COVID-19. In the months leading up to the pandemic, the following top five in high demand are also in specialty areas. They included:[10]

1. Neurology
2. Psychiatry
3. Gastroenterology
4. Hematology/Oncology
5. Dermatology

Across the nation, more than 117,000 DOs in active practice treat patients in a wide variety of specialties and practice settings. Over the past decade, the number of DOs choosing non-primary care specialties has steadily increased. More than one-third (43.5%) practice in other sub-specialties.[11] DOs provide distinctive and valuable contributions to the practice of medicine in all specialties.

Factors driving physician supply and demand, include an aging population, aging physician supply, static supply of physicians, and chronic illnesses. The need for specialists will grow as the aging population will be sicker and older. Medical specialty shortages are emerging which will pose a serious challenge to public health.

According to the Health Resources and Services Administration (HRSA) Health Workforce, the need for more primary-care physicians is substantial. As of September 2021, throughout the United States, there are 7,447 Primary Care Health Professional Shortage Areas (HPSAs), with 83.7 million people living within these areas. Nationally, 14,858 practitioners would be required to meet primary-care physician needs, based on a population-to-practitioner ratio of 3,500:1. Maryland has 48 primary-care HPSA designations, totaling a population of 887 thousand within the HPSAs. Therefore, the state would need 141 practitioners to remove the designations.[12]

The Robert Graham Center forecasts that by 2030, Maryland will need an additional 1,052 primary-care physicians (PCPs), a 23% increase compared to the state's 2010 primary-care physician workforce. The current population to PCP ratio of 1,288:1 is lower than the national average of 1,463:1. The 2030 projection stands below the South overall and below the nation overall. Components of Maryland's increased need for PCPs include 28% (303 PCPs) from increased utilization due to aging, 61% (651 PCPs) due to population growth, and 9% (98 PCPs) due to a greater insured population following the Affordable Care Act (ACA).[13]

Pressures from a growing, aging, increasingly insured population call on Maryland to address the current and growing demand for PCPs to adequately meet health care needs. The Robert Graham Center recommends bolstering the primary care pipeline by imploring physician reimbursement reform,

[10] Merritt Hawkins
[11] American Osteopathic Association
[12] Kaiser Family Foundation
[13] The Robert Graham Center

dedicating funding for primary care graduate medical education (GME), increasing primary care funding training, and increasing medical school student debt relief.[14]

As of 2018, slightly more than one-third of Maryland physicians are 60 years or older (34.1%); adding to the aging physician workforce. Maryland shows the 11th – highest rate across the country of active physicians aged 60 or older, and their retirement within the next few years will leave a significant hole in the state's physician workforce and further impact the state's ability to seek care.[15] For a state already experiencing physician shortages, an aging physician workforce will pose a greater issue as the number of physicians retiring will increase the need. Undoubtedly, there will be a significant workforce shortage and the most effective solution will be to train more physicians.

3. Osteopathic medicine is the fastest-growing healthcare profession.

The osteopathic medicine field has a strong heritage of producing primary care practitioners. Fundamentally, the mission statements of many osteopathic medical schools cite the production of primary care physicians. The osteopathic medicine tradition preaches that a strong foundation in primary care makes one a better physician, regardless of what specialty they may eventually practice. Osteopathic medicine provides hands-on diagnosis and treatment emphasizing treatment that helps people achieve a high level of wellness by focusing on health promotion and disease prevention.[16]

In the U.S., there are thirty-seven accredited colleges of osteopathic medicine teaching at 58 locations. In 2021, the number of osteopathic physicians in the United States climbed to nearly 135,000, an 80% increase over the past decade. There are currently 168,701 Doctor of Osteopathic Medicine (D.O.) and osteopathic medical students in the United States, with 134,901 being D.O.s. The osteopathic medical profession has a long tradition of providing care where patients lack doctors.[17]

In 2021, 67% of all D.O.s were age 45 or younger. The diversity of students continues to increase – in 2019-20 10.7% of first-year enrollees were minorities compared to in 2010-11 at 7.2%. The number of female D.O.s also continues to trend upward each year. While roughly 43% of D.O.s are women, female physicians make up 74% of the D.O. population under age 45.[18]

The profession's strong base in primary care also contributes to addressing physician shortages in medically underserved regions. In fact, six of the 10 U.S. medical schools that produce the most primary-care residents are osteopathic medical schools, according to U.S. News & World Report's annual ranking of medical schools for 2021.[19]

---

[14] Ibid
[15] Association of American Medical Colleges
[16] American Association of Colleges of Osteopathic Medicine
[17] American Osteopathic Association; 2020-21 AOA: Osteopathic Medical Education Report
[18] AACOM, Annual Osteopathic Medical School Questionnaires, 1976-1977 through 2019-20 academic years.
[19] American Osteopathic Association

Annually, the number of D.O.s in medical practice continues to grow; however, this is in conjunction with the nation's growing physician shortage. D.O.s are ideal to take on a larger role in suppling much-needed physicians nationally and in particular in disenfranchised communities.

4. The proposed Maryland College of Osteopathic Medicine will be a driver of the regional economy.

The proposed osteopathic medical school in Baltimore will bring a new revenue stream to the state and is most likely to inspire additional economic development through the impending expansion of other health science education programs, clinical and research partnerships with nearby community hospitals, and private business expansions that may be developed.

In 2027, when the proposed school is fully operational it will have an economic impact (direct and indirect economic benefits) of $50.9 million, more than 148 jobs, and $1.8 million in taxes to communities in the region.

- In addition to the operational impact outlined above, by 2030 the economic impact of the proposed campus will grow to $156.4 million as Baltimore communities will begin realizing health care benefits and additional economic impact as graduates of the campus located in the region and state. Tripp Umbach estimates that by 2030 when the first class of medical students complete their residencies, these new primary care physicians will also yield real savings, as emergency room utilization declines, for example. These savings are expected to total $30.8 million annually by 2030.
- By 2030, commercial spin-off activity from research completed at the proposed campus will equal $15.0 million annually, sustaining approximately 445 additional jobs the Baltimore region.
- By 2045, the total economic impact of the proposed college to the Baltimore region will equal more than $1.5 billion, support over 2,500 jobs and contribute more than $128.5 million to state and local governments.

The MDCOM has a favorable pro forma that demonstrates the financial viability of this project. The projected annual revenue for this project at the time the first cohort of student graduates is $35,175,000 and the projected annual expenses at that time of $27,025,000. Positive cash flow and margins at the time that the college graduates its first class provides a strong measure of sustainability.

Tripp Umbach Recommendations

1. The proposed Maryland College of Osteopathic Medicine should move forward in Baltimore, Maryland on the campus of Morgan State University.

Tripp Umbach recommends and deems that the MDCOM move forward with additional developments and planning to develop a four-year osteopathic medical school in Baltimore, Maryland. The osteopathic medical school will seek to train high-quality diverse physicians matching into all specialties to practice in racially and culturally diverse communities. Increasing the diversity of medical students in primary care and population health improvement and other specialties, the Maryland medical school will secure financial support and participation from education partners, health care institutions, and industry partners. Addressing key factors, the MDCOM should be successful in opening a high-quality sustainable osteopathic medical school that meets the needs of the next generation of learners, teachers, healthcare delivery systems, and most importantly patients.

Tripp Umbach recommends a starting class size of 75 students, growing to 150 students at full maturity. Many new osteopathic medical schools opened in the last 15 years have begun with 120 to 150 students per class.

Key Factors for Success

The Commission on Osteopathic College Accreditation has multiple standards that must be met and maintained. The success of the new osteopathic medical school will be based upon having the following in place:

- Clear mission and areas of focus that distinguish the new osteopathic medical school at the MDCOM in curriculum, research, and community service.
- The recruitment of an effective Founding Dean.
- Deeply rooted clinical education partnerships with hospitals and other clinical partners.
- Integrated Graduate Medical Education (GME) programs with clinical partners.
- The development of appropriate facilities to deliver the medical education program.
- The recruitment of high-quality faculty and students.
- Facilities and technology that support student achievement.
- Ongoing development of community health improvement programs.
- Ongoing demonstration of economic impact and return on investment.

The Proposed Maryland College of Osteopathic Medicine

Evaluation of Medical Education and Physician Workforce Needs in Delaware, District of Columbia, and Maryland

Highlights

1. Need for minority practicing specialty care: While primary care is important in minority communities, vastly important is the overall need for specialty care. In 2021 41.4% of Black or African American physicians practiced primary care, which is significantly higher than white, Hispanic, and Asians.
2. The United States is becoming more diverse: By 2044, more than half of all Americans are projected to belong to a minority group[20]; and by 2060, nearly one in five of the nation's total population is projected to be foreign-born.[21]
3. Need for more minority-serving medical schools: Of the 200+ medical schools and regional campuses (MD and DO) in the United States, only four are considered Historically Black Universities and Colleges (HBUC).
4. Diversity is an important goal in medical education: Most medical schools face challenges such as trying to achieve a student body that is more diverse (racially, ethnically, socially, and geographically) to adequately reflect the communities they will serve.
5. Better health outcomes: Physicians who lack cultural understanding negatively impact their ability to provide appropriate and effective patient care. Creating a diverse physician workforce can improve health outcomes and reduce health disparities.
6. Health disparities are alarming: Racial and ethnic minorities have higher morbidity and mortality rates from chronic diseases. Data from the Centers of Disease Control and Prevention (CDC) reported that African Americans are more likely to die at early ages from all causes.
7. Greater connectivity to underserved communities: African American, Hispanic, and Asian doctors were more likely to have patients on Medicaid and patients of Hispanic physicians were more likely to be uninsured.[22]
8. Medical school enrollment among Black and Latinx is increasing, however, growth was concentrated at a small number of medical schools. This underscores the important contributions HBCUs, and Hispanic-serving institutions make to the diversity of the physician workforce.

[20] Any group other than white alone.
[21] U.S. Census Bureau
[22] U.S. World News and World Report

The Changing Role of Medical Schools

There are currently more than 200 medical schools and regional campuses in the U.S. offering D.O. or M.D. degrees. Of this number only four are considered HBCUs, namely, Charles R. Drew College of Medicine and Science, Howard University College of Medicine, Morehouse School of Medicine, and Meharry Medical College. Most medical schools today face challenges such as trying to achieve a student body that is more diverse (racially, ethnically, socially, and geographically) to adequately reflect the communities they will serve. Through this lens, medical education has shifted in focus since its early beginnings and more attention has become focused on physicians who are ethnically and racially diverse; physicians who represent the growing diverse communities of the country regionally and nationally. Diversifying the health care workforce is becoming a major focus for the nation.

"Diversity in medical schools may be a key to combating ethnic health disparities. Understanding how race, ethnicity, sexual identity or socio-demographic factors affect patients' needs can improve outcomes."

American Medical Association

Diversity and Cultural Literacy in Medical Education

As defined by the World Health Organization (WHO),[23] SDOH are the economic and social conditions that influence an individual in health status. These economic and social conditions increase or decrease the risk for health conditions or disease among individuals and populations. Addressing SDOH is paramount to creating a healthy community as they are contributors to health disparities and inequities across the nation. Intertwining health care professionals who have faced the same economic, social, and environmental conditions and challenges, a physician's cultural competence is a vital part of the delivery of care.

In reviewing data racial and ethnic minorities tend to have higher morbidity and mortality rates from chronic diseases. Data from the Centers for Disease Control and Prevention (CDC) reported that African Americans are more likely to die at early ages from all causes (see Figure 1). The data also reported the following:[24]

1. African Americans ages 18-49 are 2 times as likely to die from heart disease than whites.
2. African Americans ages 35-64 years are 50% more likely to have high blood pressure than whites.
3. Hispanics are about 50% more likely to die from diabetes or liver disease than whites.[25]
4. 24% of Hispanics have more poorly controlled high blood pressure than whites.[26]
5. Native American adults have more diabetes than any other race or ethnicity at 16.0%.[27]

[23] World Health Organization
[24] Centers for Disease Control and Prevention
[25] Centers for Diseases Control and Prevention
[26] Ibid.
[27] Centers for Disease Control and Prevention

6. Diabetes is the cause of about two out of three Native Americans with kidney failure.[28]

Chronic diseases can occur at any age. Environmental factors or SDOH are contributors to the disease. As people age, these conditions will most likely increase as well. Likewise, within the next several decades as the ethnic and minority populations continue to grow the need to provide culturally appropriate care will also be necessary and important.

Cultural literacy is the proactive desire to better understand various and diverse cultures, their values, beliefs, and behaviors. Cultural literacy is essential to providing appropriate health care and ensuring the provision of quality medical services. In cultural literacy, medical practitioners acknowledge their own limitations in understanding other cultures and groups and pursue the need for life-long learning.

Cultural literacy provides the opportunities to build relationships with people of various backgrounds and allows providers, healthcare institutions, and organizations to deliver healthcare services that meet the social, cultural, and linguistic needs of patients effectively. Physicians who possess cultural understanding are able to overcome cultural obstacles and will positively impact their ability to provide appropriate and effective patient care. Creating a regional diverse physician workforce can improve health outcomes and reduce health disparities as minority physicians are more likely to practice in underserved areas and treat more disenfranchised patients when compared to their white colleagues.[29]

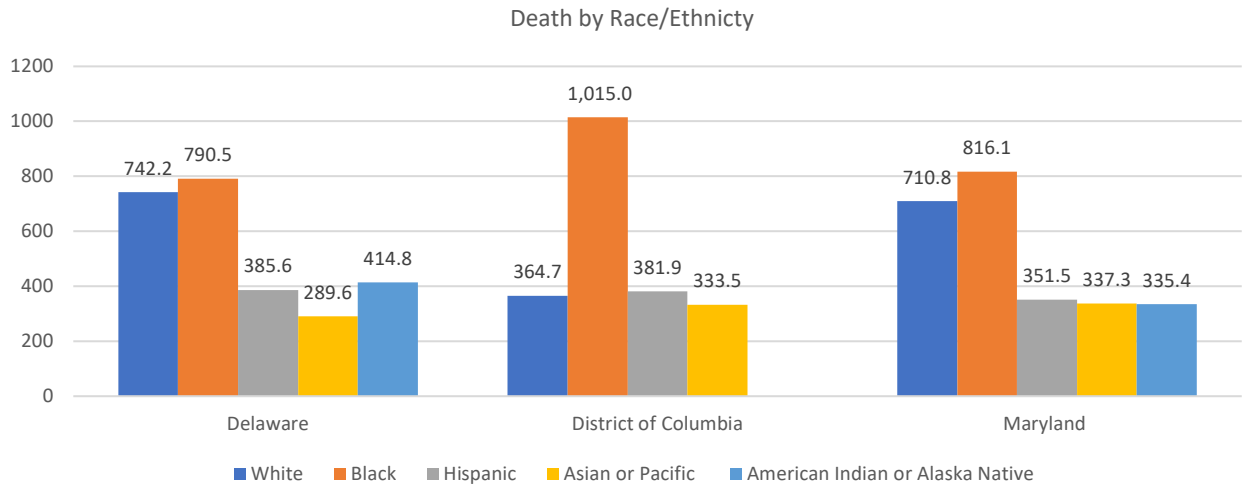
Racially diverse physicians are more likely to practice primary care and practice in underserved communities. These diverse physicians also tend to have similar patient backgrounds, speak the same language, and have better patient satisfaction ratings. Additionally, diversity in health care has measurable benefits for both providers and the communities they serve. They include increased patient comfort levels, improved communications, increased patient trust, increased physician-patient engagement, and agreeable values.

A JAMA Internal Medicine article found that physicians from minority backgrounds were more likely to care for patients from vulnerable populations. For example, African American, Hispanic, and Asian doctors were more likely to have patients on Medicaid, and patients of Hispanic physicians were more likely to be uninsured. Addressing the needs of the growing diverse population and increasing the racial and ethnic diversity of the physician workforce could be the key to meeting national goals to eliminate health disparities [30]

Figure 1 reveals the number of deaths per 100,000 population by race/ethnicity. Data shows higher African American death rates per 100,000 in Delaware, District of Columbia, and Maryland when compared to other races/ethnicities.[31]

[28] Centers for Disease Control and Prevention
[29] Journal of the American Medical Association
[30] U.S. World News and World Report
[31] Kaiser Family Foundation

Figure 1: Number of Deaths per 100,000 Population by Race/Ethnicity



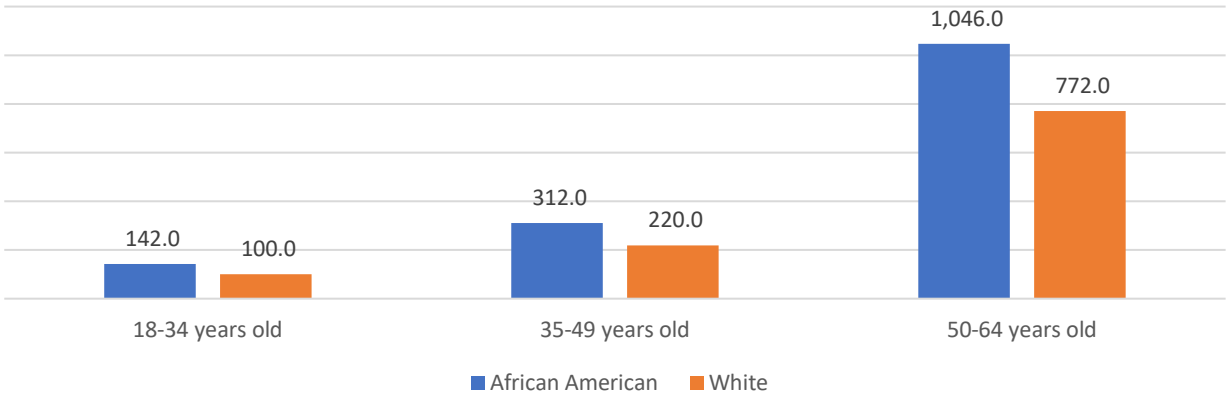
Note: Persons of Hispanic origin may be of any race but are categorized as Hispanic; other groups are non-Hispanic. Race and Hispanic origin are reported separately on the death certificate in accordance with standards set forth by the Office of Management and Budget.

Source: Kaiser Family Foundation

Figures 2 – 7 reveal mortality, chronic disease rates, and health insurance coverage by race/ethnicity. The data provides a stark reality of the health outcomes between the racial and ethnic populations.

In Figure 2, mortality rates of African Americans in all age groups are higher when compared to Whites.

Figure 2: Race Mortality by Age (Deaths per 100,000 population)

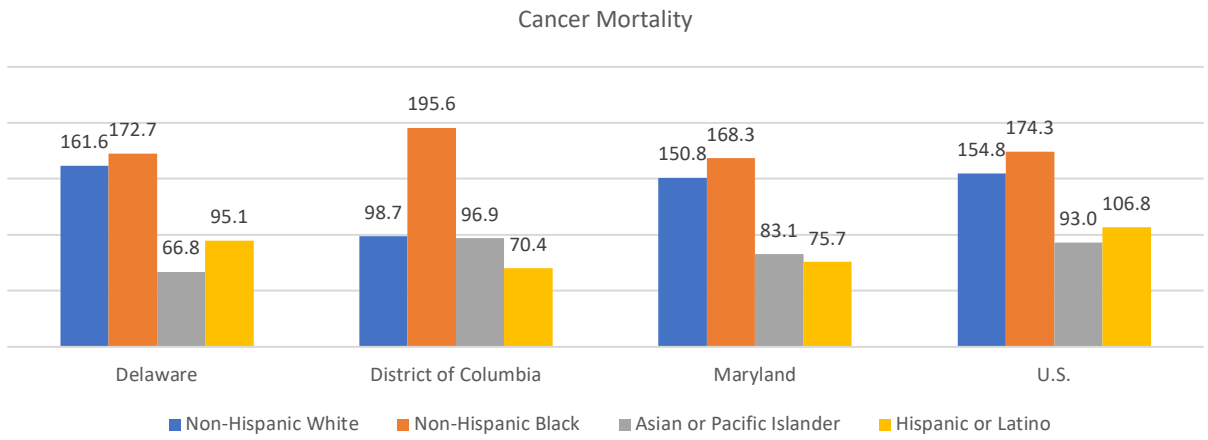


Note: Data was only available for African Americans and whites.

Source: CDC Vital Statistics 2015

Cancer mortality rates of non-Hispanic Blacks in Delaware, District of Columbia, Maryland, and the U.S., are the highest when compared to non-Hispanic whites, Asian or Pacific Islander, or Hispanic or Latinos. (See Figure 3)

Figure 3: Cancer Mortality per 100,000 Population by Race/Ethnicity 2016-2020

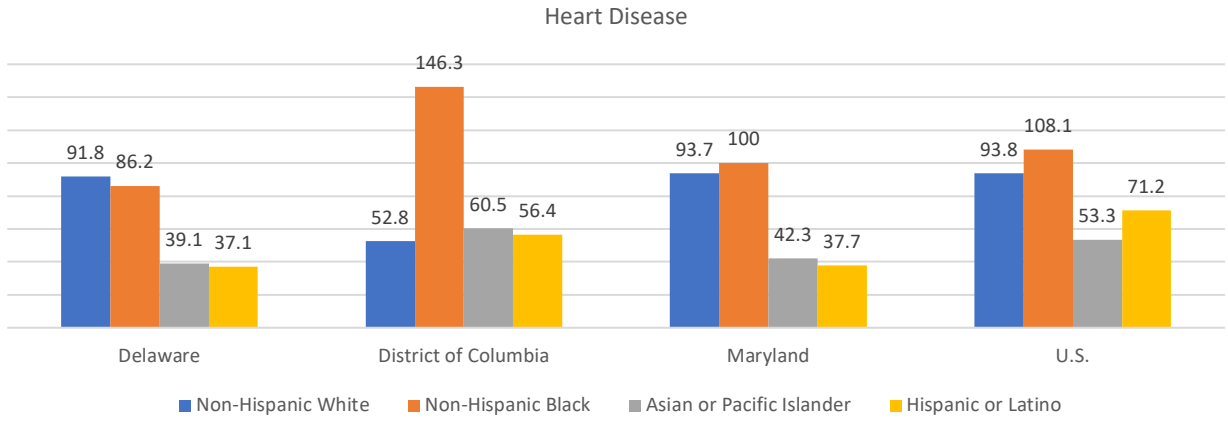


Note: Data for American Indians or Alaskan Natives in Delaware and District of Columbia was not available.

Source: Community Common; Centers for Disease Control and Prevention, National Vital Statistics System.

Heart disease mortality rates of non-Hispanic Blacks in the District of Columbia, Maryland, and the U.S., are the highest when compared to non-Hispanic whites, Asian or Pacific Islander, or Hispanic or Latinos. (See Figure 4)

Figure 4: Heart Disease Mortality per 100,000 Population by Race/Ethnicity 2016-2020

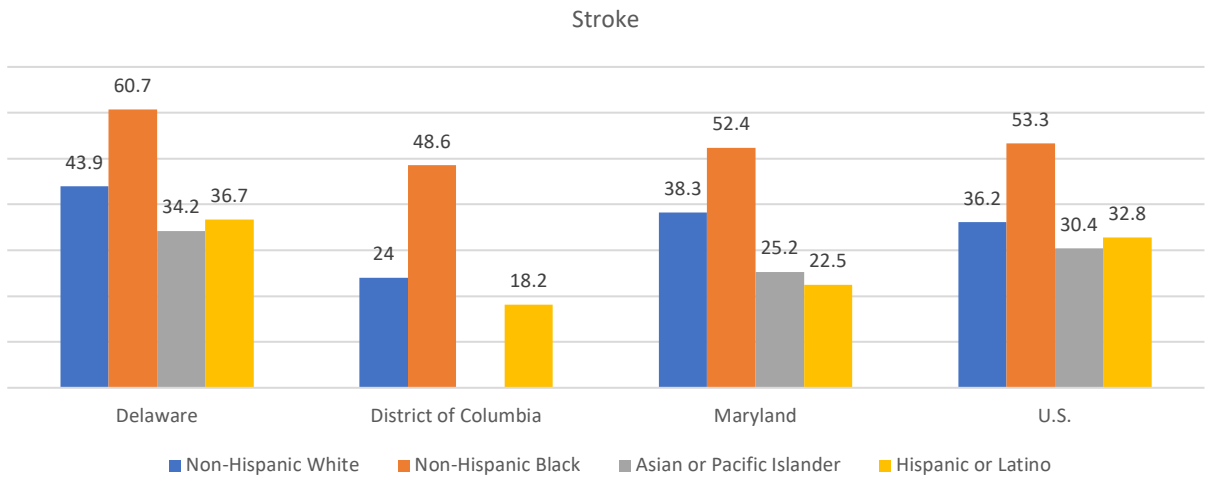


Note: Data for American Indians or Alaskan Natives in Delaware and District of Columbia was not available.

Source: Community Common; Centers for Disease Control and Prevention, National Vital Statistics System.

Stroke mortality rates of non-Hispanic Blacks in Delaware, District of Columbia, Maryland, and the U.S., are the highest when compared to non-Hispanic whites, Asian or Pacific Islander, or Hispanic or Latinos. (See Figure 5)

Figure 5: Stroke Mortality per 100,000 Population by Race/Ethnicity 2016-2020

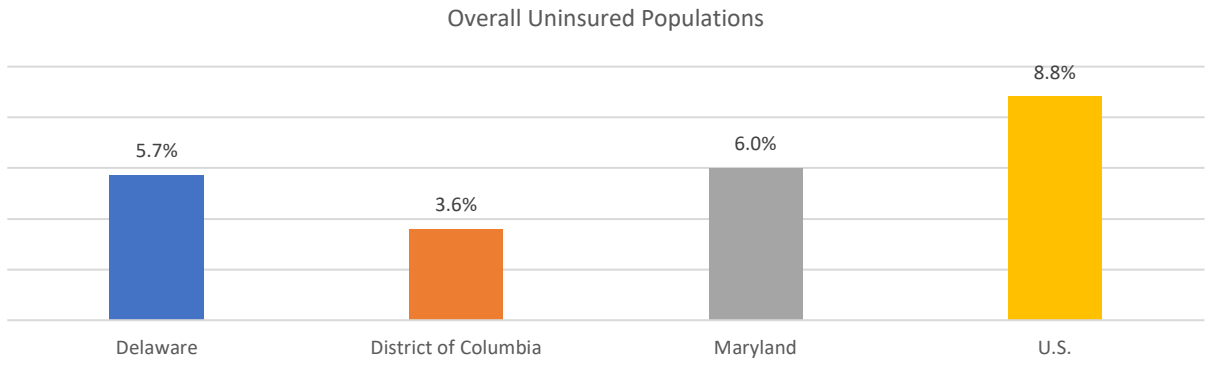


Note: Data for American Indians or Alaskan Natives in Delaware and District of Columbia was not available. Data for Asians in Maryland was also unavailable

Source: Community Common; Centers for Disease Control and Prevention, National Vital Statistics System.

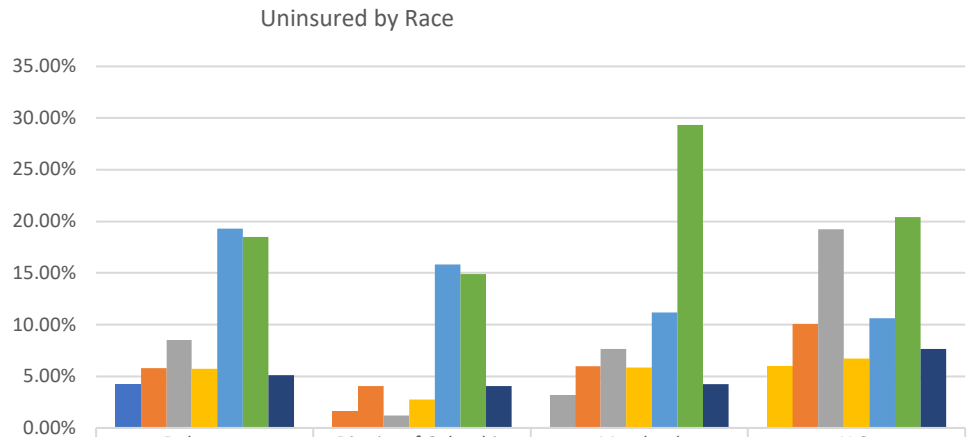
The lack of health insurance is considered a key driver of health status. Economic and social insecurities are often associated with poor health. Higher proportions of minorities compared to whites do not have a usual source of care or health insurance coverage.

Figure 6: Percent of Overall Uninsured Population



Source: Community Commons: US Census Bureau, American Community Survey. 2015-19

Figure 7: Percent of Uninsured Population by Race



	Delaware	District of Columbia	Maryland	U.S.
Non-Hispanic White	4.16%	1.56%	3.10%	5.94%
Non-Hispanic Black	5.78%	4.08%	5.97%	10.07%
Asian or Pacific Islander	8.53%	1.18%	7.67%	19.23%
Hispanic or Latino	5.70%	2.75%	5.87%	6.73%
Native Hawaiian or Pacific Islander	19.32%	15.82%	11.16%	10.63%
Some Other Race	18.50%	14.88%	29.34%	20.38%
Multiple Race	5.09%	4.03%	4.26%	7.67%

Source: Community Commons: US Census Bureau, American Community Survey. 2015-19

The U.S. Census Bureau reports that more than 60 million residents over the age of five years old, or about 20% of the U.S. population, speak a language other than English at home.[32] Communication barriers and the inability to speak to a patient can negatively affect the quality of care obtained as language and communication barriers tend to leave patients less satisfied.

Largely, diversity and cultural literacy play a significant role in the health care system. It is imperative that providers, health care systems, and health institutions work cohesively to provide culturally appropriate care, so patients do not face greater health problems. Overall, the lack of diverse and ethnic health care providers has major consequences for patients who struggle with access to health care services, health outcomes, and health equity for patients and communities with diverse populations.[33]

A Growing Diverse Population in Delaware, District of Columbia, and Maryland

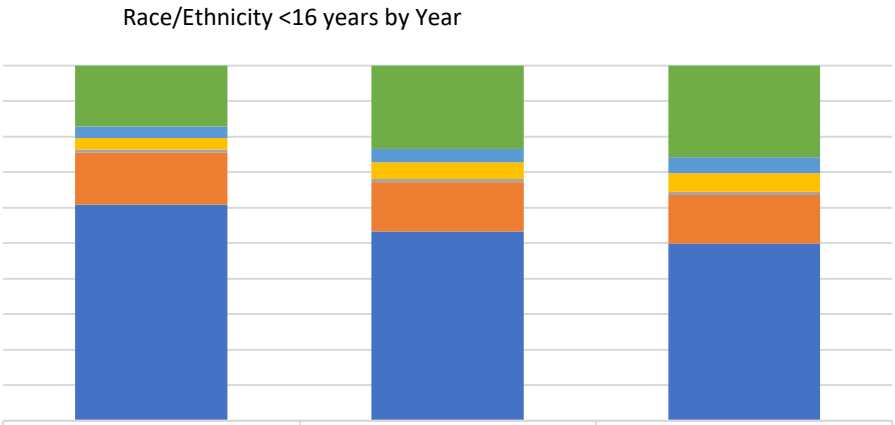
The proposed MDCOM in partnership with Morgan State University will be committed to fostering racial and diverse health care professionals for the future. The proposed program will help meet the region's needs by collaborating and partnering with health care institutions, community-based organizations,

[32] American Academy of Arts & Sciences
[33] Science Direct

and providers to reduce health care costs to patients while maximizing the effectiveness of its teaching program.

The past several decades has shown an increase in the racial and ethnic diversity among the U.S. population. The most prevalent racial or ethnic group in the United States was non-Hispanic white population at 57.8%; a decrease from 63.7% in 2010.[34] In conjunction with the prevalent ethnic population, projections indicate that the nation's youth are increasingly more racially and ethnically diverse as well.[35]

Figure 8: Race/Ethnic Profile for Populations Under age 16



	2000	2010	2019
Latino or Hispanic	17.2%	23.5%	25.8%
2+ other races	3.1%	3.8%	4.5%
Asian American	3.4%	4.6%	5.2%
American Indian Alaska Native	0.9%	0.9%	0.8%
Black	14.6%	13.9%	13.7%
White	60.8%	53.4%	49.9%

Source: Brookings Institute

Information in Table 9 provides additional data of the changing Hispanic population by county for Delaware, District of Columbia, and Maryland over the last several decades.[36] The data supplied provides a snapshot of the number of Hispanic people in the region and how the proposed medical school in partnership with MSU could effectively impact care within the population.

[34] U.S. Census Bureau
[35] Brookings Institute
[36] Pew Research

Table 9: Hispanic Population Data by County

County and State	1980 Hispanic pop.	1990 Hispanic pop.	2000 Hispanic pop.	2010 Hispanic pop.	2020 Hispanic pop.
Kent County, DE	515	522	574	489	454
New Castle County, DE	221	203	180	161	164
Sussex County, DE	776	687	415	328	295
District of Columbia, DC	108	96	117	151	146
Allegany County, MD	1,208	1,341	1,478	1,459	1,594
Anne Arundel County, MD	291	291	276	211	180
Baltimore County, MD	264	257	268	208	166
Calvert County, MD	1,399	1,112	1,136	1,060	927
Caroline County, MD	1,695	1,507	1,311	1,190	1,135
Carroll County, MD	956	877	1,007	771	647
Cecil County, MD	1,109	1,011	1,062	902	811
Charles County, MD	729	638	742	610	505
Dorchester County, MD	1,310	1,669	1,733	1,438	1,346
Frederick County, MD	773	635	533	326	264
Garrett County, MD	2,144	2,014	2,467	2,449	2,409
Harford County, MD	510	477	568	507	452
Howard County, MD	557	411	397	330	290
Kent County, MD	1,651	1,155	1,506	1,557	1,647
Montgomery County, MD	88	61	61	54	49
Prince George's County, MD	124	102	90	70	55
Queen Anne's County, MD	1,497	1,630	1,644	1,305	1,184
St. Mary's County, MD	780	758	928	817	727
Somerset County, MD	1,959	1,518	1,813	1,592	1,639
Talbot County, MD	1,906	1,714	1,445	1,133	1,045
Washington County, MD	864	875	975	693	543
Wicomico County, MD	1,103	1,025	898	758	697
Worcester County, MD	1,473	1,415	1,461	1,256	1,273
Baltimore City, MD	207	270	306	246	205

Source: Pew Research

A Growing Diverse Population

One critical strategy to keeping physicians in the region long-term is to educate medical students locally. National studies indicate that the availability of both undergraduate medical education (UME, or medical school) and Graduate Medical Education (GME) in the same region has the greatest impact on a community's physician workforce. Tripp Umbach estimates, that when a physician graduates from high school, college, medical school, and a residency training program in the same state, the likelihood of that physician remaining in the state to practice is more than 70 percent (this model is considered the "classic pipeline" for physician workforce development).

A proposed four-year medical degree program in partnership at Morgan State University, an HBCU will utilize the strengths and assets the university has to offer and will reflect the diverse communities surrounding the institution. Students whose life experiences resonate with the residents of the surrounding region and students who have overcome obstacles will be the ideal MSU student, ultimately providing high-quality health care through their life lens.

There is growing concern related to addressing community health inequities and the need for health care systems and providers to reach diverse patient populations as culturally appropriate care is a matter of national concern.[37] By 2030, the U.S. population is expected to grow to 359.4 million,[38] Maryland's population is projected to reach 6.5 million (or 7% each decade), 1.08 million in Delaware, and over 888 thousand in Washington, D.C.[39]

As such, by 2030, one in five Americans is projected to be 65 and over; by 2044, more than half of all Americans are projected to belong to a minority group[40]; and by 2060, nearly one in five of the nation's total population is projected to be foreign-born.[41] The non-Hispanic white population is projected to dwindle from 199 million in 2020 to 179 million people in 2060— even as the U.S. population continues to grow. This decline is driven by falling birth rates and the rising number of deaths over time as the white population ages. In 2045, they are no longer projected to make up most of the U.S. population.[42]

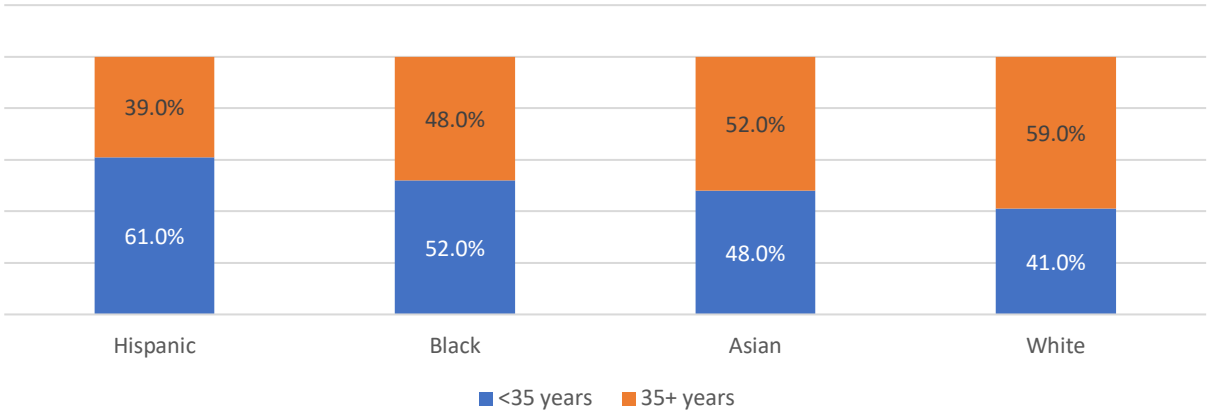
The population of two or more races is projected to be the fastest-growing racial or ethnic group over the next several decades, followed by Asians and Hispanics. For Hispanics and people who are two or more races, high growth rates are largely the result of the young age structure of these populations.[43] The nation's foreign-born population is projected to rise from 44 million people in 2016 to 69 million in 2060, growing from about 14 percent to 17 percent of the population. The previous historic high was in 1890 when almost 15 percent of the population was foreign-born.[44]

The U.S. Hispanic population reached 62.1 million in 2020, an increase of 23% over the previous decade that outpaced the nation's 7% overall population growth.[45] The U.S.-born account for 81% of Latinos ages 35 or younger in 2016, compared with 42% of Latinos ages 36 or older. U.S.-born Latinos have a median age of 20.[46] The population of the young Latinos (those under 18 years old) grew by 22% from 2006 to 2016. This growth helped keep the nation's youth population steady at about 73 million over the past decade. During this time, the under-18 population of whites and blacks declined by 11% and 7%, respectively.[47]

---

[37] US Department of Health & Human Services Office of Minority Health
[38] U.S. Census Bureau
[39] University of Virginia
[40] Any group other than white alone.
[41] U.S. Census Bureau
[42] U.S. Census Bureau
[43] Ibid
[44] Ibid
[45] Pew Research
[46] Pew Research
[47] Pew Research

Figure 10: Percent by Age, Race, and Ethnicity

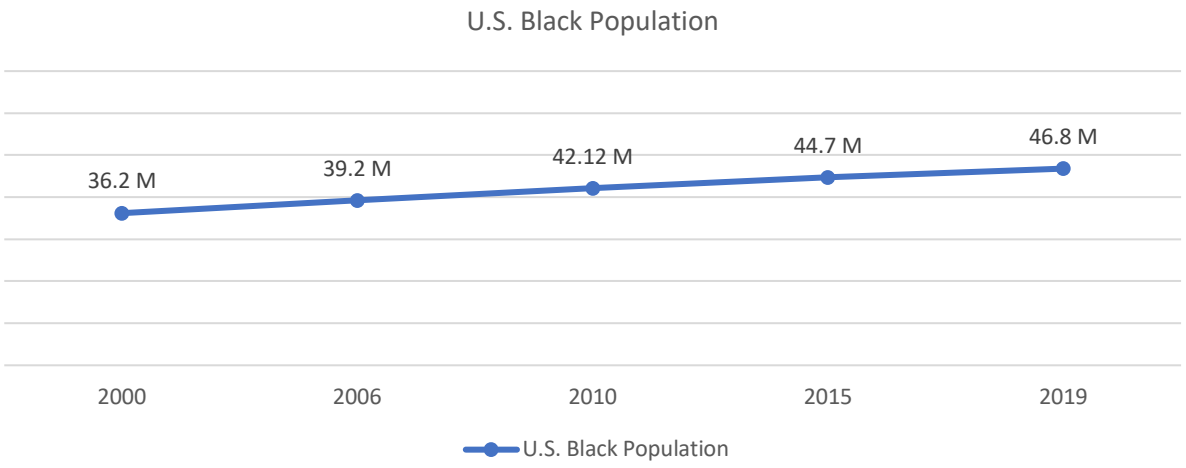


Note: Hispanics of any race. Black, Asian, and white are non-Hispanic, single race.

Source: Pew Research Center

Nationally, the Black population is growing. In 2019, There were 46.8 million people in the U.S. who identified as Black. Since 2000, the Black population has grown by more than 10 million, with 36.2 million of the country's population identified as Black, (a 29% increase over almost two decades). This population growth rate is larger than that of the White population over the same period (13%) but less than that of the Asian and Hispanic U.S. populations (89% and 72%, respectively).[48]

Figure 11: Since 2000, the U.S. Black Population Grew by 29%



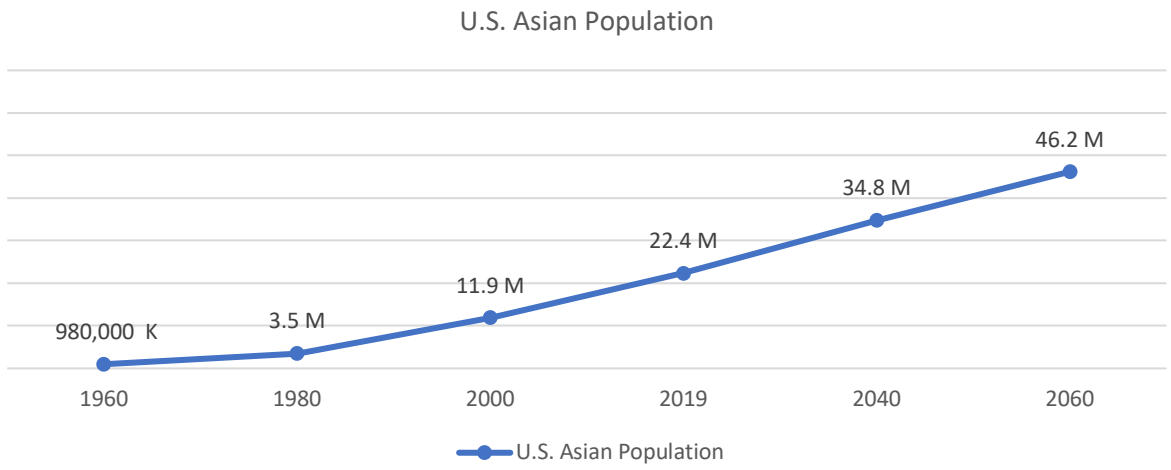
Note: Populations rounded to the nearest 100,000. "U.S. Black population" refers to anyone who self-identifies as Black inclusive of single-race Black, multiracial Black and Black Hispanic people.

Source: Pew Research Center

[48] Pew Research

The population born in the U.S. and those born abroad account for the Black population growth. While 90% of the U.S. Black population was born in the U.S., more than 4.6 million Black people in the U.S. were born outside the country as of 2019 (10% of the Black population). This is an increase of nearly 90% from 2000, when the foreign-born population stood at 2.4 million, or 7% of the overall U.S. Black population. Most Black immigrants (88%) were born in African or Caribbean nations. The Black population is relatively young. As of 2019, the median age of single-race, Black is 35, while the Black population when including those who identify with more than one racial or ethnic group is 32.

Figure 12: U.S. Asian Population. nearly doubled between 2000 - 2019 and is projected to surpass 46 million by 2060



Source: Pew Research Center

By 2060, the U.S. Asian population is projected to reach 46 million. In the 1870 census, roughly 63,000 individuals were classified as Asian by U.S. Census Bureau. By 1960, 980,000 individuals self-identified as Asian. The population rose in 2000 to 11.9 million and then nearly doubled to 22.4 million by 2019 – an 88% increase. Asians make up about 7% of the nation's overall population, and their numbers are projected to surpass 46 million by 2060, nearly four times their current total. (In decennial censuses conducted in 1980 and earlier, Asian Americans and Pacific Islanders were reported as a single group.)[49]

From 2010 to 2020, the American Indian and Alaska Native combination population increased by 160%. In 2020, the American Indian and Alaska Native alone population (3.7 million) accounted for 1.1% of all people living in the United States, compared with 0.9% (2.9 million) in 2010.[50]An additional 5.9 million people identified as American Indian and Alaska Native and other race group in 2020, such as White or Black or African American. Together, the American Indian and Alaska Native alone or in combination

[49] Pew Research
[50] U.S. Census Bureau

population comprised 9.7 million people (2.9% of the total population) in 2020, up from 5.2 million (1.7%) in 2010.[51]

Improving health care services in the communities surrounding the proposed Maryland School of Medicine is a call to action. The state of Delaware, District of Columbia, and Maryland are on a pathway to greater population growth; in particular, towards more diverse and ethnic expansion. The proposed medical school comes at a fortunate moment where the need for diversity and inclusion of health care providers is significant.

Clyde Yancy, M.D., Vice Dean for Diversity and Inclusion at Northwestern's Feinberg School of Medicine reported that "increasing class sizes by just one to two minority students would open a steady flow of new Black physicians. Starting a new medical school aligned with an HBCU with a similar mission would add to the flow of new Black physicians. Doing both might fix the problem."[52]

Maryland throughout the years has grown to be more racially and ethnically diverse following California, Hawaii, and Texas. Maryland ranks No. 4 overall for diversity, a significant increase from 2010 to 2020, according to data provided by the U.S. Census Bureau. It is also now the most diverse state on the East Coast. Overall, the nation and Maryland became more diverse between 2010 and 2020, rising from about 55% to 61% nationally and roughly 60% to over 67% in Maryland.[53]

As the health care market changes the diversity of physicians serving their patient population changes as well. Health care providers must be armed with the knowledge to treat patients with advanced treatment plans and compassionate care. Health care facilities and organizations must work collectively to provide high-quality care to improve patient health outcomes at lower costs. Filling the physician shortage requires a commitment to providing medical education with practitioners who reflect the shifting racial and ethnic landscape.

Addressing the Physician Shortages

Health systems, hospitals, and health care facilities have acknowledged the growing workforce challenges. A new proposed medical school in the Baltimore region producing high-quality, culturally skilled health care professions can stem the demand as services continue to grow for physicians. Addressing the national physician shortage crisis requires a multi-faceted approach which includes better funding opportunities for residency programs, increasing the use of physician extenders to maximize a physician's reach, and new innovative technologies to increase medical coverage in particular for rural and underserved areas.[54] The need for more physicians will continue to grow well into the future as it is predicted that 139,000 physicians will be needed to fill the gap by 2033.[55] The physician shortage deficit comes at a time when minority enrollment in medical schools is needed to showcase the nation's growing diverse communities. In 2019, of 21,863 students who entered medical

[51] Ibid
[52] American Medical Association
[53] U.S. News World and Report
[54] American Journal of Managed Care
[55] American Association of Medical Colleges

school, 1,626 were Black; however, in 2021 more diverse students are being accepted into medical schools.

In 2021, data shows that the nation's medical schools are attracting and enrolling more racially and ethnically diverse classes. The number of Black or African American first-year students increased by 21.0%, to 2,562. Black or African American students made up 11.3% of matriculants (first-year students) in 2021, up from 9.5% last year. Of particular note are the increases among Black or African American men; first-year students from this group increased by 20.8%.[56]

First-year students who are Hispanic, Latino, or of Spanish origin increased by 7.1%, to 2,869. Individuals from this group made up 12.7% of matriculants, up from 12.0% in 2020. However, American Indian or Alaska Native first-year students declined by 8.5%, to 227, making up 1.0% of matriculants.[57]

Communities of color are growing much more quickly in the U.S. than Whites, African American/Blacks, Hispanics/Latinos, and Native Americans; unfortunately, these populations embody a very small percentage of medical students and the physician workforce. In fact, fewer than 10 percent of physicians throughout the U.S. are from an underrepresented minority group, including African American/Black, Native American, Alaska Native, or Hispanic.[58]

It is important to note, that while medical schools are attracting and enrolling more racially and ethnically diverse student bodies, the percentages are still far below the reflected representation needed in the medical arena to match the diverse U.S. population. There is still much more work that needs to be accomplished to ensure and confirm that the nation's diverse and ethnic populations are reflected in the physician workforce.

Research conducted by the AAMC and AMA suggests that the number of physicians who stay in the area to practice is increased if the physician graduates from a medical school and enters a residency program in the same region and increases more if the physician also went to high school and college in the same region. In 2018, according to the AAMC, Delaware,[59] Maryland,[60] and Washington D.C.[61] have a state median retention rate of 69.0% for students who complete both medical school and a residency-training program within the state. This information is a strong indicator to create and reinforce the "classic pipeline" for medical education preparing not only knowledgeable and competent physicians but to also educate and retain physicians who represent the growing diverse populations. Likewise, some medical schools have also adopted a holistic admissions process where each applicant is assessed individually to determine how they might contribute to the learning environment and workforce instead of relying on test scores and grades alone.

Reviewing information from the tri-state region related to a student's race and ethnicity, a large representation of Black/African Americans and Hispanic students are seen in public schools.

---

[56] Association of American Medical Colleges
[57] Ibid
[58] American Medical Association
[59] Association of American Medical Colleges
[60] Association of American Medical Colleges
[61] Association of American Medical Colleges

Implementing pipeline programs is one avenue to providing solutions to tackling the need for a diverse workforce. At Wayne State University (WSU) in Detroit, MI, the ReBUILDetroit Training Scholars Program has provided a pathway into medicine and health care for minorities. The program focuses on putting students from diverse backgrounds who are interested in biomedical research in an accelerated pipeline program that allows them to get both a bachelor's and master's degree in five years while simultaneously gaining significant research experience to prepare them for a Ph.D. program. This program anticipates a 100% six-year graduation rate, compared with 20% for all other underrepresented students at WSU. Early entry into pipeline programs is critical. Connections between academic medical centers and local elementary and middle schools are equally important as connections with high schools and colleges.[62]

Increasing STEM opportunities for minority learners in particular Black and Hispanic students, through distance learning and conventional means can increase participation in the programs. Poor health outcomes from underserved and disenfranchised populations are often the result of SDOH. Growing physicians from similar backgrounds, social determinants can be addressed.

Table 13: Enrollment in Public Schools by Race/Ethnicity

	Delaware 2020*[63]	Maryland 2019*[64]	Washington D.C. 2019*[65]
Total Students	138,414	909,414	49,890
Percent			
American Indian/ Alaska Native	<1.0%	0.3%	-
Asian	4.0%	6.6%	-
Black/ African American	30.0%	33.1%	59.0%
White	42.0%	35.6%	16.0%
Hispanic	18.0%	19.4%	20.0%
Native Hawaiian/ Other Pacific Islander	<0.1%	0.1%	-
Two or More Races /Multiracial	5.0%	4.8%	-
Asian/ Multiracial/ Other	-	-	5.0%

*Note: Data obtained related to public school enrollment

Source: Delaware Public School Enrollment, Maryland Public School Enrollment, District of Columbia Public Schools

Morehouse College of Medicine is sharing its success with the extensive pipeline programs that they have with local colleges—providing mentoring support from current students and alumni. Additionally, as part of their work with the consortium, the University of California-Davis School of Medicine collaborated with Kaiser Permanente to develop a three-year education track for students committed to primary care careers, with an emphasis on addressing medically underserved populations, workforce

[62] Association of American Medical Colleges
[63] Rodele
[64] Maryland Public Schools
[65] Washington D.C. Public Schools

diversity, and workforce gaps. This program currently enrolls 50 percent of its students from traditionally underrepresented communities in medicine.[66]

The AMA is focused on improving diversity and inclusion in physician training, addressing issues related to creating an inclusive educational environment where physicians-in-training from diverse backgrounds will thrive and address retention issues which will lead to a more diverse physician workforce.

In addition to STEM programs, bipartisan legislation and support is needed. The American Association of Colleges of Osteopathic Medicine (AACOM) along with other medical associations support The Training the Next Generation of Primary Care Doctors Act of 2019 (THCGME) bill was introduced to help alleviate the nation's physician workforce shortage, particularly in rural and medically underserved areas, by providing $757.5 million in mandatory funding

Established in 2010, the Teaching Health Center Graduate Medical Education (THCGME) Program has been successful. In 2018 – 2019, the program supported the training of 728 residents in 56 primary care residency programs across 23 states. Since 2011, the program has supported the training of over 880 new primary care physicians and dentists that have graduated and entered the workforce. More importantly, physicians trained in teaching health center programs are more likely to practice in underserved communities, increasing access to care for the country's most vulnerable patient populations.[67]

By 2034, the AAMC projects physician demand will continue to grow, leading to a projected total physician shortfall of 17,800 and 48,000 in primary care physicians and 21,000 and 77,100 nonprimary care specialties.[68] An aging and growing population continue to be the key factor to the growing need for physicians. An upward demand of 180,400 physicians would be required if underserved, disenfranchised, minority populations, and individuals in rural areas utilized the same health care patterns as those with fewer barriers. As of September 2021, there are 7,447 Primary Care Health Professional Shortage Areas (HPSAs) within the United States. Approximately 14,858 additional primary-care physicians are needed to meet the current need for primary-care providers in the United States.[69] Data reveals that 74 in Delaware, 26 in the District of Columbia, and 141 practitioners in Maryland are needed to remove the HPSA designation.

Table 14: Primary Care Health Professional Shortage Areas (HPSAs)

	Total Primary Care HPSA Designations	Percent of Need Met	Practitioners Needed to Remove HPSA
Delaware	11	17.03%	74
District of Columbia	15	69.48%	26
Maryland	48	53.0%	141
U.S.	7,447	46.16%	14,858

Source: Kaiser Family Foundation

[66] American Medical Association
[67] American Association of Colleges of Osteopathic Medicine
[68] Association of American Medical Colleges
[69] Kaiser Family Foundation

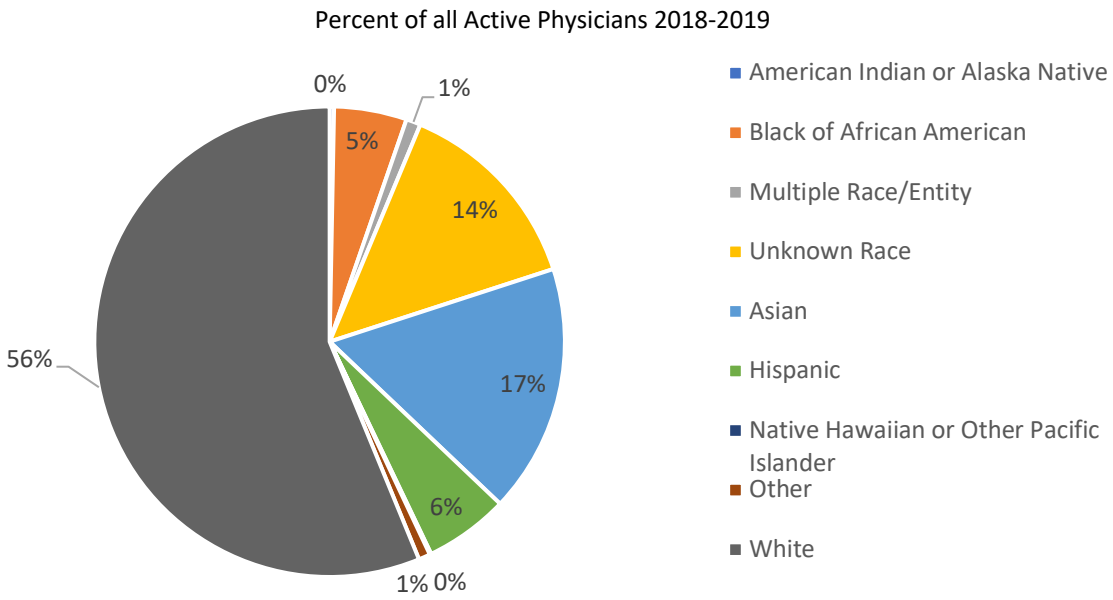
As of 2019, workforce projections for Delaware reported that the state has 2,753 active physicians with 936 PCP, the District of Columbia had 5,950 active physicians and 1,684 PCPs, while Maryland held 23,323 and 7,022 PCPs [70]

Exceeding patient expectations and providing exceptional care is the standard in the delivery of health care services. Delivering high-quality health care services should be equitable, effective, patient-centered, timely, and integrated.

Nationally Active Physicians

Figure 15 shows the national percentage of active physicians by race/ethnicity. Among active physicians, 56.2% identified as White, 17.1% identified as Asian, 5.8% identified as Hispanic, and 5.0% identified as Black or African American. Note that the race of 13.7% of active physicians is Unknown, making that the largest subgroup after White and Asian.

Figure 15: Percentage of all Active Physicians by Race and Ethnicity, 2018

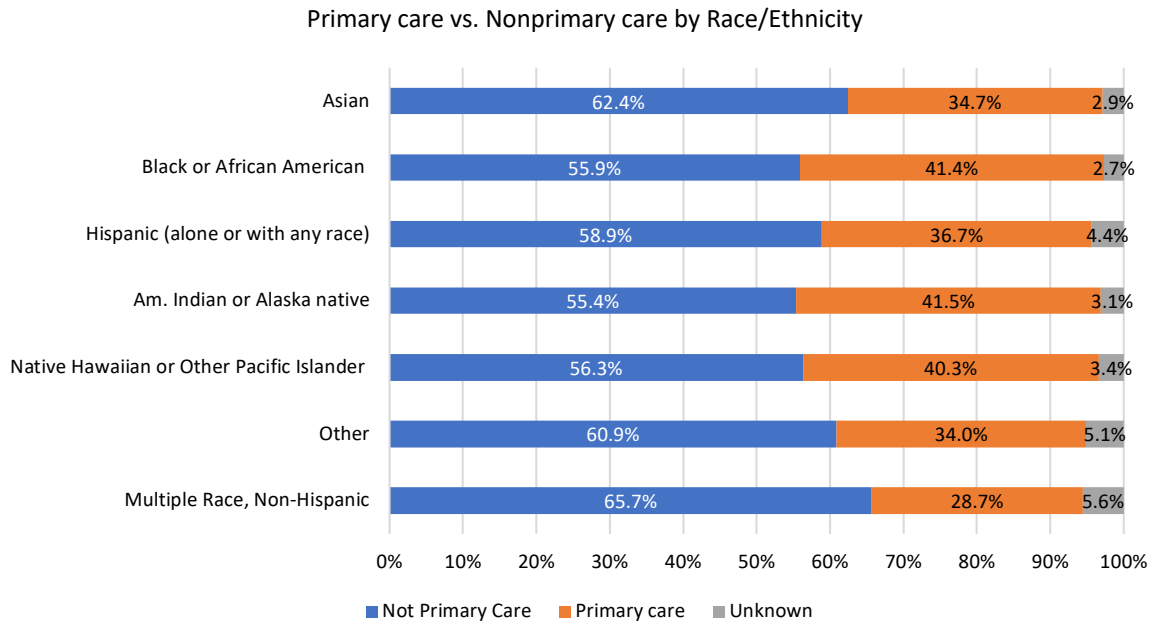


Source: Association of American Medical Colleges

Figure 16 displays the percentage of physicians practicing primary care by race/ethnicity. 41.4% of Black or African American physicians practiced primary care; 36.7% of Hispanic physicians (alone or with any race) practiced primary care; and 28.7 of multiple races, non-Hispanic physicians practiced primary care.

[70] Association of American Medical Colleges

Figure 16: Primary Care vs. Nonprimary Care Physicians 2018



Source: Association of American Medical Colleges

Applicants to Medical School

Training enough health care providers to meet growing demands will be difficult. Combatting this complex physician shortage issue will require a multi-pronged effort on the part of medical schools, organizations, and health care leaders. On a wider basis, educators and industry leaders also need to increase efforts to attract, educate, and train diverse physicians. Although there were declines or little growth in the number of applicants from most minority groups, the nation's medical schools are making small gains in enrolling more racially and ethnically diverse classes.

In 2020, the total number of first-year students identifying as Black or African American, Hispanic, Latino, or of Spanish origin, and American Indian or Alaska Native increased. However, this growth was concentrated only at a small number of medical schools, reflecting the important contributions HBUC and Hispanic-serving institutions make to the diversity of the physician workforce.

Admissions leaders believe that the pandemic closed other opportunities for students, shifted and accelerated medical career plans for many, and increased awareness of how doctors can help alleviate social injustices. COVID-19 brought social justice and racial inequality issues to the forefront, such as disproportionate health outcomes and access to health care for low-income people and communities of color. In conjunction, racial strife in black and brown communities further intensified inequities across various areas of life and impacted health.

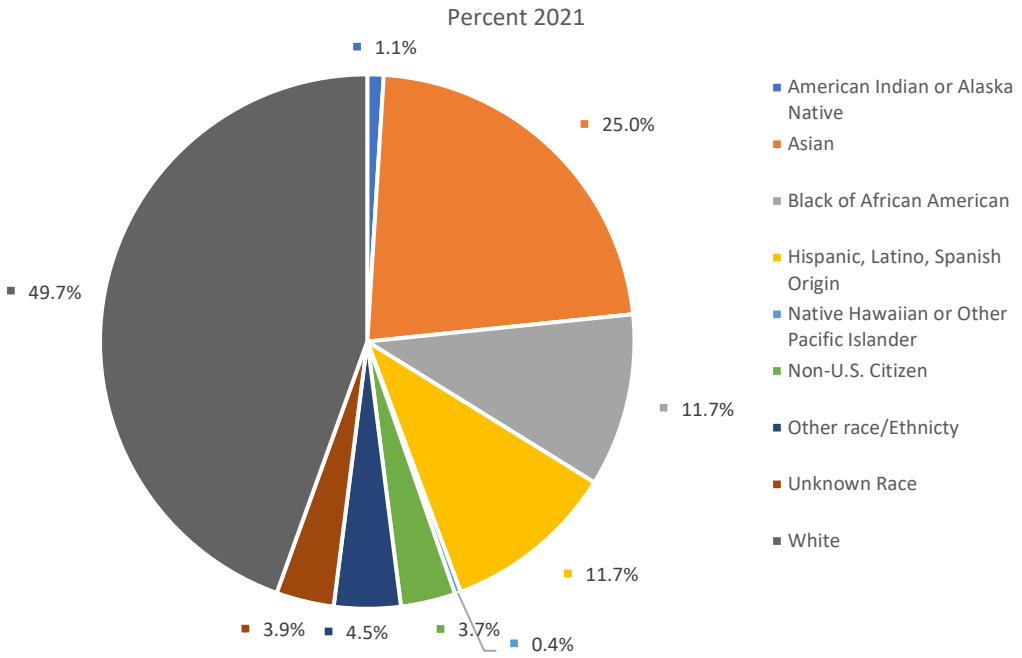
Gender equality has been a focus since the early 2000s, however, there has been limited progress by members of racial and ethnic groups that are underrepresented in medicine. Last year, a study

published in the New England Journal of Medicine (NEJM) found that from 1978 to 2019, the percentage of medical students from Black, Hispanic, and other underrepresented racial and ethnic groups remained well below their corresponding percentages in the U.S. census.[71]

Philip Gruppuso, M.D., author of the NEJM study and a professor of pediatrics and medical science at Brown University, noted that there were not enough applicants from underrepresented groups to drive improvements in the diversity of the medical student population. Another essential note extends all the way back to the earliest stages of people's education. It is a reflection of racial and ethnic disparities throughout the educational system.[72]

The figure below shows applicants to U.S. Medical Schools by Race/Ethnicity. Close to half of all applicants in 2021 were White, followed by Asian candidates.

Figure 17: Applicants to U.S. Medical Schools by Race/Ethnicity (2021)



Note: Race/ethnicity alone indicates that an individual is reported in only one race/ethnicity category. The "multiple race/ethnicity" category includes individuals who selected more than one race/ethnicity. The "non-U.S. Citizens" category may include individuals with unknown citizenship.

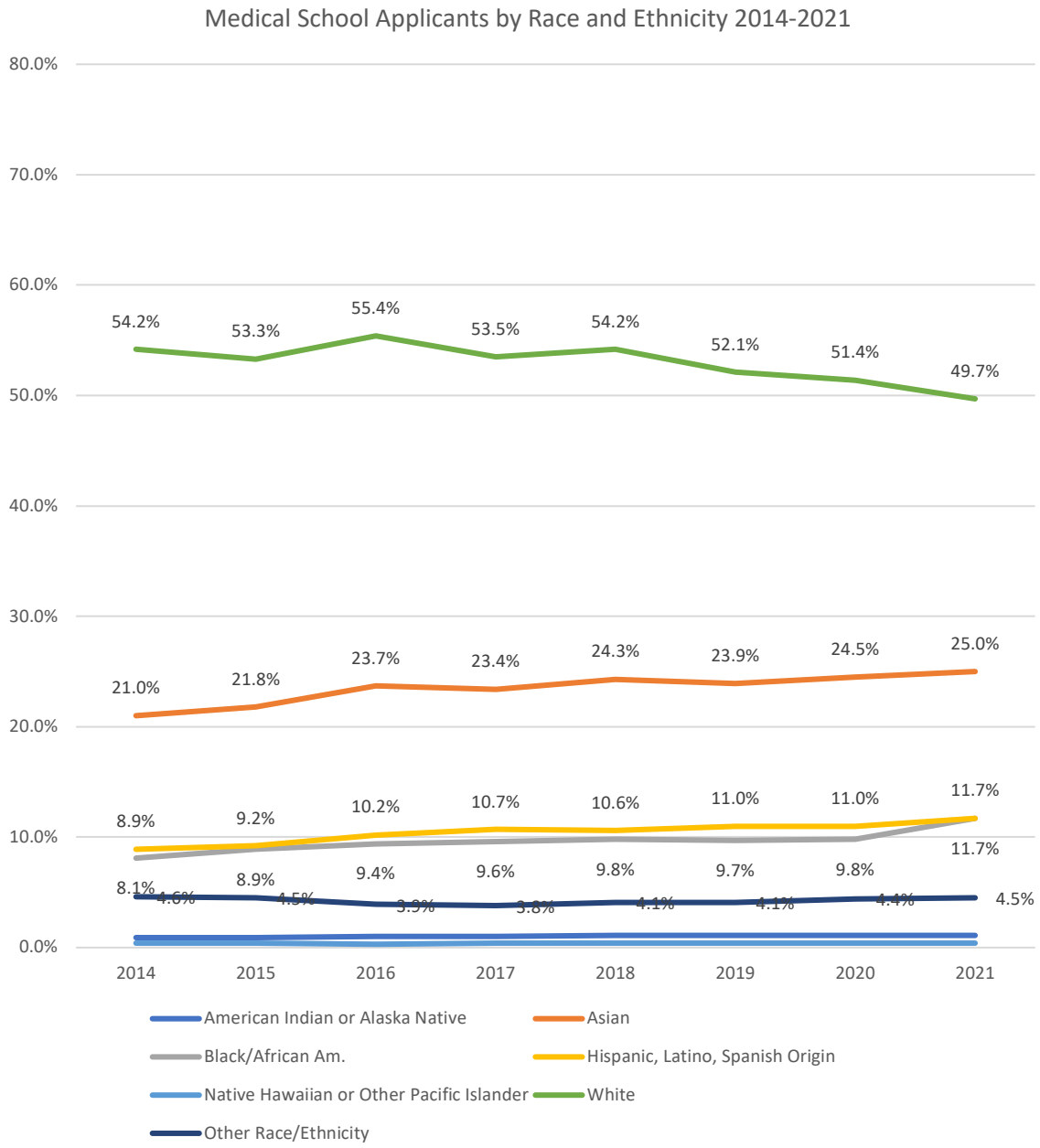
Source: Association of American Medical Colleges

Broken down further, Figures 19-21 reveal the medical school applicants and matriculants from 2014-2021 gradually increasing among Asian, Black, Hispanic, Latino, or Spanish Origin or Other

[71] American Psychiatric Association: Psychiatric News
[72] Ibid.

Race/Ethnicity. American Indian or Alaska Native, Native Hawaiian, or other Pacific Islander applicants stayed relatively the same throughout the years.

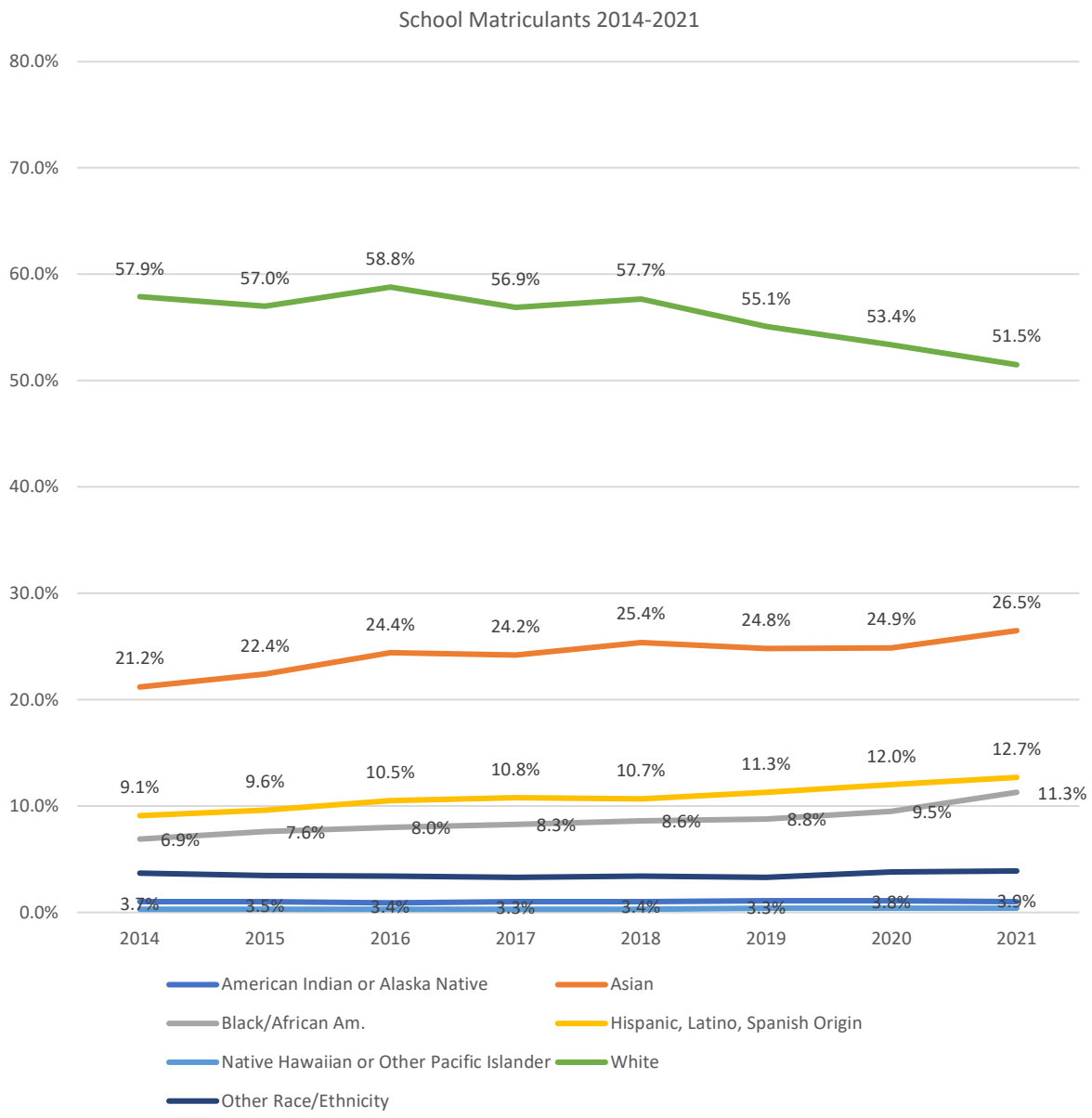
Figure 18: U.S. Medical School Applicants 2014-2021 by Race/Ethnicity



Note: American Indian or Alaska Native or Native Hawaiian or Other Pacific Islander percentages were small; therefore, the percentages/data labels were not displayed on the graph.

Source: Association of American Medical Colleges

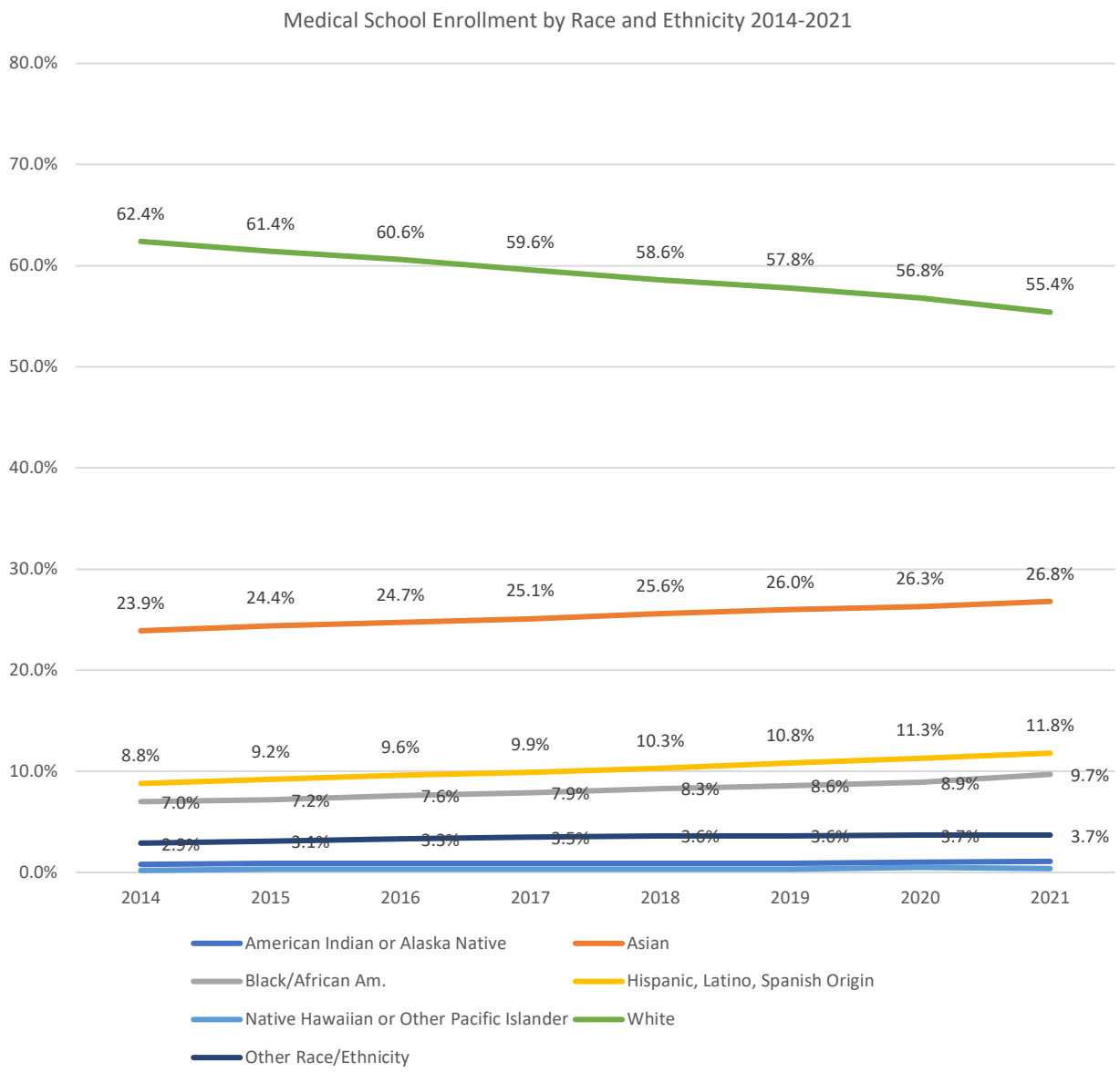
Figure 19: U.S. School Matriculants by Race/Ethnicity



Note: American Indian or Alaska Native or Native Hawaiian or Other Pacific Islander percentages were small; therefore, the percentages/data labels were not displayed on the graph.

Source: Association of American Medical Colleges

Figure 20: U.S. School Enrollment by Race/Ethnicity



Note: American Indian or Alaska Native or Native Hawaiian or Other Pacific Islander percentages were small; therefore, the percentages/data labels were not displayed on the graph.

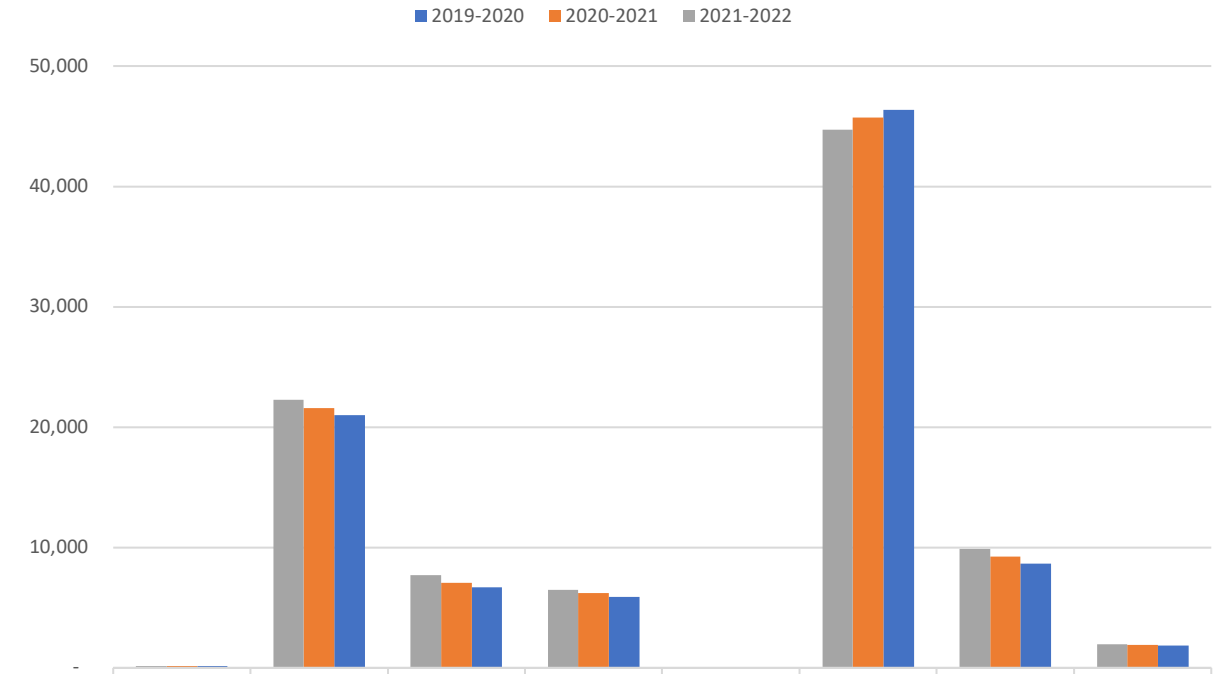
Source: Association of American Medical Colleges

Figures 21-22 display the racial and ethnic characteristics of students enrolled in U.S. medical schools, applicants, and matriculants to the Baltimore-Washington Area medical schools. Enrollment includes the number of students in M.D. granting medical schools, including students on a leave of absence. The "Multiple Race/Ethnicity" category includes those who selected more than one race/ethnicity response.

The figure below displays the racial and ethnic characteristics (alone) of enrolled students in U.S. M.D.granting medical schools. Enrollment includes the number of students in medical school, including students on a leave of absence, on October 31 of each year shown. Enrollment does not include students with graduated, dismissed, withdrawn, deceased, never enrolled, completed fifth pathway, did not complete fifth pathway or degree revoked statuses. "Alone" indicates those who selected only one race/ethnicity response.[73]

The "Multiple Race/Ethnicity" category includes those who selected more than one race/ethnicity response.

Figure 21: Total U.S. M.D. Granting Medical School Enrollment by Race/Ethnicity (Alone) 2019-2022



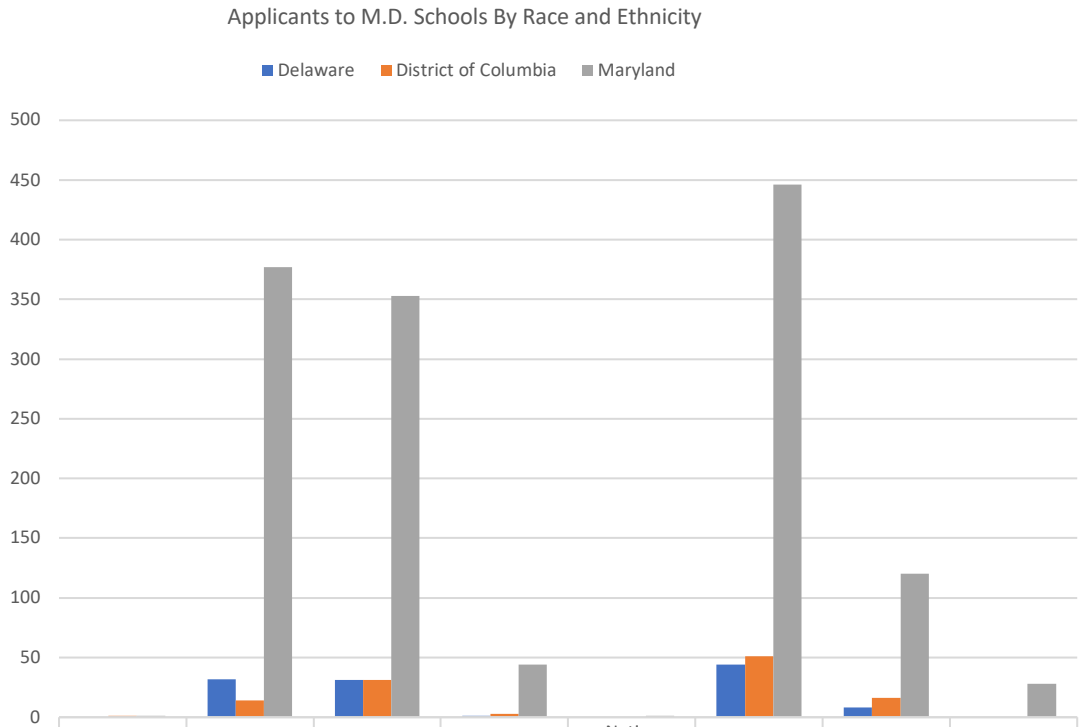
	Am. Indian or Alaska Native	Asian	Black/African Am.	Hispanic, Latino, Spanish	Native Hawaiian/Other Pacific Islander	White	Multiple Race/Ethnicity	Other
2019-2020	173	21,019	6,698	5,922	62	46,348	8,658	1,847
2020-2021	174	21,590	7,072	6,206	68	45,746	9,236	1,930
2021-2022	177	22,252	7,711	6,465	70	44,726	9,894	1,948

Source: Association of American Medical Colleges

[73] Association of American Medical Colleges

The table below displays the self-identified racial and ethnic characteristics of applicants to U.S. medical schools in 2021-2022. The "Multiple Race/Ethnicity" category includes those who selected more than one race/ethnicity response.

Figure 22: Applicants to Delaware, District of Columbia, and Maryland M.D. Granting Schools by Race/Ethnicity and State of Legal Residence 2021-2022



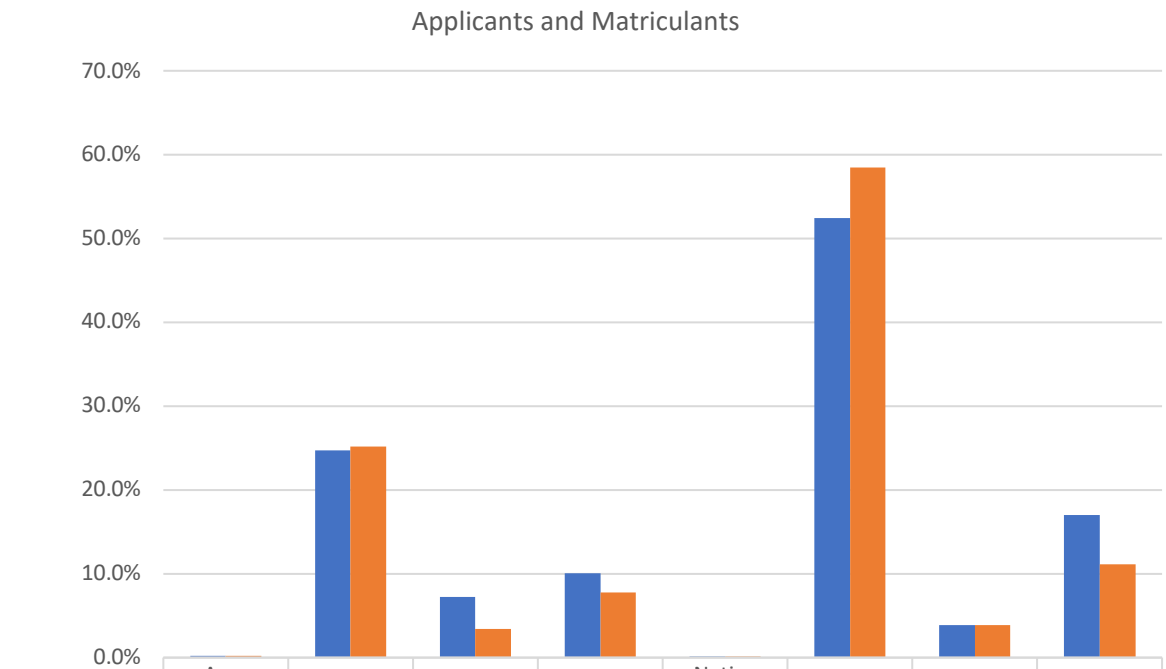
	Am. Indian or Alaska Native	Asian	Black or African Am.	Hispanic, Latino, Spanish Origin	Native Hawaiian/Other Pacific Islander	White	Multiple Race/Ethnicity	Other
Delaware	0	32	31	1	0	44	8	0
District of Columbia	1	14	31	3	0	51	16	0
Maryland	1	377	353	44	1	446	120	28

Source: Association of American Medical Colleges

Medical School Student Data (D.O.)

The below section provides information representative of applicants to an osteopathic medical school program in the U.S. Information in this section is a result of 22,708 applicants and 8,280 matriculants. Applicants submitted 203,118 individual school applications and the matriculants submitted 85,813 individual school applications.

Figure 23: Race/Ethnicity of Applicants and Matriculants 2020

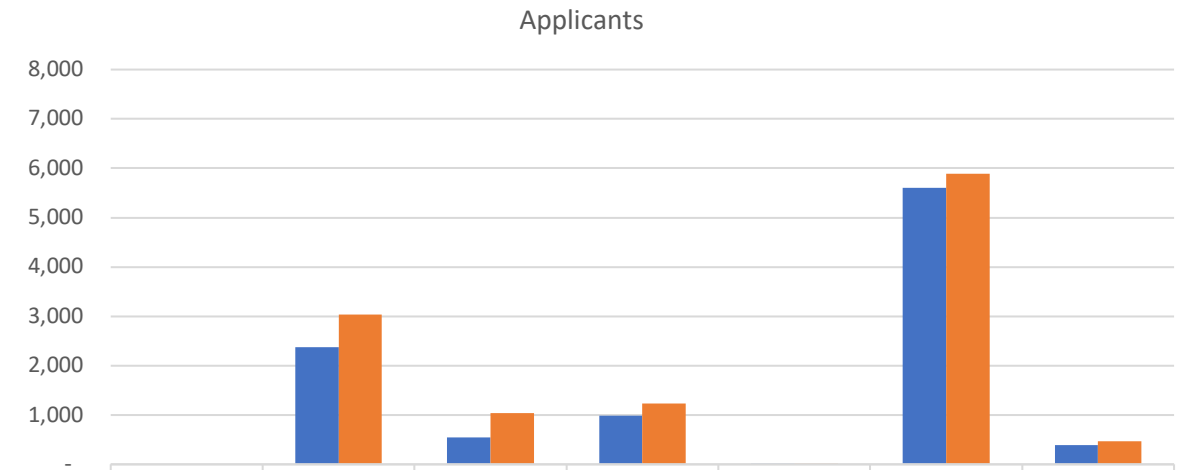


	Am. Indian/ Other Pacific Islander	Asian	Black / African American	Hispanic/ Latino	Native Hawaiian/ Other Pacific Islander	White	Two or more Races	Under repre. Minorities*
Applicants	0.2%	24.7%	7.2%	10.1%	0.1%	52.4%	3.9%	17.0%
Matriculants	0.2%	25.2%	3.4%	7.8%	0.1%	58.5%	3.9%	11.1%

*Includes Hispanic/Latino ethnicity, Black or African American, American Indian or Alaska Native, and Native Hawaiian or Other Pacific Islander divided by total applicants.

Source: American Association of Colleges of Osteopathic Medicine

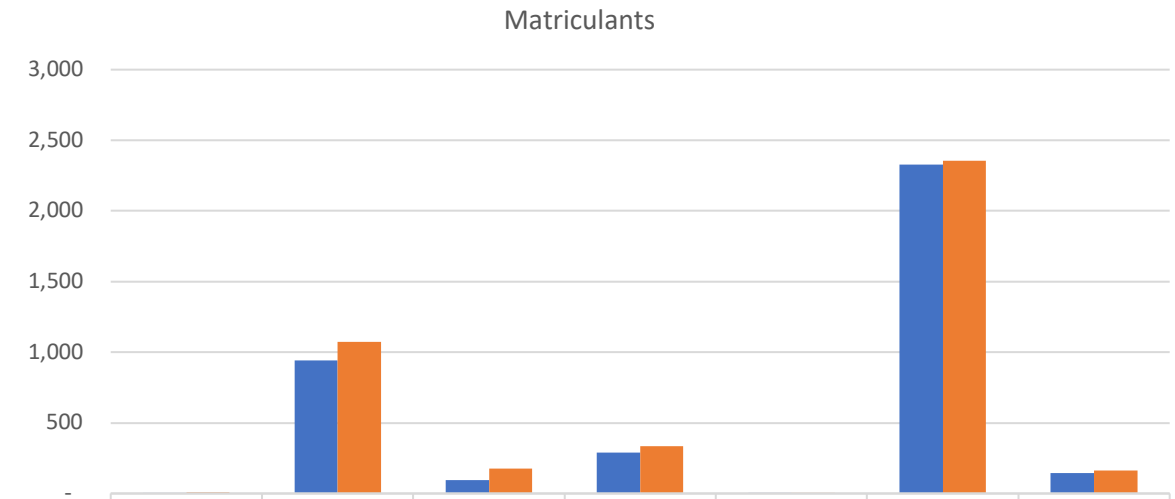
Figure 24: Applicants by Gender 2020



	Am. Indian/ Other Pacific Islander	Asian	Black/ African American	Hispanic/Latino	Native Hawaiian/ Other Pacific Islander	White	Two or more Races
Male		2,379	541	982	10	5,601	385
Female		3,035	1,043	1,232	14	5,893	467

Source: American Association of Colleges of Osteopathic Medicine

Figure 25: Matriculants by Gender 2020



	Am. Indian or Other Pacific Islander	Asian	Black or African American	Hispanic/Latino	Native Hawaiian/Other Pacific Islander	White	Two or more Races
Male	6	942	95	288	4	2,329	146
Female	9	1,075	177	334	4	2,357	162

Source: American Association of Colleges of Osteopathic Medicine

Table 26: Residency of the Delaware, Baltimore - Washington D.C. Region 2020

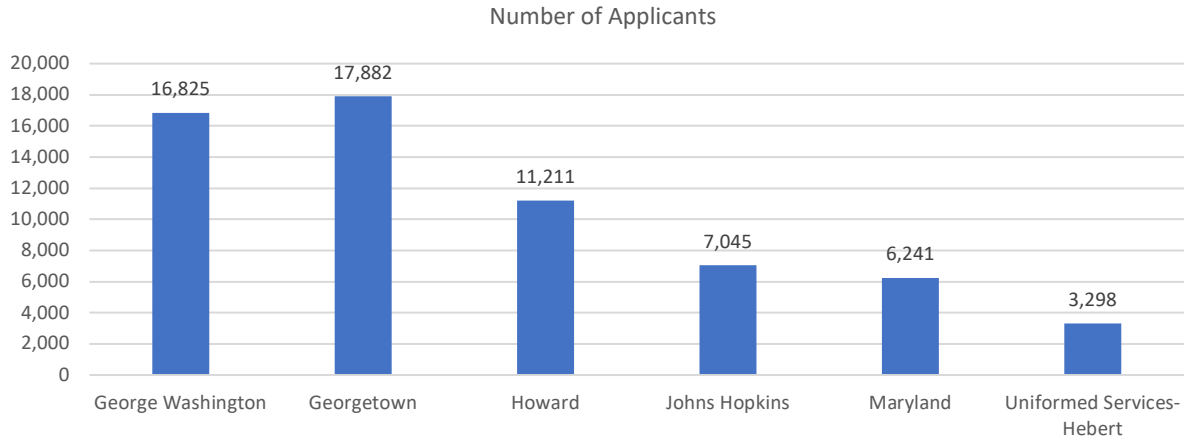
	Number	Percent
Delaware	65	0.3%
District of Columbia	29	0.1%
Maryland	377	1.7%

Source: American Association of Colleges of Osteopathic Medicine

Medical School Student Data (M.D.)

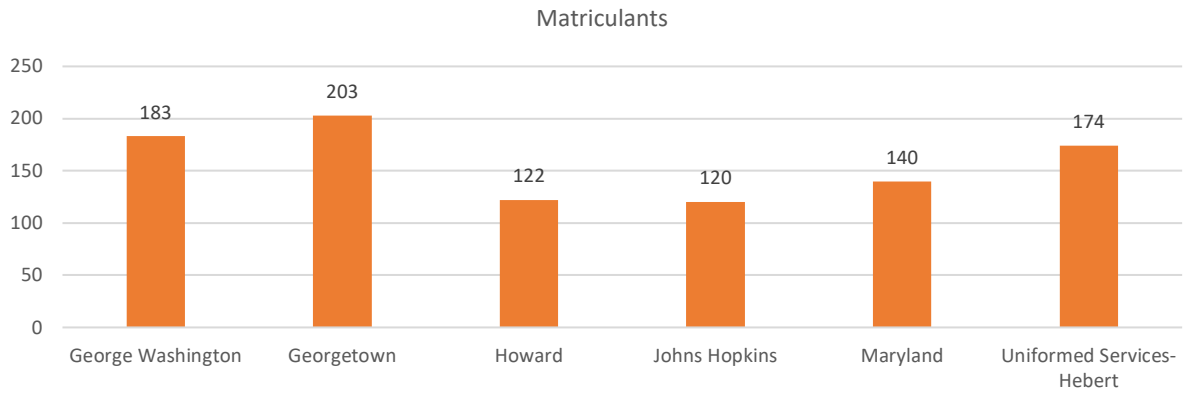
Figures 27-28 reveal the number of students applicants and matriculants in 2020-2021.

Figure 27: U.S. M.D. Applicants by School 2020-2021



Source: Association of American Medical Colleges

Figure 28: U.S. M.D. Matriculants by School 2020-2021



Source: Association of American Medical Colleges

The table below displays the racial and ethnic characteristics of undergraduate applicants to U.S. M.D. - granting medical schools from select undergraduate institutions. The table specifically displays higher education institutions within the Delaware-Baltimore-Washington D.C. region who supplied students to medical schools.

The table below (Table 29) includes individuals who identified as Black or African American, Hispanic, Latino, or of Spanish Origin. Non-U.S. citizens and non-permanent residents are not included.

Table 29: Undergraduate Institutions' supplying students to U.S. Medical Schools

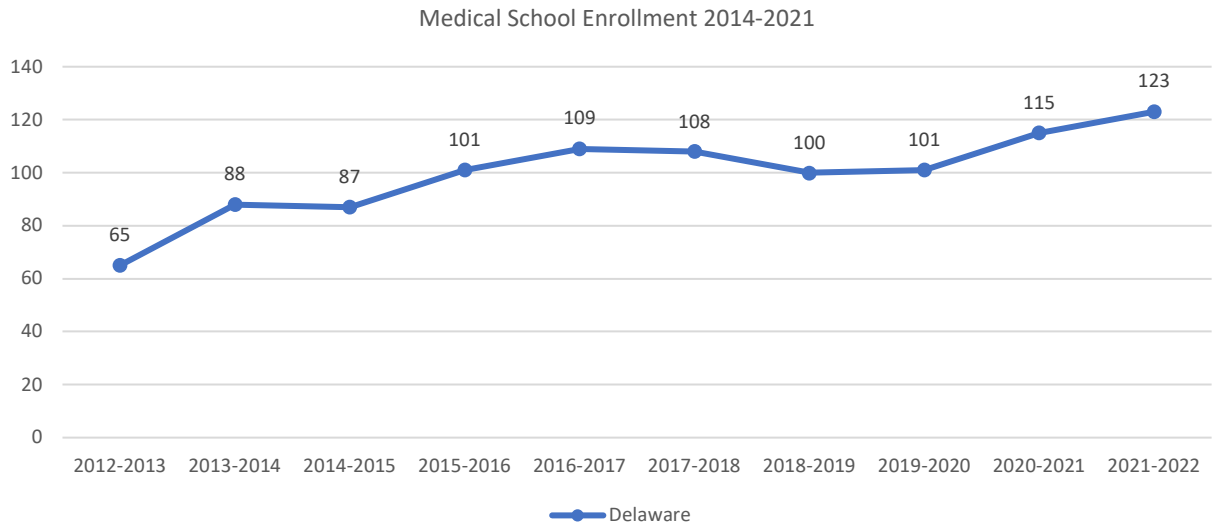
	Black or African American Applicants from the institution	Total Applicants from the institution
George Washington University	22	142
Howard University	158	186
Johns Hopkins University	52	568
Morgan State University	16	17
The University of Maryland-College Park	86	455
The University of Maryland-Baltimore County	37	140
Towson University	28	57
	Hispanic, Latino, or of Spanish Origin from the institution	**Total Applicants from the institution**
American University	16	54
George Washington University	11	142
Georgetown University	10	157
Johns Hopkins University	81	568
The University of Maryland – College Park	23	455
	Asians from the institution	**Total Applicants from the institution**
Johns Hopkins University	290	568
The University of Maryland-College Park	179	455
The University of Maryland-Baltimore County	57	140
	Whites from the institution	**Total Applicants from the institution**
Johns Hopkins University	156	568
The University of Maryland-College Park	164	455

Source: Association of American Medical Colleges

Residency of Medical School Students

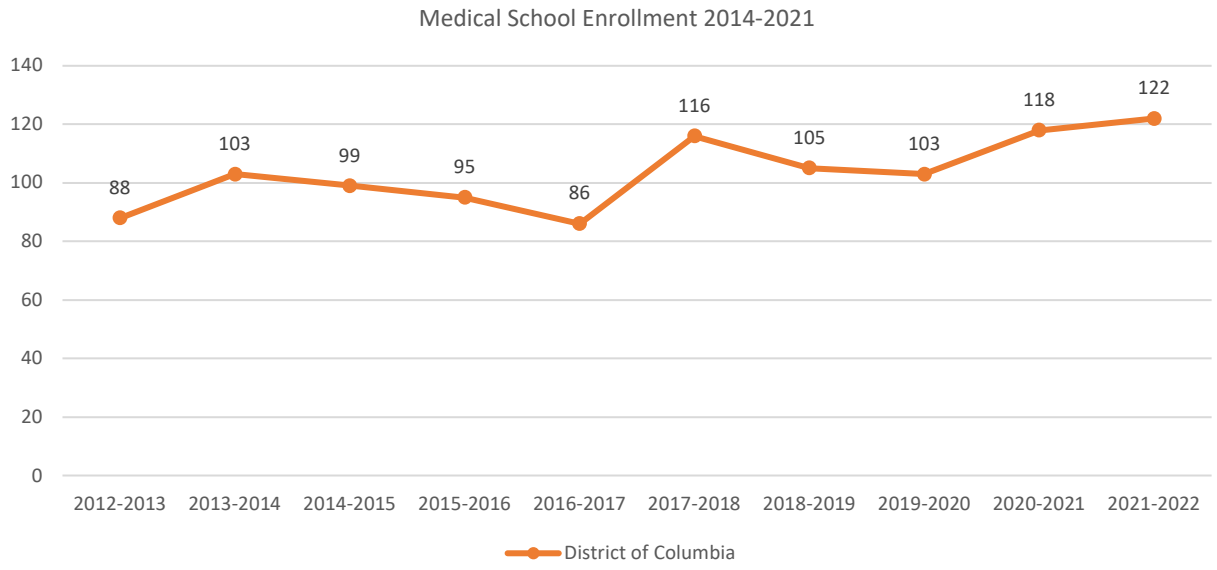
Figures 30-32 reveal the legal residency of M.D. applicants in Delaware, District of Columbia, and Maryland from 2012-2022.

Figure 30: M.D. Applicants by State and Legal Residence in Delaware 2012-2022



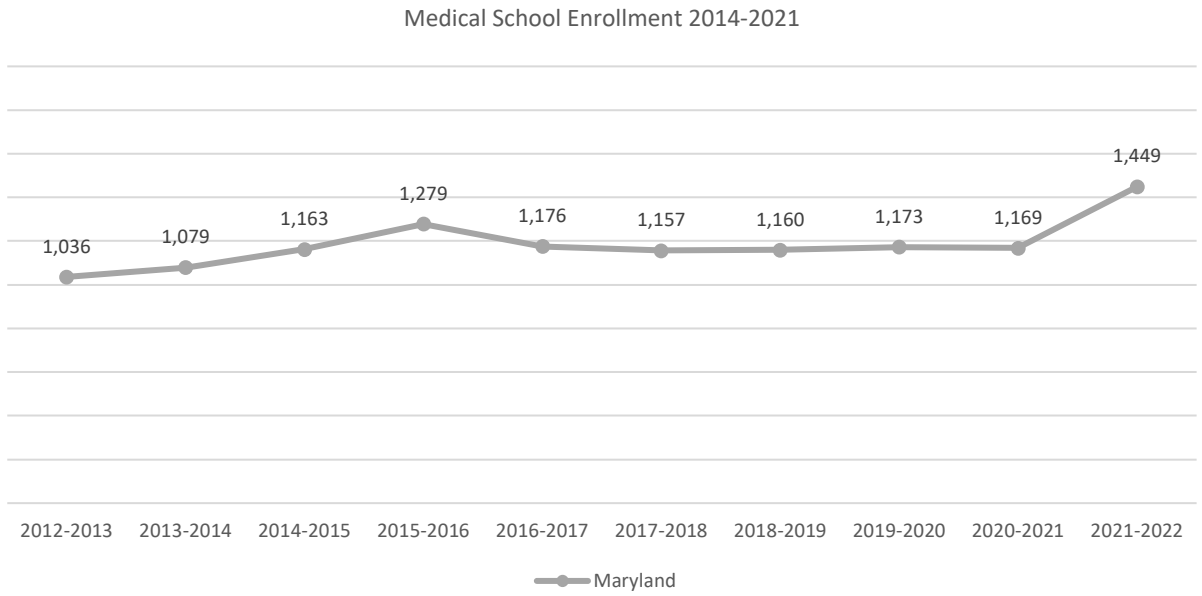
Source: Association of American Medical Colleges

Figure 31: M.D. Applicants by State and Legal Residence in District of Columbia 2012-2022



Source: Association of American Medical Colleges

Figure 32: M.D. Applicants by State and Legal Residence in Maryland 2012-2022



Source: Association of American Medical Colleges

Attracting and increasing a racially and ethnically diverse student body and generating a physician workforce resembling that of the nation is an invaluable goal as well as a strategy. Efforts to reform the health care system are gaining momentum, as innovation, technology, and interdisciplinary practices are part of the equation. As equally as important are the individuals who deliver the care. As the demand for health care continues and the patient population grows, racially and ethnically diverse physicians will be an essential component of the delivery of care.

Health care providers' individual beliefs and values are often shaped by factors in their environment and oftentimes the values are transposed onto the patient. Diverse medical providers have a better understanding of patient needs, beliefs, and health behaviors and can promote patient engagement resulting in improved health practices. Culturally appropriate care from health care systems and providers must be integrated into the delivery and care model to improve health outcomes for populations who are faced with poor health outcomes.

National Outlook

Population Growth

The U.S. population is projected to increase by 79 million people in the next four decades, from about 326 million in 2017 to 404 million by 2060. This corresponds to an average increase of 1.8 million people per year. The population is projected to cross the 400-million mark in 2058.[74]

A Growing Elderly Population

The nation's 65-and-older population is projected to nearly double in size in the coming decades, from 49 million in 2016 to 95 million people in 2060.[75] Additionally, the aging population will affect physician supply, as more active doctors will be older than 65 in the next decade. Approximately 80% of older adults have at least one chronic disease, and 77% have at least two. Four chronic diseases — heart disease, cancer, stroke, and diabetes — cause almost two-thirds of all deaths each year.[76]

- Only 1% of health dollars is spent on public effects to improve health toward chronic diseases, yet 75% of U.S. dollars are spent on health care dollars towards the ailment.
- 23% of the older population is affected by diabetes or 12.2 million Americans aged 60 and older. Another 57 million Americans aged 20 and older have pre-diabetes, which increases a person's risk of developing Type 2 diabetes, heart disease, and stroke. In a 2007 Centers for Disease Control and Prevention program for people at high risk for developing diabetes, lifestyle intervention reduced risk by 71% among those 60 and older.
- A total of 90% of Americans 55 and older are at risk for hypertension, or high blood pressure. Women are more likely than men to develop hypertension, with half of women 60 and older and 77% of women 75 and older having this condition. Hypertension affects 64% of men aged 75 and older.
- Specialist physicians are, in general, older on average than are primary-care physicians, and they will be retiring in proportionately higher numbers.[77] Physician retirement could have the greatest impact on supply.

With the advancement of technology, people are improving their health outcomes and taking control of their chronic conditions by leading an active lifestyle, not smoking, not drinking, obtaining preventative screenings when required, the demand for specialists will grow, in particular for geriatric medicine.

[74] U.S. Census Bureau
[75] Ibid.
[76] National Council on Aging
[77] Physician Supply Considerations: The Emerging Shortage of Medical Specialists: Merritt Hawkins, 2017

The Fauci Effect[78]

Every year more and more students apply to medical school (allopathic or osteopathic). The ongoing coronavirus pandemic has directed a spotlight on the medical community. In 2020, medical schools reported the most interest they have seen in more than a decade. According to the AAMC, the number of applications to medical schools across the country increased by 18% in 2020.

Admissions officers and industry professionals believe the surge in applications is due to the example set by medical workers and public health figures like Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases. Dr. Fauci sees the flood of medical school applicants as a sign that people are thinking about social justice — "that you have a responsibility not only to yourself, but as an integral part of society." Increases in the number of applications may also be chalked up to less-stringent requirements this year. Some schools dropped the Medical College Admission Test examination requirement or shifted back application deadlines. Whatever the reasoning, ballooning interest in the medical industry could prove vital in countering a growing physician shortage.

The Aging Physician

Another issue tied to physician shortages that are often overlooked is the fact that physicians retire. Not only is there currently a national shortage of physicians, but many physicians annually. Across the United States, there are approximately 938,966 active physicians.

More than two of five currently active physicians will be 65 or older within the next decade. Shifts in retirement patterns over that time could have large implications for physician supply. Growing concerns about physician burnout, documented in the literature and exacerbated by COVID-19, suggest physicians will be more likely to accelerate than delay retirement. On the other hand, economic uncertainty and any detrimental effect on physician wealth could contribute to delaying retirement.[79]

COVID-19 has raised awareness of the disparities in health and access to care by minority populations, people living in rural communities, and people without medical insurance. If underserved populations had health care use patterns like populations with fewer access barriers, demand would rise such that the nation would be short by about 102,400 (13%) to 180,400 (22%) physicians relative to the current supply.[80] Improving access to care is imperative.

The Supply and Demand Imbalance for Physicians Across the United States[81]

The United States is facing a serious shortage of physicians, largely because of the growth and aging of the population and the impending retirements of older physicians. Even though medical schools have increased enrollment by 30% since 2002, new data from the Association of American Medical Colleges

[78] Forbes Magazine
[79] Association of American Medical Colleges: State Physician Workforce Data Book 2021
[80] Ibid.
[81] Ibid.

(AAMC) predicts that the United States will face a shortage of 17,800, and 48,000 is projected by 2034. A shortage of non-primary care specialty physicians of between 21,000 and 77,100 is projected by 2034, including:

- Between 15,800 and 30,200 for Surgical Specialties.
- Between 3,800 and 13,400 for Medical Specialties.
- Between 10,300 and 35,600 for the Other Specialties category.

In 2018, there were 277.8 active physicians per 100,000 population in the United States, ranging from a high of 449.5 in Massachusetts to a low of 191.3 in Mississippi. The states with the highest number of physicians per 100,000 population are concentrated in the Northeast.[82]

The Increased Effect of COVID-19 on Physician Shortages

The AAMC stated that COVID-19 is likely to have short- and long-term consequences for the nation's physician workforce, including changes in the specialties physicians choose, the educational pipeline, licensure, reimbursement regulations, how medicine is practiced, and workforce exit patterns. The COVID-19 pandemic has already highlighted shortages in specialty physicians, especially those with hospital-based specialties such as critical care, pulmonary care, and emergency medicine.[83]

As a result of the profound disruption COVID-19 placed, The Physicians Foundation focused the survey solely on the pandemic. The survey found that 8% of physicians had closed their practices.[84] With more than 200,000 medical practices in the United States, that means about 16,000 had closed. Another 4% of doctors planned to close shop within 12 months. The survey revealed, that 61% of physicians reported often feelings of burnout, showing a significant increase since 2018. The closing of practices raised the threat of an even greater physician shortage than what is already expected.[85]

Addressing the shortage will require multiple approaches, including innovation in care delivery; greater use of technology; improved, efficient use of all health professionals on the care team; and an increase in federal support for residency training.[86] The projected shortfall is significant enough that no single solution will be sufficient to resolve physician shortages.

[82] Association of American Medical Colleges, 2019 State Physician Workforce Data Book
[83] Association of American Medical Colleges; Physician Supply and Demand — A 15-Year Outlook: Key Findings
[84] Ibid
[85] The Physicians Foundation Survey
[86] Ibid

Clinical Training

Clinical Landscape

Maryland is home to 72 hospitals, Delaware 13, and District of Columbia seven. These geographic regions do not have critical access hospitals; however, in total, Maryland and Delaware have 27 Federally Qualified Health Centers, and one rural health clinic.[87]

The abundant hospitals and health systems, which are favorable for clinical partnerships and collaborations locally allow for ample medical opportunities for students to obtain clerkships as well as residency training. Maryland and its neighboring states, provide significant training opportunities for the proposed osteopathic medical school.

Clerkship Opportunities

The accessibility of clinical spots is imperative to the success of the medical school. An important factor in determining the feasibility of a new medical school is the number of clinical encounters at nearby hospitals and within the outpatient environment at private practices and community health centers. Student placement in a medical setting must be well-positioned and established and formal relationships with regional partners is essential. The proposed MDCOM is properly positioned to work collaboratively with clinical organizations to adequately place students for clerkship opportunities. A high degree of commitment must be present among a consortium of all hospitals within the region to support the educational training needs of third- and fourth-year medical students to ensure a feasible project.

The proposed osteopathic medical school will leverage the strengths of multiple clinical partners throughout the region to train physicians to provide team-based, interprofessional patient care to prevent and treat complex and chronic diseases. The ability to provide learning experiences with clinical partners in the Baltimore region, the new medical school will have access to clinical partners throughout the state.

Tripp Umbach's analysis of hospitals across Maryland as well as in contiguous states indicates that clinical activity is adequate to support the education of 150 medical students per class.

Graduate Medical Education Planning

In addition to clerkship training during medical school, medical students must complete a residency training program after graduating from medical school. It is typical for residents to practice in the area in which they complete their residency training.

[87] Rural Health Information Hub

Medical residency is post-graduate training for physicians. Fourth-year medical students will explore the medical specialty they want to explore, and they may apply to several medical residency programs that feature that specialty.

As the rate of medical school enrollment increases, it is important to also monitor and support GME initiatives as both components are intertwined. Data from the AAMC Medical School Enrollment reported that half of medical schools are concerned about their incoming students' ability to find a residency training position of their choice upon completion of medical school, and federal caps on Medicare-funded residency training positions remain effectively frozen at 1996 levels. Addressing the physician shortage requires a multi-pronged approach, including increasing federal support for GME, which until December 2020 remained effectively frozen since 1997. The AAMC supports the Resident Physician Shortage Reduction Act of 2021 (S. 834, H.R. 2256), which would add 14,000 residency slots over seven years.[88] In addition to expanding support for federally funded residency training positions, non-GME incentives and programs, such as Conrad 30, the National Health Service Corps and Public Service Loan Forgiveness, and Title VII/VIII, are used to recruit a diverse workforce and encourage physicians to practice in shortage specialties and underserved communities. [89]

The COCA's accreditation Standard 10 addresses GME by stating that: [90]

- The faculty of a COM must ensure that the curriculum provides content of sufficient breadth and depth to prepare students for entry into a graduate medical education program for the subsequent practice of medicine. The COM must strive to develop graduate medical education to meet the needs of its graduates within the defined service area, consistent with the mission of the COM
    - A COM must demonstrate its policies, procedures, personnel, and budgetary resources to support the continuum of osteopathic education.
    - A COM must provide a mechanism to assist new and existing graduate medical education (GME) programs in meeting the requirements for accreditation by the Accreditation Council for Graduate Medical Education (ACGME).
    - A COM must provide a mechanism to assist graduate medical education programs accredited by the ACGME in meeting the requirements of osteopathic recognition.
    - A COM must demonstrate and publish publicly the placement of its students in graduate medical education programs, including through the publication of placement rates of its students.

The MDCOM has the capability to work collaboratively with health care institutions for GME is strongly supported. Regional stakeholders and key investors from government leaders to health care institutions report the opportunity to provide training to medical students. Executive leaders at the MDCOM will

[88] Association of American Medical Colleges
[89] Ibid
[90] Commission on Osteopathic College Accreditation: Accreditation of Colleges of Osteopathic Medicine: COM Continuing Accreditation Standards

continue to visit hospitals, physician groups, and health care institutions throughout the state to broaden and deepen collaboration for medical education.

There are several advantages and benefits GME brings including recruitment cost savings; revenue generation from increasing physicians and residents; workforce alignment; and community-based training sites that can improve health status, decrease costs, and facilitate inter-professional care.

Residency Match Rate[91]

The 2022 Residency Match included 47,675 registered applicants and a record 39,205 certified positions. The 2022 Main Residency Match included 39,205 total positions, the largest number on record. Of those, 36,277 were first-year (PGY-1) positions, also the largest on record and a 3.1 percentage point increase over last year. The growth in PGY-1 positions was supported in part by an increase in the number of programs offering PGY-1 positions, 177 or 3.4 percent, in the Match.

The 2022 Main Residency Match saw a record number of positions offered in primary care. Of the 36,277 first-year positions offered, 18,133 (50.0%) were in Family Medicine, Internal Medicine (categorical), Medicine – Pediatrics, Medicine – Primary, Pediatrics, and Pediatrics – Primary, an increase of 484 positions (2.7%) over the number offered in 2021.

Of the primary care positions offered in 2022 Main Residency Match, 17,116 (94.4%) were filled and 11,061 (64.6%) of those were filled by U.S. seniors. Although the percent of primary care positions filled by U.S. seniors in 2022 represents a slight decline (0.7%) from the prior year, U.S DO seniors saw a gain in number matched in Family Medicine (54 positions, 3.6% increase), Internal Medicine (120 positions, 8.1% increase) and Pediatrics (61 positions, 11.8% increase) in 2022.

Section Summary

The benefits of a proposed osteopathic medical school in Baltimore will be beneficial to the community as regional stakeholders offer full support. A proposed MD osteopathic medical school can be developed in collaboration with health systems, community health organizations, population health improvement provided by physicians from diverse backgrounds with the goal of improving and maintaining better health.

Tripp Umbach believes that if the MDCOM were to move forward with the development of a proposed osteopathic medical school, a business plan should be further explored and developed to address any clinical concerns and issues that may arise.

[91] The National Resident Matching Program®

Projected Revenues, Expenditures, and Cash Flow

The MDCOM has a favorable proforma that demonstrates the financial viability of this project. The projected annual revenue for this project at the time the first cohort of student graduates is $35,175,000 and the projected annual expenses at that time of $27,025,000. Positive cash flow and margins at the time that the college graduates its first class provides a strong measure of sustainability.

For the analysis, Tripp Umbach reviewed the most current financial models for the proposed MDCOM. The MDCOM provided Tripp Umbach with the financial model inclusive of all assumptions, operating and capital expenditures, projected revenues, and financing scenarios. Tripp Umbach reviewed every input of the model, benchmarking values to industry standards as well as comparing to Tripp Umbach's historical experience and expertise.

The financial team for the MDCOM has done their due diligence on this project and has examined external market conditions as well as local and regional market conditions affecting the Greater Baltimore Area.

Our due diligence with the financial analysis has concluded the following:

1. The project is financially viable in the near, mid-range, and long term for the institution.
2. The proposed COM will have a long-term positive cash flow and margin.
3. The short-term negative cash flow will be manageable for the organization and financially prudent considering the long-term margin gains.
4. While there are some inherent risks associated with any new educational endeavor, the historical performance of COMs suggests a promising risk/benefit analysis.

Economic Impact

Tripp Umbach's national studies estimate that medical schools and teaching hospitals generate more than $800 billion annually in the US economy. The establishment of a new medical school campus on the campus of Morgan State University in Baltimore, MD will likewise bring significant "fresh dollars" to the region and is likely to inspire additional economic development through the potential expansion of other health science education programs, clinical and research partnerships with nearby community hospitals, and private business expansions that may be developed over time.

The proposed medical school campus will bring economic benefits both directly and indirectly to both the regional and statewide economies. The direct benefits will come from the direct spending of the proposed medical school campus on capital improvements and goods and services to businesses in the region, the hiring of new faculty and staff, and through student spending. The indirect impact is derived from these direct, first-round expenditures, which are received as income by other businesses in the region and state and circulated through the economy in successive rounds of spending.

In April 2022, Tripp Umbach conducted a study to quantify the projected annual economic, employment, government revenue, and social impacts associated with the proposed Maryland College of Osteopathic Medicine on the campus of Morgan State University in Baltimore, Maryland at the time of the first class being welcomed on campus in 2024, as well as that classes graduation in 2027 when the campus will be viewed as fully operational. This study also demonstrates future economic impacts of the school in 2030 and 2045 when the college has additional programs and has graduated a significant number of physicians and other healthcare professionals.

Tripp Umbach is the national leader in developing economic impact statements for medical schools, having completed studies since 1995 for every allopathic medical school and for more than half of all osteopathic medical schools. Over the past 20 years Tripp Umbach has completed economic impact studies for more than 30 new or expanded medical schools, including studies for 15 new medical schools that are now operational. The economic, employment, and government revenue numbers presented in this report are based on projected spending data provided to Tripp Umbach by the MDCOM as well as historical achievement of existing medical schools.

Direct Benefits of Graduate Medical Education (GME) to Hospitals and their Communities

GME is a critical resource for the future of health care in the United States. Studies have shown that increases in the primary health-care delivery model are tied to better health outcomes in patients, lower costs for health providers, and greater equity in health. To increase the primary-care delivery model in both the underserved and rural areas in Maryland, physicians must be trained in primary-care disciplines and select shortage specialties such as family practice, general community-based internal medicine, pediatrics, and psychiatry.

Maryland can increase its primary-care physician pool by expanding and developing new postgraduate residency positions in rural and underserved regions statewide. Throughout the country, as more

students are trained in primary-care fields, their impacts on the communities in which they serve can be felt in a multitude of ways.

Hospitals with residency programs are stronger financially, provide significantly more free care, have higher-quality scores, and offer a broader range of services than similarly sized hospitals without residency programs.

- More Doctors: Residency programs can lead to the recruitment of additional sub-specialty physicians who not only train medical students but also provide sub-specialty clinical services that were not available in the community before the formation of the residency program.
- Cost Savings to Taxpayers: The typical hospital with a residency program in internal medicine saves approximately $3 million each year in uncompensated care.
- Strong Hospitals: Hospitals save $75,000 on average in recruitment costs for every resident they hire – allowing these dollars to be invested in patient care and community health programs. Hospitals with primary-care residency programs have lower utilization of emergency departments as a result of clinics that are staffed by residents.
- Patient Care Quality: Outpatient services provided by residency programs include school-based programs, screenings, community-based education programs, nursing home support, medical home health-care support, emergency department follow-up, and support for public health departments.
- Partner Benefits: Academic medical centers benefit from funding associated with primary-care access-related research.
- Resident Benefits: Residents who remain in the community have a strong working knowledge of the local and regional health-care environment and are better able to direct the care for their patients.
- Family physicians are significant generators of economic activity in local communities on top of the health-care services they provide. Family physicians employ staff, purchase goods and services, and generate income for other health-care organizations in their community (e.g., hospitals, nursing homes).

The Proposed Maryland College of Osteopathic Medicine at Morgan State University Impact

- In 2027, when the proposed school is fully operational it will have an economic impact (direct and indirect economic benefits) of $50.9 million, more than 148 jobs, and $1.8 million in taxes to communities in the region.
- In addition to the operational impact outlined above, by 2030 the economic impact of the proposed campus will grow to $156.4 million as Baltimore communities will begin realizing healthcare benefits and additional economic impact as graduates of the campus located in the region and state. Tripp Umbach estimates that by 2030 when the first class of medical students complete their residencies, these new primary care physicians will also yield real savings, as

emergency room utilization declines, for example. These savings are expected to total $30.8 million annually by 2030.

- By 2030 commercial spin-off activity from research completed at the proposed campus will equal $15.0 million annually, sustaining approximately 445 additional jobs in the Baltimore region.
- By 2045 the total economic impact of the proposed college to the Baltimore region will equal more than $1.5 billion, support over 2,500 jobs, and contribute more than $128.5 million to state and local governments.

Table 33 includes a summation of total economic, employment, and government revenue impacts. All numbers are presented on an annual basis for the years listed. For example, healthcare cost savings is calculated for the year in which a class of expected graduates enter the practice of medicine.

Table 33: Summary of Projected Regional Impacts

	2024	2027	2030	2045
Annual Operational impacts	$25.8 M	$40.9 M	$61.0 M	$92.0 M
Workforce Impacts	-	-	$80.4 M	$1.4 B
Private Spin-Off Impacts	-	$10.0 M	$15.0 M	$25 M
Total Economic Impact	$25.8 M	$50.9 M	$156.4 M	$1.5 B
	2024	**2027**	**2030**	**2045**
Healthcare Cost Savings	-	-	$30.8 M	$608 M
Total Direct Jobs Supported	86	148	489	2,543
Regional Government Revenue	$1.3 M	$1.8 M	$7.8 M	$128.5 M

Note: Investments and impacts from additional construction over the period 2023-2045 are not included in the chart above.

Additional Economic and Societal Benefits

A medical school in Baltimore, Maryland located on the Morgan State University campus would have a positive and encouraging effect on the delivery of health care services, improved patient outcomes, and the making of a strong regional economy. The proposed college of osteopathic medicine could be a major driver of the economy, creating jobs and generating millions in annual net impact to the region. The planned school of medicine could also:

- Increase health care access for underserved and disenfranchised populations.
- Increase the numbers of high-qualified and diverse physicians who have regional connections and interests; therefore, addressing the health care workforce need of the region.
- Expansion of an innovative economy whereby biomedical companies are launched in and attracted to the region; new jobs are created; and research sparks technology transfer,

commercialization, and economic value through improvements in prevention, treatment, and practice.

- Grow the health-care delivery system in Maryland. As a result, the quality of life for community residents improves as well as the ability to leverage health-care cost savings.

Additional Impacts not included in the Study

Tripp Umbach's analysis of the economic impact of the proposed MDCOM in Baltimore is based on many conservative assumptions. Not included in this analysis are the economic impacts associated with the growth of the regional healthcare industry related to additional patients staying in the region for care, patients being attracted to the region for care due to increased quality and expanded medical services, or the economic benefits related to the expansion of graduate medical education at local hospitals.

Economic Impact Methods and Notes

Tripp Umbach completed an economic impact assessment of the proposed MDCOM on the campus of Morgan State University in Baltimore, Maryland. Tripp Umbach has performed more than 500 economic impact studies for both academic institutions and large health care systems, including for every US medical school and more than 400 teaching hospitals – both allopathic and osteopathic institutions. The economic models used by Tripp Umbach in this analysis were first developed in 1970 by the American Council on Higher Education. The data in the model were supplied by the MDCOM (faculty, students, operational expenses, etc.) and from Tripp Umbach's comprehensive database and models from new medical school and existing medical school expansion studies in other localities throughout the United States. The methodology employed in these studies was originally derived from a set of research tools and techniques developed for the American Council on Education (ACE).[92] The ACE-based methodology employs linear cash flow modeling to track the flow of institution-originated funds through a delineated spatial area. Based on previous economic impact studies performed for new and/or regional medical schools throughout the United States and the State of Maryland.

The application of this "fresh dollar" model provides a first-line measure in the state economy caused by the proposed MDCOM. The final model concept evolved into a hybrid model including a fresh-dollar approach feeding into a traditional model which tracks in-state and in-region spending. The final model used for this research measures funds brought into the state together with the ultimate flow of these funds through the Maryland and Baltimore regional economies and the effect on economic expansion, job growth, and government revenue and enterprise development. The final methodology closely matches the impact study methodology recommended for individual medical schools by the Association of American Medical Colleges (AAMC).

[92] Caffery, John and Issacs, Herbert, "Estimating the Impact of a College or University on the Local Economy," American Council on Education, 1971.

Appendix A: Project Overview

In December 2021, the proposed Maryland College of Osteopathic Medicine contracted with Tripp Umbach to complete a feasibility study to assess and evaluate the opportunities and benefits of expanding medical education in the state of Maryland, specifically examining the development of an osteopathic medical school in Baltimore, Maryland. The Tripp Umbach team gathered feedback from the MDCOM leadership team and assessed the primary care and statewide/regional markets to provide key findings and recommendations of the proposed medical school.

To complete the study, Tripp Umbach conducted the following:

- **Project Planning and Work Sessions:** Tripp Umbach worked with leadership from the MDCOM to lay out the goals of the study and to gain an understanding of vision for the proposed medical school. Discussions with leadership allowed the consulting team to identify opportunities and challenges associated with the development of an osteopathic medical school in Baltimore, Maryland.
- **Medical Student and Physician Diversity Assessment:** Tripp Umbach developed an independent report to demonstrate the need on increasing the diversity of medical students both nationally and in the Maryland, Delaware, and Washington DC region to reflect the diversity of the patient populations living in underserved communities. The assessment focus on the vision for the MDCOM to train the highest quality of physicians who can match into all specialties of medicine, not only primary care. The market analysis included detailed data that showed the number of minorities in the medical field.
- **Feasibility Analysis:** Tripp Umbach developed an independent report of key elements required to demonstrate the need and feasibility for an osteopathic medical school campus in Baltimore, Maryland on the campus of Maryland College of Osteopathic Medicine University that complies with the requirements of the Commission on Osteopathic College Accreditation (COCA). The assessment included the following: physician needs, student supply and demand, clinical training supply and interest in providing teaching for medical students, and opportunities for Graduate Medical Education (GME).
- **Independent Financial Analysis Review:** Tripp Umbach independently reviewed detailed preliminary estimates of expenses and revenues, faculty, and staff for the campus for the start-up years and the first five-years of operations. The financial analysis will be based on the MDCOM's current medical school operations and the client's vision for the college of medicine. Additionally, Tripp Umbach reviewed the projected annual operating budget during development and at maturity. The analysis will comply with the requirements of the Commission on Osteopathic College Accreditation.
- **Economic and Social Impact Analysis and Statements:** Tripp Umbach provided a statement of potential economic impacts of the proposed campus using the estimates of budget and class size determined most feasible. The economic impact discussion illustrated the short- and long-term benefits and measurement within the community surrounding Morgan State University.

To be included in the impact statement will also be data and supporting evidence on funding for medical students, average student debt at private medical schools and return on investment for students pursuing the DO degree. Tripp Umbach's social impact analysis will focus on the benefits of expanding minority physician workforce in underserved areas as well as benefits associated with population health improvement. Additional economic and social impact statement analysis Such analysis will comply with the requirement of the Commission on Osteopathic College Accreditation.

- **Development of Final Report:** The consulting team developed a final independent report to be used by the MDCOM to guide further evaluation and planning efforts and to continue to explore the development of an osteopathic medical school.

Appendix B: Mission and Vision of the Proposed the MDCOM

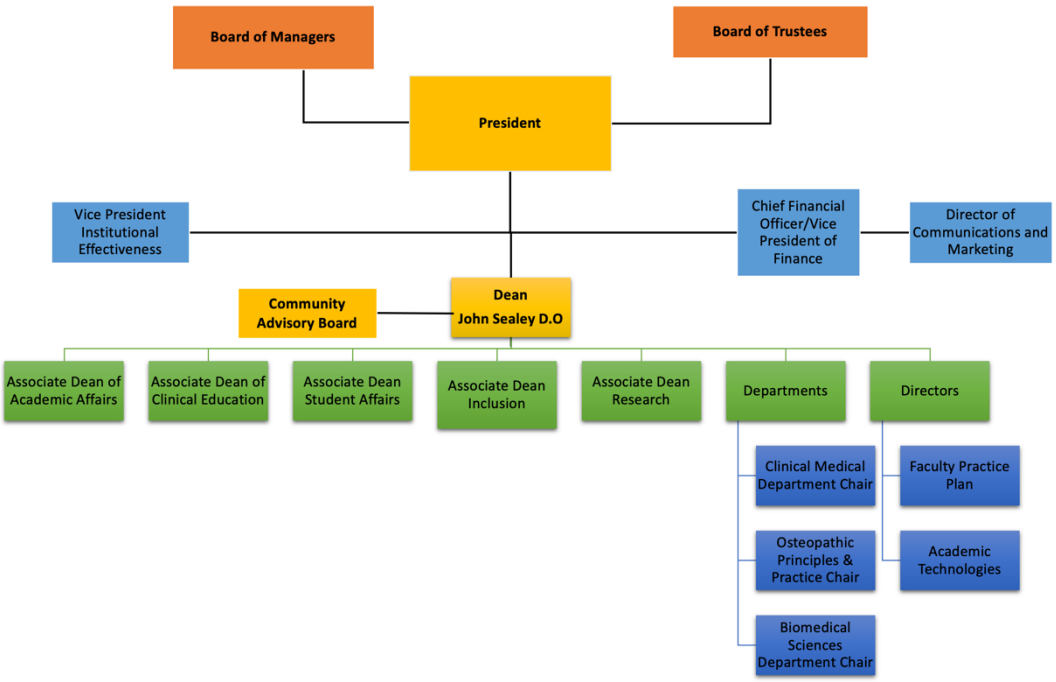
Mission and Vision

Mission Statement: The Mission of the proposed MDCOM is to: Produce caring, competent, diverse Osteopathic Physicians for all the Specialties of Medicine; and Contribute to the expansion of the Population Health knowledge base.

Vision: The Vision of the proposed MDCOM is to prepare diverse and under-represented minority students who, as Osteopathic physicians, will contribute their perspectives to the practice of medicine, nationally, in underserved communities, and thereby contribute to diminishing healthcare disparities and enhancing total population health.

Appendix C: Organization Chart

The below figure is the proposed organization chart for the MDCOM.

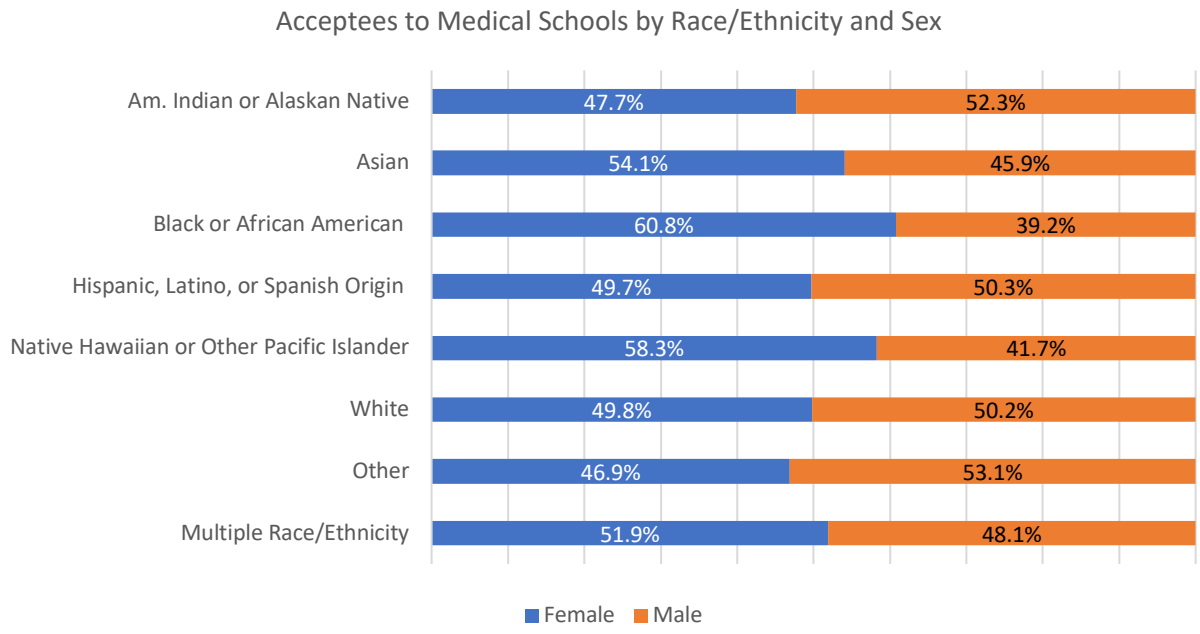


Appendix D: Gender in Medical Schools

The figure below illustrates the percentage of accepted applicants by sex by racial/ethnic group in 2018-2019. Females constituted 60.8% of the pool of Black or African American accepted applicants, 54.1% of Asian accepted applicants, and 58.3% of Native Hawaiian or Other Pacific Islander accepted applicants. Among White accepted applicants, 49.8% were female and 50.2% were male.[93]

The figure does not include acceptees who did not report a gender. The multiple race/ethnicity category includes individuals who selected more than one race/ethnicity response.

Figure 34: U.S. Medical Schools by Race/Ethnicity and Sex 2018-2019

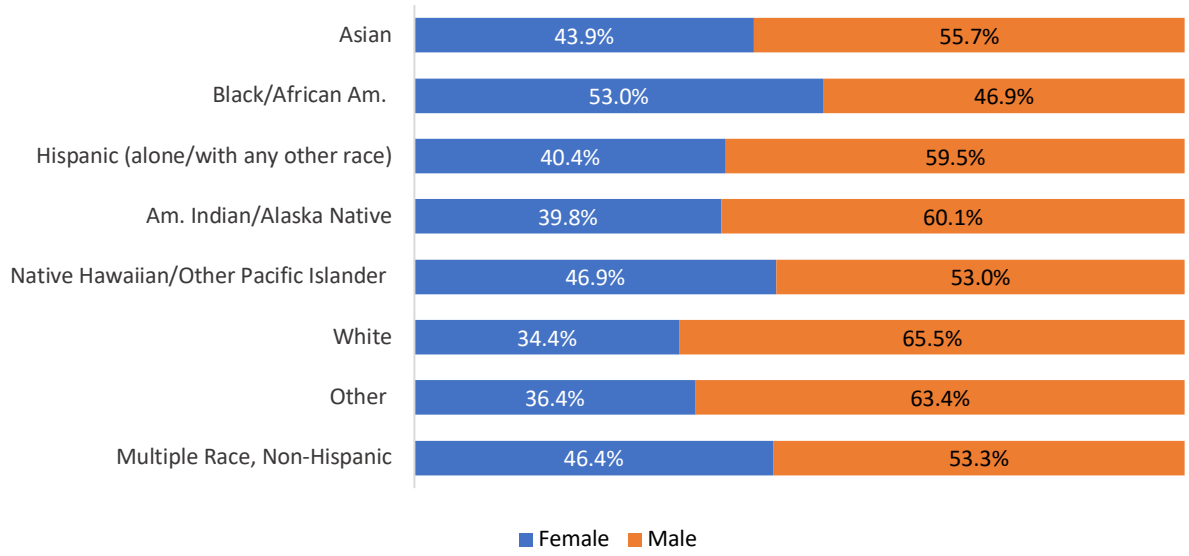


Source: Association of American Medical Colleges

Among Black or African American physicians, females constituted a larger proportion than males. However, there was a greater proportion of males than females in all other groups: 65.5% of White physicians were male; 60.1% of American Indian or Alaska Native physicians were male; 59.5% of Hispanic physicians (alone or in combination with another race) were male, and 55.7% of Asian physicians were male.[94]

[93] American Association of Medical Colleges
[94] Association of American Medical Colleges

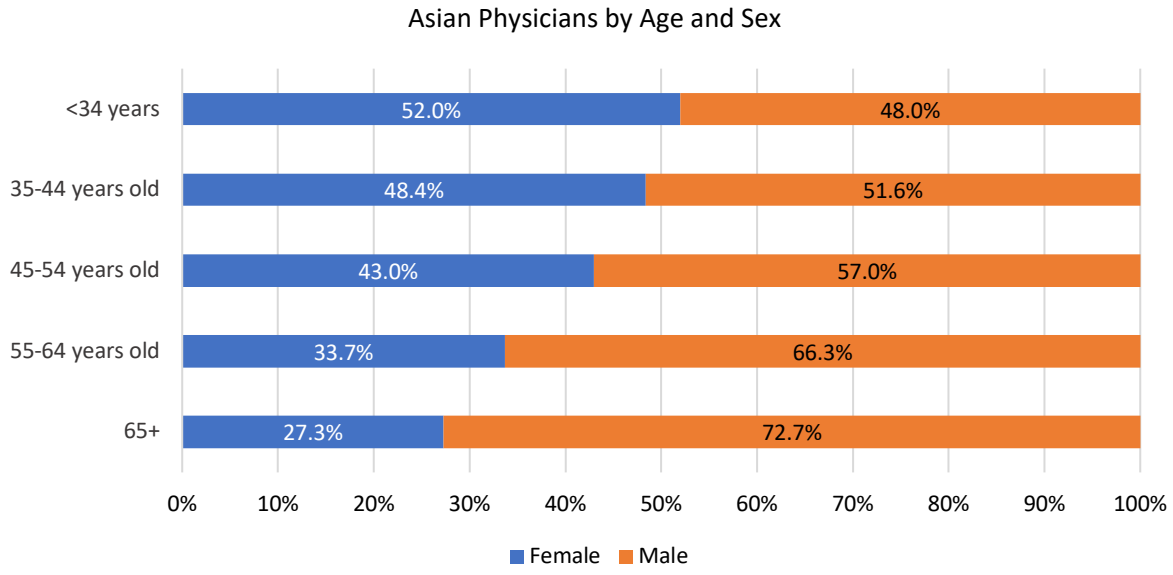
Figure 35: Percentage of physicians by sex and race/ethnicity, 2018



Source: Association of American Medical Colleges

Among Asian physicians, females made up a slightly larger percentage of the group 34 years of age and younger (52.0%). Males were the majority in all other age groups of Asian physicians; this majority was most pronounced in Asian physicians 65 years of age and older, of which 72.7% were male.

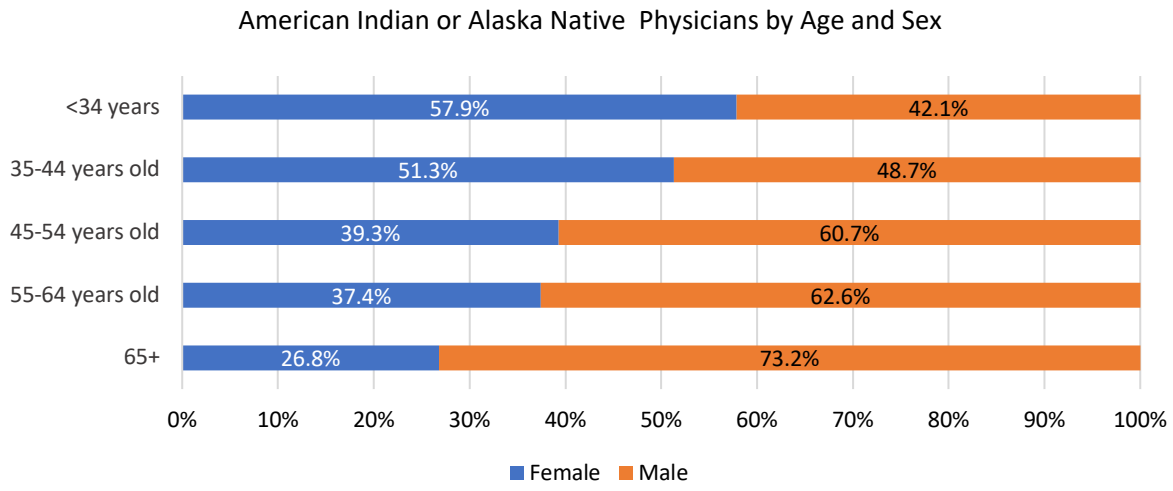
Figure 36: Asian Physicians by Age and Sex 2018



Source: Association of American Medical Colleges

The majority of American Indian or Alaska Native physicians under the age of 34 were female (57.9%). Females were also the majority of American Indian or Alaska Native physicians between the ages of 35 and 44 (51.3%). Only 26.8% of American Indian or Alaska Native physicians aged 65 and older were female.

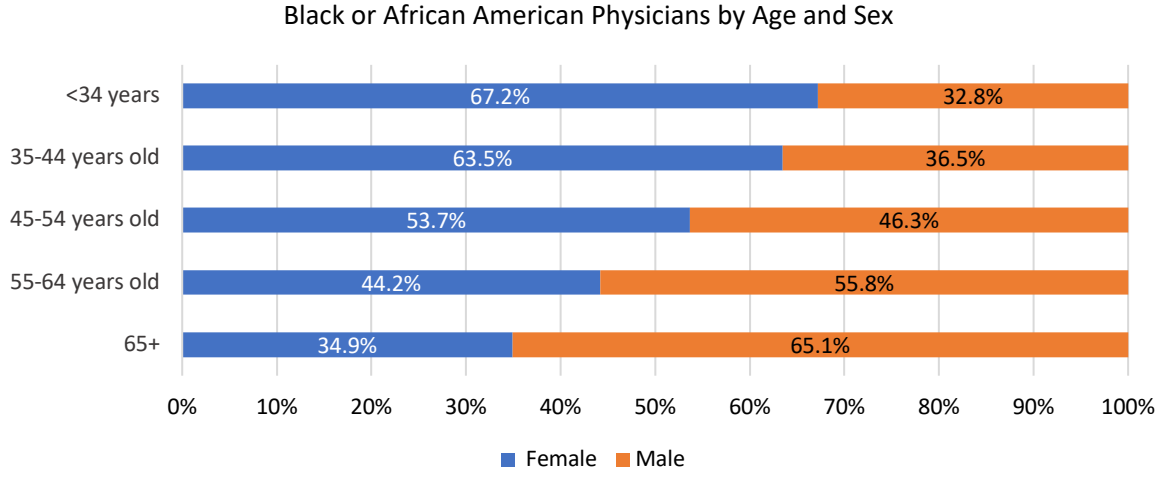
Figure 37: American Indian or Alaska Native Physicians by Age and Sex 2018



Source: Association of American Medical Colleges

Females were 59.2% of Black or African American physicians under age 55, 44.2% of Black or African American physicians between the ages of 55 and 64, and 34.9% of Black or African American physicians aged 65 and older.[95]

Figure 38: Black or African American Physicians by Age and Sex 2018

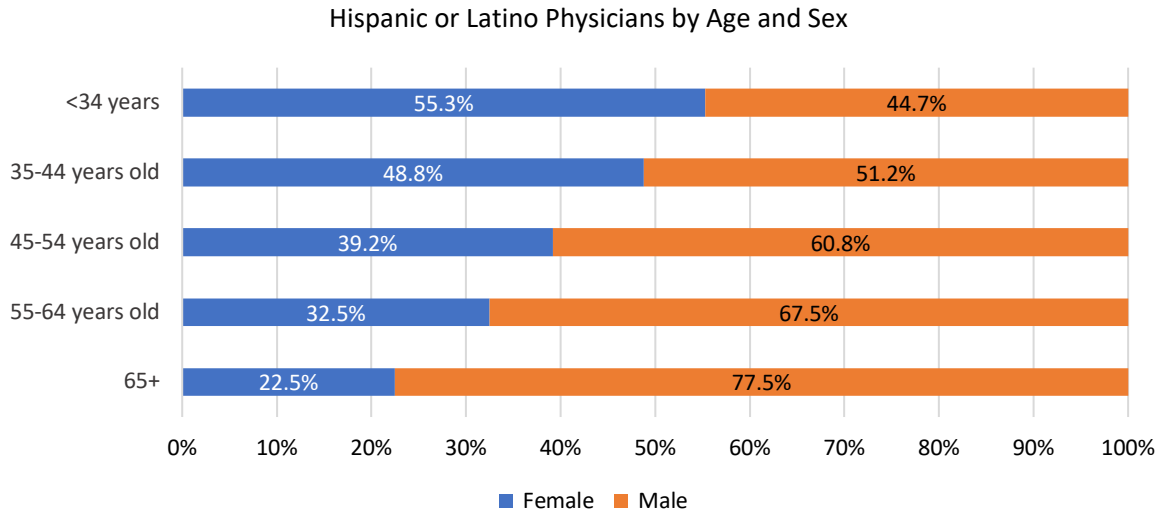


Source: Association of American Medical Colleges

[95] Association of American Medical Colleges

Females were 55.3% of Hispanic or Latino physicians 34 years of age and younger. Males were the majority of Hispanic physicians aged 65 and older (77.5%) and between the ages of 55 and 64 (67.5%).

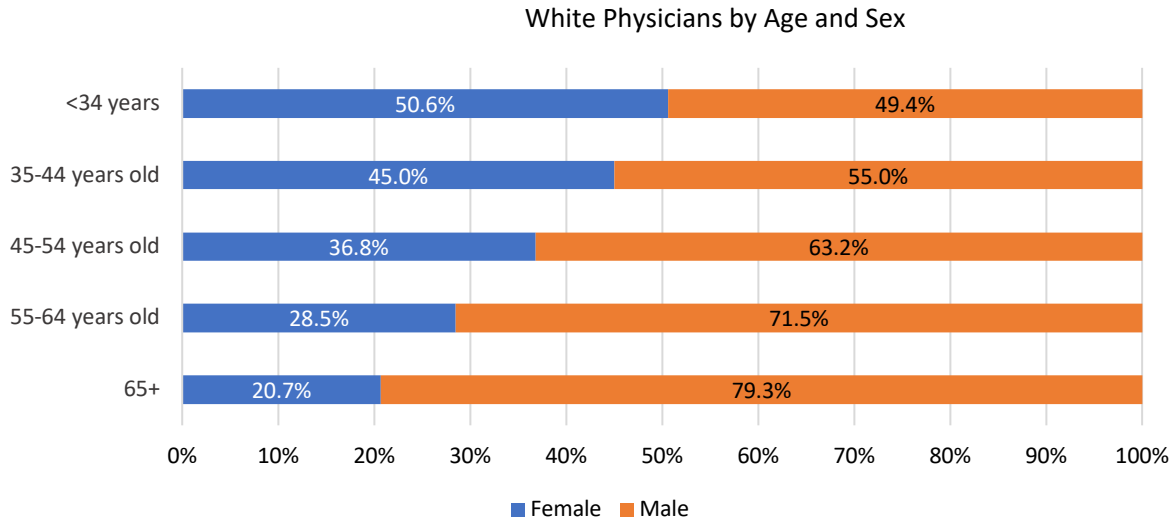
Figure 39: Hispanic or Latino Physicians by Age and Sex 2018



Source: Association of American Medical Colleges

Males were the vast majority of White physicians 65 years and older (79.3%) and of White physicians between the ages of 55 and 64 years (71.5%). A slight majority of White physicians aged 34 and younger were females (50.6%).

Figure 40: American Indian or Alaska Native Physicians by Age and Sex 2018



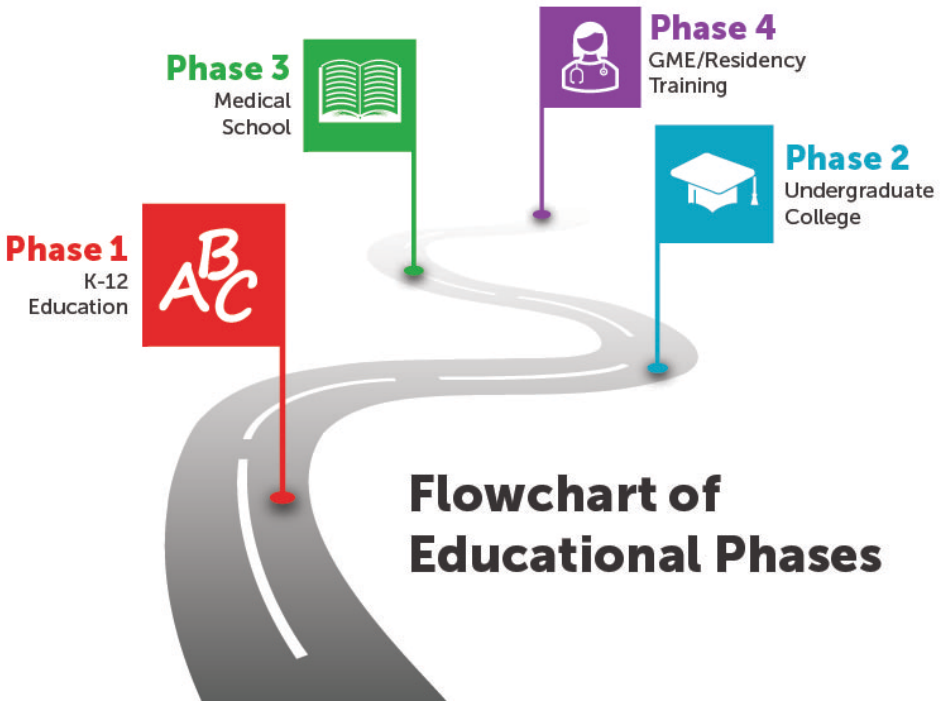
Source: Association of American Medical Colleges

Appendix E: Overview of Osteopathic Medicine

Medical Education Overview

The typical path to become a physician, both allopathic and osteopathic, is to complete a traditional four-year undergraduate degree, preferably in one of the sciences (i.e., life, social, physical, pre-med, etc.). Due to the nature of a focused undergraduate degree in the sciences, for those entering the medical field, this degree is designated as undergraduate medical education (UME). The student must then apply and be accepted to medical school. The student then attends the first two years of medical school in a classroom setting. Years three and four of medical school are typically spent conducting clinical clerkships outside of the classroom in settings such as hospitals, clinics, health centers, etc. Finally, the student must complete GME and a residency program for three to seven years. Residency positions are held by local hospitals, health centers, and/or FQHCs.

Figure 41: Flowchart of Educational Phases of the Medical Education Pipeline



While the basic curriculum of the allopathic and osteopathic colleges is the same, there are some important differences. The basic sciences and hospital training are taught from an osteopathic viewpoint, with a heavy emphasis on anatomy. Osteopathic medicine provides all the benefits of modern medicine including prescription drugs, surgery, and the use of technology to diagnose disease and evaluate injury. It also offers the added benefit of hands-on diagnosis and treatment through osteopathic manipulative medicine, which emphasizes helping each person achieve a high level of

wellness by focusing on health promotion and disease prevention.[96] Additional hours are spent learning the techniques of osteopathic manipulative medicine and focusing on preventive health care and nutrition.

Osteopathic Medical Schools Train Physicians to Meet a Well-Documented Need

Colleges of osteopathic medicine continue to expand to meet the needs for America's physician workforce. This past year, the number of osteopathic physicians in the United States climbed to nearly 135,000, an 80% increase over the past decade.[97] The nation's 134,901 fully licensed active and practicing osteopathic physicians cover the entire scope of modern medicine, bringing a patient-centered, holistic, hands-on approach to diagnosing and treating illness and injury.

Osteopathic physicians can choose any specialty, prescribe drugs, perform surgeries, and practice medicine anywhere in the United States. Osteopathic physicians bring the additional benefits of osteopathic manipulative techniques to diagnose and treat patients. Osteopathic physicians work in partnership with patients to help them achieve a high level of wellness by focusing on health education, injury prevention, and disease prevention.

- Most D.O.s (56.5%) go into primary care, with 30.0% landing in family medicine, 19.0% in internal medicine, and 7.5% in pediatrics.[98]
- In 2020-2021 the top five non-primary-care specialties for D.O.s were emergency medicine (10.0%), followed by obstetrics and gynecology (5.0%), anesthesiology (4.0%), general surgery (4.0%), and psychiatry (4.0 %).

Even though many new colleges of osteopathic medicine and regional campuses have opened or been approved by the COCA during the past five years, Tripp Umbach believes that demand for osteopathic physicians will continue to grow faster during the next 20 years than the supply of medical school graduates.

[96] American Association of Colleges of Osteopathic Medicine (AACOM)
[97] American Osteopathic Association: 2020-21-Osteopathic Medical Profession Report
[98] Ibid.

Appendix F: Applicants to Osteopathic Medical Schools

The table below shows the number of applications for the 2021 academic year for each osteopathic medical school. In 2021, not one school had fewer than 1,000 applicants.[99]

Table 42: 2021-2022 Applicants to Osteopathic Medical Schools

Colleges of Osteopathic Medicine/Schools of Osteopathic Medicine	Total
ACOM	5,871
ARCOM	3,463
ATSU-KCOM	5,323
ATSU-SOMA	7,902
AZCOM	7,440
BCOM	4,624
CCOM	8,569
CHSU-COM	3,939
CUSOM	4,823
DMU-COM	4,697
ICOM	3,521
KCU-Kansas	5,981
LECOM	11,819
LECOM Bradenton	9,052
LMU-DCOM	7,067
LUCOM	4,364
MSUCOM	8,161
MU-COM	5,700
Noorda COM	1,283
NSU-KPCOM	8,212
NYITCOM Long Island	9,925
OSU-COM	4,707
OU-HCOM	5,692
PCOM & S. Georgia	9,960
PCOM Georgia	4,411
PNWU-COM	5,194
Rowan SOM	6,931
RVUCOM Colorado/Utah	3,924
Touro COM-NY	7,943
TUCOM-CA	6,045
TUNCOM	4,231
UIWSOM	5,322
UNE COM	4,046
UP-KYCOM	4,512
VCOM-Auburn	3,961
VCOM-Carolinas	5,092

[99] American Association of Colleges of Osteopathic Medicine (AACOM): 2021 AACOM Report on Applicant Designations

Colleges of Osteopathic Medicine/Schools of Osteopathic Medicine	Total
VCOM-Louisiana	2,667
VCOM-Virginia	6,516
WCUCOM	3,836
Western U/COMP	7,045
Western U/COMP-Northwest	4,536
WVSOM	5,258
Total	**243,565**

Appendix G: Critical Access Hospitals and Rural Health Clinics

The Critical Access Hospital (CAH) program is a federal program established in 1997 as part of the Balanced Budget Act. The program aims to help small hospitals in rural areas serve residents who would otherwise be a long distance from emergency care. To accomplish this goal, CAHs receive certain benefits, such as cost-based reimbursement for Medicare services. As of January 2022, Maryland and Delaware do not have any CAH.

The Rural Health Clinic (RHC) program is intended to increase access to primary care services for patients in rural communities. RHCs can be public, nonprofit, or for-profit healthcare facilities. To receive certification, they must be located in rural, underserved areas. The clinic must be staffed at least 50% of the time with an NP, PA, or CNM. RHCs are required to provide outpatient primary care services and basic laboratory services. As of January 2022, Maryland reports having one RHC.

Appendix H: Regional Profile of Baltimore, Maryland

Maryland Population Data[100, 101]

Maryland covers 9,774 square miles, with a 2020 estimated population of 6,177,224 people – with 151,354 people living in rural areas. According to 2021 data from the U.S. Census Bureau, an estimated 58.5% of the state's population is white, 31.1% is African American, 6.7% is Asian, 0.6% is American Indian or Alaska Native, 0.1% is Native Hawaiian or Other Pacific Islander, and 10.6% is of Hispanic or Latino origin.

A total of 4.3% of Maryland residents lack health insurance. According to the Economic Research Service, the average per capita income for Maryland residents in 2020 was $66,799, with the rural per capita income at $57,714. The ERS reports, that the poverty rate in rural Maryland is 12.3%, compared with 9.0% in urban areas of the state. 11.5% of the rural population has not completed high school, while 9.7% of the urban population lacks a high school diploma according to 2015-2019 ACS data reported by ERS. The unemployment rate in rural Maryland is 6.2%, and in urban Maryland, it is 6.8%.

Demographics

- The 2019 population estimate for Baltimore was 593,000 of which 95.9% are citizens.

Race

- In 2019, there were 2.26 times more Black or African American (Non-Hispanic) residents (367k people) in Baltimore, MD than any other race or ethnicity. There were 163k White (Non-Hispanic) and 17.5k White (Hispanic) residents, the second and third most common ethnic groups.
- 5.67% of the people in Baltimore, MD are Hispanic (33.7k people) residents. This population has increased 14.5% since the 2010 census
- As of 2019, 8.36% of Baltimore, MD residents (49.6k people) were born outside of the United States, which is lower than the national average of 13.7%. In 2018, the percentage of foreign-born citizens in Baltimore, MD was 8.27%, meaning that the rate has been increasing.

Age

- In 2019, the median age of all people in Baltimore, MD was 35.9. Native-born citizens, with a median age of 35, were generally younger than foreign-born citizens, with a median age of 39. But people in Baltimore, MD are getting older. In 2018, the average age of all Baltimore, MD residents was 36.

Income

- Median household income in Baltimore, MD is $50,177. In 2019, the place with the highest median household income in Baltimore, MD was Census Tract 2711.02 with a value of $195,156,

[100] The information in this appendix section was obtained from Data USA unless otherwise noted.
[101] Data USA

followed by Census Tract 2712 and Census Tract 2713, with respective values of $165,443 and $154,313.

- Males in Maryland have an average income that is 1.23 times higher than the average income of females, which is $67,109. The income inequality in Maryland (measured using the Gini index) is 0.459, which is lower than the national average.
- In 2019, full-time male employees in Maryland made 1.23 times more than female employees.

Poverty

- 21.2% of the population for whom poverty status is determined in Baltimore, MD (124k out of 587k people) live below the poverty line, a number that is higher than the national average of 12.3%. The largest demographic living in poverty are Females 25 - 34, followed by Females 55 - 64 and then Females 45 - 54.
- The most common racial or ethnic group living below the poverty line in Baltimore, MD is Black, followed by White and Hispanic.

Employment

- From 2018 to 2019, employment in Baltimore, MD declined at a rate of −1.99%, from 286k employees to 280k employees.
- The most common employment sectors for those who live in Baltimore, MD, are Health Care & Social Assistance (56,420 people), Educational Services (35,873 people), and Retail Trade (25,238 people).

Education

- In 2019, in Baltimore County, 90.0% of White, 88.0% of Black/African American, and 72.1% of Hispanic/Latino students graduated from high school.[102]
- In 2019, universities in Baltimore, MD awarded 19,720 degrees. The student population of Baltimore, MD is skewed towards women, with 24,889 male students and 39,665 female students.
- Most students graduating from Universities in Baltimore, MD are White (7,895 and 48.4%), followed by Black or African American (4,046 and 24.8%), Asian (1,897 and 11.6%), and Hispanic or Latino (1,173 and 7.19%).
- The largest universities in Baltimore, MD by number of degrees awarded are Johns Hopkins University (10,006 and 50.7%), University of Maryland, Baltimore (2,375 and 12%), and Loyola University Maryland (1,749 and 8.87%).

[102] Community Commons

- The most popular majors in Baltimore, MD are Registered Nursing (1,038 and 5.26%), General Education (787 and 3.99%), and General Business Administration & Management (772 and 3.91%).
- In 2019 the most common race/ethnicity group awarded degrees at institutions in Baltimore, MD was White students. These 7,895 degrees mean that there were 1.95 times more degrees awarded to White students then the next closest race/ethnicity group, Black or African American, with 4,046 degrees awarded.

Health Overview [103]

- Overall, 7% of Maryland's population under age 65 did not have health insurance in 2021.
- In 2021, the ratio of population to primary-care physicians in Maryland was 1,130:1.
- In 2021, the number of hospital discharges for ambulatory-care sensitive conditions per 100,000 Medicare enrollees was 4,134.

Challenges in Maryland [104]

- High racial disparity in high school graduation rates
- High violent crime rate
- High incidence of chlamydia

Strengths in Maryland [105]

- Low prevalence of excessive drinking
- Low prevalence of frequent physical distress
- Low prevalence of high-risk HIV behaviors

Highlights in Maryland [106]

- Suicide increased 19% from 9.1 to 10.8 deaths per 100,000 population between 2015 and 2019
- Air pollution decreased 19% from 8.3 to 6.7 micrograms of fine particulate per cubic meter between 2015-2017 and 2018-2020
- Multiple chronic conditions decreased 17% from 9.2% to 7.6% of adults between 2018 and 2020

[103] County Health Rankings & Roadmaps
[104] America's Health Rankings
[105] Ibid
[106] Ibid

County Health Rankings [107]

Health is influenced by every aspect of how and where we live. Access to secure and affordable housing, safe neighborhoods, good-paying jobs and quality early childhood education are examples of important factors that can put people on a path to a healthier life. But access to these opportunities often looks different based on where you live, race, or the circumstances into which you were born. Data show a persistent pattern in barriers to opportunity for people with lower incomes and for communities of color across the United States. Patterned differences in a range of health factors emerge from unfair policies and practices at many levels and over many decades.

Medical education programs anchored in communities have great potential to address both present and future needs for physicians who provide care to the region. Maintaining strong ties to the community improves clinical outcomes. As hospitals become responsible for health outcomes, strong community partnerships through medical education will become increasingly critical.

The below table shows the county health rankings of Baltimore County.

Table 43: County Health Rankings in Baltimore County

Baltimore County	2021 Ranking (of 23 Counties)
Health Outcomes	16
Length of Life	16
Quality of Life	14
Health Factors	10
Health Behaviors	6
Clinical Care	12
Social and Economic Factors	12
Physical Environment	16

[107] County Health Rankings & Roadmaps

Appendix I: Regional Profile of Delaware

Delaware Population Data[108, 109]

In 2019, Delaware had a population of 974k people with a median age of 41.4 and a median household income of $70,176. Between 2018 and 2019 the population of Delaware grew from 967,171 to 973,764, a 0.682% increase and its median household income grew from $64,805 to $70,176, an 8.29% increase.

The fifth largest ethnic groups in Delaware are White (non-Hispanic) (61.3%), Black or African American (non-Hispanic) (22%), White (Hispanic) (6.44%), Asian (non-Hispanic) (3.73%), and two+ (non-Hispanic) (2.62%). 14% of the households in Delaware speak a non-English language at home as their primary language. 94.9% of the residents in Delaware are U.S. citizens.

14% of Delaware citizens are speakers of a non-English language, which is lower than the national average of 22%. In 2019, the most common non-English language spoken in Delaware was Spanish. 7.08% of the overall population of Delaware are native Spanish speakers. 0.903% speak Chinese (Incl. Mandarin, Cantonese) and 0.873% speak Haitian, the next two most common languages.

Demographics

- The 2019 population estimate for Delaware was 974k.

Race

- In 2019, there were 2.79 times more White (Non-Hispanic) residents (597k people) in Delaware than any other race or ethnicity. There were 214k Black or African American (Non-Hispanic) and 62.7k White (Hispanic) residents, the second and third most common ethnic groups.
- 9.59% of the people in Delaware are Hispanic (93.4k people).

Age

- In 2019, the median age of all people in Delaware was 41.4. Native-born citizens, with a median age of 41, were generally younger than foreign-born citizens, with a median age of 42. But people in Delaware are getting older. In 2018, the average age of all Delaware residents was 41.

Income

- Households in Delaware have a median annual income of $70,176, which is more than the median annual income of $65,712 across the entire United States. This is in comparison to a median income of $64,805 in 2018, which represents an 8.29% annual growth.

Poverty

- 11.8% of the population for whom poverty status is determined in Delaware (109k out of 931k people) live below the poverty line, a number that is lower than the national average of 12.3%.

[108] The information in the appendix was obtained from Data USA unless otherwise noted.
[109] Data USA

The largest demographic living in poverty are Females 25 - 34, followed by Females 18 - 24 and then Females 55 - 64.

- The most common racial or ethnic group living below the poverty line in Delaware is White, followed by Black and Hispanic.

Employment

- From 2018 to 2019, employment in Delaware grew at a rate of 0.79%, from 450k employees to 453k employees.
- The most common job groups, by number of people living in Delaware, are Registered nurses (14,460 people), Other managers (11,416 people), and Retail salespersons (10,150 people). This chart illustrates the share breakdown of the primary jobs held by residents of Delaware.

Education

- In 2019, universities in Delaware awarded 14,956 degrees. The student population of Delaware is skewed towards women, with 23,254 male students and 38,171 female students.
- Most students graduating from Universities in Delaware are White (8,513 and 63.4%), followed by Black or African American (2,546 and 18.9%), Hispanic or Latino (1,042 and 7.75%), and Asian (510 and 3.8%).
- The largest universities in Delaware by number of degrees awarded are University of Delaware (6,479 and 43.3%), Wilmington University (3,960 and 26.5%), and Delaware Technical Community College-Terry (1,904 and 12.7%).
- The most popular majors in Delaware are Registered Nursing (1,124 and 7.52%), General Business Administration & Management (1,013 and 6.77%), and General Finance (496 and 3.32%).
- The median tuition costs in Delaware are $24,780 for private four-year colleges, and $7,361 and $16,397 respectively, for public four-year colleges for in-state students and out-of-state students.

Health Overview [110]

- Overall, 7% of Delaware's population under age 65 did not have health insurance in 2021.
- In 2021, the ratio of population to primary-care physicians in Delaware was 1,330:1.
- In 2021, the number of hospital discharges for ambulatory-care sensitive conditions per 100,000 Medicare enrollees was 4,871.

[110] County Health Rankings & Roadmaps

Challenges in Delaware [111]

- High prevalence of obesity
- High prevalence of high-risk HIV behaviors
- High preventable hospitalization rate

Strengths in Delaware [112]

- High prevalence of obesity
- High prevalence of high-risk HIV behaviors
- High preventable hospitalization rate

Highlights in Delaware [113]

- Drug deaths increased 29% from 35.9 to 46.2 deaths per 100,000 population between 2017 and 2019
- Mental health providers increased 27% from 235.7 to 299.0 per 100,000 population between 2017 and 2021
- High health status increased 12% from 49.2% to 55.2% of adults between 2019 and 2020

County Health Rankings [114]

Health is influenced by every aspect of how and where we live. Access to secure and affordable housing, safe neighborhoods, good-paying jobs and quality early childhood education are examples of important factors that can put people on a path to a healthier life. But access to these opportunities often looks different based on where you live, race, or the circumstances into which you were born. Data show a persistent pattern in barriers to opportunity for people with lower incomes and for communities of color across the United States. Patterned differences in a range of health factors emerge from unfair policies and practices at many levels and over many decades.

Medical education programs anchored in communities have great potential to address both present and future needs for physicians who provide care to the region. Maintaining strong ties to the community improves clinical outcomes. As hospitals become responsible for health outcomes, strong community partnerships through medical education will become increasingly critical.

The below table shows the county health rankings of Kent, New Castle, and Sussex counties.

[111] America's Health Rankings
[112] Ibid
[113] Ibid
[114] County Health Rankings & Roadmaps

Table 44: County Health Rankings in Delaware

2021 Rankings	Kent County	New Castle County	Sussex County
Health Outcomes	3	1	2
Length of Life	3	1	2
Quality of Life	3	2	1
Health Factors	3	1	2
Health Behaviors	3	1	2
Clinical Care	3	1	2
Social and Economic Factors	3	1	2
Physical Environment	2	1	3

Appendix J: Regional Profile of District of Columbia

District of Columbia Population Data[115, 116]

In 2019, District of Columbia had a population of 706k people with a median age of 34.3 and a median household income of $92,266. Between 2018 and 2019 the population of District of Columbia grew from 702,455 to 705,749, a 0.469% increase and its median household income grew from $85,203 to $92,266, an 8.29% increase.

The 5 largest ethnic groups in District of Columbia are Black or African American (Non-Hispanic) (44.1%), White (Non-Hispanic) (37.3%), White (Hispanic) (5.23%), Other (Hispanic) (4.03%), and Asian (Non-Hispanic) (4.02%). 0% of the households in District of Columbia speak a non-English language at home as their primary language.93.8% of the residents in District of Columbia are U.S. citizens.

Demographics

- The 2019 population estimate in Washington D.C. was 706k of which 93.8% are citizens.

Race

- District of Columbia is home to a population of 706k people, from which 93.8% are citizens. As of 2019, 13.5% of District of Columbia residents were born outside of the country (95.1k people).
- In 2019, there were 1.18 times more Black or African American (Non-Hispanic) residents (312k people) in District of Columbia than any other race or ethnicity. There were 263k White (Non-Hispanic) and 36.9k White (Hispanic) residents, the second and third most common ethnic groups.

Age

- In 2019, the median age of all people in District of Columbia was 34.3. Native-born citizens, with a median age of 33, were generally younger than foreign-born citizens, with a median age of 42. But people in District of Columbia are getting older. In 2018, the average age of all District of Columbia residents was 34.

Income

- Households in District of Columbia have a median annual income of $92,266, which is more than the median annual income of $65,712 across the entire United States. This is in comparison to a median income of $85,203 in 2018, which represents an 8.29% annual growth.
- Males in District of Columbia have an average income that is 1.19 times higher than the average income of females, which is $89,522.

[115] The information in this appendix section was obtained from Data USA unless otherwise noted.
[116] Data USA

Poverty

- 16.2% of the population for whom poverty status is determined in District of Columbia (107k out of 660k people) live below the poverty line, a number that is higher than the national average of 12.3%. The largest demographic living in poverty are Females 25 - 34, followed by Females 18 - 24 and then Males 18 - 24.
- The most common racial or ethnic group living below the poverty line in District of Columbia is Black, followed by White and Hispanic.

Employment

- From 2018 to 2019, employment in District of Columbia grew at a rate of 2%, from 367k employees to 374k employees.
- The most common job groups, by number of people living in District of Columbia, are Lawyers, & judges, magistrates, & other judicial workers (22,368 people), Other managers (21,860 people), and Management analysts (15,020 people). This chart illustrates the share breakdown of the primary jobs held by residents of District of Columbia.

Education

- In 2019, universities in District of Columbia awarded 30,910 degrees. The student population of District of Columbia is skewed towards women, with 38,371 male students and 61,121 female students.
- Most students graduating from Universities in District of Columbia are White (13,038 and 49%), followed by Black or African American (5,988 and 22.5%), Hispanic or Latino (2,513 and 9.44%), and Asian (2,206 and 8.29%).
- The largest universities in District of Columbia by number of degrees awarded are George Washington University (10,413 and 33.7%), Georgetown University (7,354 and 23.8%), and American University (4,492 and 14.5%).

Health Overview [117]

- Overall, 4% of District of Columbia ‘s population under age 65 did not have health insurance in 2021.
- In 2021, the ratio of population to primary-care physicians in Maryland was 850:1.
- In 2021, the number of hospital discharges for ambulatory-care sensitive conditions per 100,000 Medicare enrollees was 5,032.

Challenges in District of Columbia [118]

- High racial disparity in premature death rates

[117] County Health Rankings & Roadmaps
[118] America’s Health Rankings

- High prevalence of non-medical drug use
- High prevalence of high-risk HIV behaviors

Strengths in District of Columbia [119]

- Low prevalence of frequent physical distress
- High per capita public health funding
- Low percentage of adults who avoided care due to cost

Highlights in District of Columbia [120]

- Smoking decreased 22% from 14.5% to 11.3% of adults between 2017 and 2020
- Voter participation increased 15% from 62.9% to 72.6% of U.S. citizens aged 18 and older between 2014/2016 and 2018/2020
- Annual dental visits decreased 11% from 76.0% to 67.9% of adults between 2016 and 2020

[119] Ibid.
[120] Ibid.

Appendix K: Letters of Support

The Maryland College of Osteopathic Medicine has been in contact with several businesses, government officials, and community leaders all of which expressed their support of the MDCOM. Below is a list of those who has agreed to write letter of support for the Maryland College of Osteopathic Medicine.

1. Councilman — Ryan Dorsey Baltimore City Office of City Council
2. Theodore Carter — Deputy Mayor for Community and Economic Development
3. Faith Leach — Deputy Mayor for Equity, Health and Human Services at City of Baltimore
4. Dr. Gregory Branch – Baltimore County Health Officer
5. Dr. Tanisha Cheatham — Kaiser Permanente of Maryland
6. Gene Ransom – Maryland State Medical Society
7. Jonathan D'Souza — Ascension St. Agnes
8. Lisa Williams — Baltimore City Medical Society
9. Mary Sutton — Baltimore Medical Systems
10. Nick Mosby — Baltimore City Council President
11. Russ Kajun — Baltimore County Medical Society
12. Tanisha Cheatham — Kaiser Permanente
13. Wilma Rowe — Mercy Medical Center Medical Director

Appendix L: Clinical Landscape in Delaware

Table 45 identifies these hospitals and medical centers, totaling more than 2,036 beds. These sites are available for opportunities for students to obtain clerkships as well as residency training. Clinical opportunities for partnership also exist throughout at FQHCs as well as physician offices, community centers, and clinics.

Table 45: Non-Federal, Short-Term, Acute-Care Hospitals

Hospital Name	City	Staff Beds	Total discharges	Patient Days
Bayhealth Hospital, Kent Campus	Dover	281	14,048	70,724
Bayhealth Hospital, Sussex Campus	Milford	128	4,854	21,526
Beebe Healthcare	Lewes	194	9,153	44,138
Christiana Hospital	Newark	1,193	48,474	285,781
Saint Francis Healthcare	Wilmington	146	6,532	22,366
TidalHealth Nanticoke	Seaford	94	5,074	19,186
Wilmington Hospital	Wilmington	0	0	0
Wilmington VA Medical Center	Wilmington	0	0	0
T O T A L		2,036	88,135	463

Source: American Hospital Directory

Appendix M: Clinical Landscape in District of Columbia

Table 46 identifies these hospitals and medical centers, totaling more than 2,195 beds. These sites are available for opportunities for students to obtain clerkships as well as residency training. Clinical opportunities for partnership also exist throughout at FQHCs as well as physician offices, community centers, and clinics.

Table 46: Non-Federal, Short-Term, Acute-Care Hospitals

Hospital Name	City	Staff Beds	Total discharges	Patient Days
Howard University Hospital	Washington	227	7,552	52,514
MedStar Georgetown University Hospital	Washington	394	14,573	115,426
Medstar Washington Hospital Center	Washington	769	28,725	216,930
Sibley Memorial Hospital	Washington	273	10,514	51,894
The George Washington University Hospital	Washington	375	20,336	105,535
United Medical Center	Washington	157	4,649	30,537
Washington DC VA Medical Center	Washington	0	0	0
TOTAL		2,195	86,349	572,836

Source: American Hospital Directory

Appendix N: Clinical Landscape in Maryland

Table 47 identifies these hospitals and medical centers, totaling more than 10,365 beds. These sites are available for opportunities for students to obtain clerkships as well as residency training. Clinical opportunities for partnership also exist throughout at FQHCs as well as physician offices, community centers, and clinics.

Table 47: Non-Federal, Short-Term, Acute-Care Hospitals

Hospital Name	City	Staff Beds	Total discharges	Patient Days
Adventist HealthCare Fort Washington Medical Center	Fort Washington	28	1,485	6,394
Adventist HealthCare Shady Grove Medical Center	Rockville	360	19,857	105,756
Adventist HealthCare White Oak Medical Center	Silver Springs	178	11,696	56,612
Anne Arundel Medical Center	Annapolis	379	23,011	103,666
Ascension Saint Agnes Hospital	Baltimore	271	10,769	55,080
Atlantic General Hospital	Berlin	62	2,582	11,219
Baltimore VA Medical Center	Baltimore	0	0	0
Calvert Health Medical Center	Prince Frederick	70	5,233	20,506
Carroll Hospital	Westminster	161	7,997	40,019
Christiana Care Union Hospital	Elkton	96	4,419	19,629
Frederick Memorial Hospital	Frederick	284	14,331	73,100
Garrett Regional Medical Center	Oakland	36	1,056	5,224
Grace Medical Center	Baltimore	69	1,757	10,708
Greater Baltimore Medical Center	Baltimore	296	19,937	75,983
Holy Cross Germantown Hospital	Germantown	78	5,039	22,132
Holy Cross Hospital	Silver Spring	423	23,380	129,031
Howard County General Hospital	Columbia	225	13,792	67,993
Johns Hopkins Bayview Medical Center	Baltimore	422	16,976	110,247
Johns Hopkins Suburban Hospital	Bethesda	228	11,485	56,763
Levindale Hebrew Geriatric Center and Hospital	Baltimore	330	1,104	35,124
Luminis Health Doctors Community Medical Center	Lanham	206	10,213	52,591

Hospital Name	City	Staff Beds	Total discharges	Patient Days
Malcolm Grow Medical Clinics and Surgery Center	Andrews Air Force Base	0	0	0
MedStar Franklin Square Medical Center	Baltimore	338	17,828	87,396
Medstar Good Samaritan Hospital	Baltimore	214	7,753	33,750
MedStar Harbor Hospital	Baltimore	131	6,666	36,298
MedStar Montgomery Medical Center	Olney	104	5,471	27,685
MedStar Saint Mary's Hospital	Leonardtown	93	6,648	26,124
MedStar Southern Maryland Hospital	Clinton	178	9,846	48,345
MedStar Union Memorial Hospital	Baltimore	185	9,361	41,502
Mercy Medical Center	Baltimore	238	11,791	52,359
Meritus Medical Center	Hagerstown	274	14,366	67,869
Mt. Washington Pediatric Hospital at UM Capital Region Medical Center	Largo	0	0	0
Northwest Hospital	Randallstown	229	8,029	48,228
Sinai Hospital	Baltimore	426	25,241	123,658
The Herman & Walter Samuelson Children's Hospital at Sinai	Baltimore	0	0	0
The Johns Hopkins Hospital	Baltimore	1,019	37,955	298,352
The National Institutes of Health (NIH) Clinical Center	Bethesda	0	0	0
TidalHealth Peninsula Regional	Salisbury	225	11,592	66,998
UM Capital Region Medical Center	Largo	269	14,145	77,725
UM Harford Memorial Hospital	Havre de Grace	82	4,423	21,608
UM Laurel Medical Center	Laurel	124	3,539	18,517
UM Upper Chesapeake Medical Center	Bel Air	161	12,415	53,232
University of Maryland Baltimore Washington Medical Center	Glen Burnie	285	18,896	84,510
University of Maryland Charles Regional Medical Center	La Plata	93	6,256	26,958
University of Maryland Medical Center	Baltimore	846	23,939	214,046
University of Maryland Medical Center Midtown Campus	Baltimore	180	5,120	36,914
University of Maryland Rehabilitation and Orthopaedic Institute	Baltimore	136	2,065	29,964

Hospital Name	City	Staff Beds	Total discharges	Patient Days
University of Maryland Saint Joseph Medical Center	Towson	239	13,310	59,791
University of Maryland Shore Medical Center at Chestertown	Chestertown	12	580	2,063
University of Maryland Shore Medical Center at Easton	Easton	148	6,647	31,309
UPMC Western Maryland	Cumberland	204	10,122	49,450
Walter Reed National Military Medical Center	Bethesda	0	0	0
T O T A L		10,635	500,123	2,722,428

Source: American Hospital Directory

Appendix O: Consultant Qualifications

Since 1990, Tripp Umbach has consulted with more than 100 academic medical centers. Tripp Umbach is an established national leader in providing feasibility studies and business plans for health science universities, academic medical centers, health systems, new and/or expanding medical schools, and communities that wish to develop and expand both undergraduate (UME) and graduate medical education (GME).

Tripp Umbach has conducted in-depth feasibility analyses for a wide variety of institutions and clients throughout the United States and internationally. Clients have included more than 30 new or expanding medical schools (both allopathic and osteopathic); numerous statewide partnerships; statewide and regional business plans for expanding GME; and feasibility studies for establishing physician assistant, physical therapy, pharmacy, optometry, and dental programs.

Tripp Umbach is the leading firm in conducting economic impact studies for health care and higher education institutions, having measured the economic impact of every U.S. medical school and major teaching hospital since 1995.

Tripp Umbach

Turning Ideas Into Action

Appendix 4

Potential Training Hospitals

Potential Training Hospitals

Below is a list of the hospitals and services they provide, which could potentially be used to support the six core programs MDOM aims to develop.

Hospital	IM	FM	OBGYN	GS	Pediatrics	Psychiatry
AHC WHITE OAK MEDICAL CENTER	X	X	X	X		X
BALTIMORE WASHINGTON MEDICAL CENTER	X	X	X	X	X	X
CARROLL COUNTY GENERAL HOSPITAL	X	X	X	X	X	X
CIVISTA MEDICAL CENTER	X	X	X	X		
DOCTORS COMMUNITY HOSPITAL	X	X		X		
FREDERICK MEMORIAL HOSPITAL	X		X	X	X	X
HOWARD COUNTY	X	X	X	X	X	X
LEVINDAL HEBREW GER. CTR. & HOSPT.						
MEDSTAR MONTGOMERY MEDICAL CENTER	X	X	X	X		X
MEDSTAR SOUTHERN MARYLAND HOSPITAL C			X	X	X	
MEMORIAL EASTON	X	X	X	X	X	
NORTHWEST HOSPITAL CENTER	X	X		X		
PENINSULA REGIONAL MEDICAL CENTER	X	X	X			
ST. JOSEPH MEDICAL CENTER	X	X	X	X	X	
ST. MARYS HOSPITAL	X	X	X	X		
UNION HOSPITAL OF CECIL COUNTY	X	X	X	X		X
UPMC-WESTERN MARYLAND CORP	X	X	X	X	X	X
UPPER CHESAPEAKE MEDICAL CENTER	X	X	X	X	X	X
FAUQUIER HOSPITAL	X	X	X	X		
INOVA MOUNT VERNON HOSPITAL	X	X	X	X	X	X
NOVANT HEALTH PRINCE WILLIAM MEDICAL	X	X	X	X		X
SENTARA NORTHERN VIRGINIA MED CTR	X	X	X	X		
SPOTSYLVANIA REGIONAL MEDICAL CENTER	X	X	X	X		

Appendix 5

Course Descriptions/Learning Objectives

OUTLINE: COURSE DESCRIPTIONS AND OBJECTIVES

The MDCOM Academic Program is inspired by our educational philosophy to educate adult learners in a high-tech, high-touch, collaborative environment. Our philosophy focuses on education that is dynamic, experiential, and innovative.

THE PRELINICAL YEARS – Years 1 and 2

A. Planned Weekly Schedule

- 6 hours per week (2 hours per day/3 days per week) in small group settings dedicated to real-world medical case scenarios (Clinical Medicine I-IV). Each hour consists of:
    - Short case-based lectures in TED-Talk format (MED-Talks)
    - Faculty facilitated interactive student activities
    - Faculty facilitated small-group discussions/presentations
- One-hour longitudinal lecture series of fully integrated systems:
    - Musculoskeletal System
    - Neurologic System
    - Endocrine System
    - Reproductive System
    - Immunologic/Lymphatic System
    - Integumentary/Exocrine System
    - Circulatory System
    - Respiratory System
    - Renal/Urinary System
    - Digestive/Excretory System
- Two-hour laboratories
    - Clinical Skills
    - OMM
    - Anatomy/Radiology
- Forums—2 hours per week on supplemental and contemporary issues

B. **Course Descriptions and learning objectives:** Case-based small group discussions, lectures and MED Talks are all aligned with an integrated systems approach that is focused on the development of biomedical and clinical knowledge (Osteopathic Medical Knowledge—OMK).

Clinical Medicine Course I-IV (OMK 501, 551, 601, 651):

- Case-based lecture/discussion curriculum presentations.
- Learning environment in which students collaboratively explore real-world medical case scenarios in small-group settings.
- Faculty facilitated problem-based learning (PBL) style case discussions
- Promotion of communication and independent responsibility in problem solving.
- Systems-based lecture delivery of biomedical knowledge
- ***Objectives—Students will***:
    - Engage in "active learning" exercises.
    - Develop patient- and team-based skills needed in contemporary, collaborative

medical environments:
    - Professionalism
    - Team and patient communication skills
    - Clinical differential diagnostic abilities
    - Capacity to formulate/implement an effective osteopathic treatment plan
  - Demonstrate appropriate biomedical content knowledge by and between systems.
  - Demonstrate the ability to integrate biomedical knowledge with clinical systems knowledge and clinical skills.
  - Demonstrate critical thinking and deductive reasoning

OMM Laboratory Courses I-IV (OMS-OMM-508, 558, 608, 658):

- Primary forum for integrating Osteopathic Principles & Practice (OPP), holistic health care and Osteopathic Manipulative Treatment (OMT).
- Provides opportunity to use palpation for diagnosis and application of OPP and OMT as part of an osteopathic treatment plan, ranging from a low- impact supportive technique to a high-impact holistic intervention.
- Integration of OPP and OMT in real-world medical case scenarios
- Presents osteopathic structural intervention techniques
- ***Objectives—Students will:***
  - Perform a neuromusculoskeletal examination (Osteopathic structural exam) including range of motion.
  - Acquire and demonstrate palpatory skills for use in diagnosis and treatmen.
  - Understand and demonstrate OMM treatment techniques--high velocity, muscle energy, myofascial.

DPR/ICC/SIM Laboratory Courses I-IV (OMS-DIS-507, 557, 607, 657):

- Doctor-Patient Relationship (DPR), virtual patient encounters, live patient simulation (SIM) laboratory courses.
- Designed to maximize clinical skills development and communication skills training for student transition into clinical years.
- Real-time computer-aided engineering (CAE) software allows students to treat patients in a safe learning environment.
- ***Objectives—Students will demonstrate appropriate skill levels in:***
  - Patient interviewing
  - Performing and documenting patient and family histories
  - Psychosocial assessment
  - Demonstrate a complete physical examination including neuromusculoskeletal exam (structural)
  - Establish a differential diagnosis

Anatomy/Radiology Laboratory Course (OMS-AR-509):

- Complements and supplements human cadavers with 3D anatomy simulation equipment.
- Presents cross-sectional anatomy and radiologic imaging alongside cadaveric dissection.
- Bridges human gross anatomy and state-of-the-art medical imaging.
- ***Objectives—Students will:***

- Understand and demonstrate the interrelationship between human body structure and function defining liver human anatomy.
- Demonstrate understanding of human gross anatomy that is consistent with the structure-function basis of OMT techniques.

Principles in Clinical Medicine Series

1. **Scientific Principles of Clinical Medicine (OMK-PPCM-503)**: Integrates basic concepts of biomedical, clinical, and structural sciences with the patient-engagement skills used in the practice of Osteopathic Medicine.

2. **Integrated Musculoskeletal Principles of Clinical Medicine (OMK-PPCM-504)**: Integrates basic scientific (cellular and molecular) principles, as applied to the physiology, pathophysiology, and clinical presentations of Neuromusculoskeletal systems.

3. **Integrated Neurologic - Psychiatric Principles of Clinical Medicine (OMK-PPCM-552)**: Integrates basic science (cellular and molecular) principles, as applied to the physiology pathophysiology, and clinical presentations of the Nervous system and human behavior, and focuses on the neurologic-autonomic and biopsychosocial models of osteopathic healthcare delivery.

4. **Integrated Hematologic - Immunologic - Integumentary Principles of Clinical Medicine (OMK-PPCM- 554)**: Integrates basic science (cellular and molecular) principles, as applied to the physiology, pathophysiology, and clinical presentations of the Hematologic, Immunologic, and Integumentary systems.

5. **Integrated Cardio - Pulmonary - Renal Principles of Clinical Medicine (OMK-PPCM-602)**: Integrates basic science (cellular and molecular) principles, as applied to the physiology, pathophysiology, and clinical presentations of the Cardiovascular, Respiratory, and Renal systems.

6. **Integrated Gastrointestinal Principles of Clinical Medicine (OMK-PPCM-652)**: Integrates basic science (cellular and molecular) principles, as applied to the physiology, pathophysiology, and clinical presentations of the gastrointestinal system. Students will learn the importance of the human gastrointestinal microbiome for well-being and disease and to integrate course principles into other systems as well as multiple osteopathic healthcare models.

7. **Integrated Reproductive - Endocrine Principles of Clinical Medicine (OMK-PPCM-553)**: Integrates basic scientific principles with clinical applications for patient care and management related to endocrinology and reproductive health. System integration happens at the level of the nervous system function, which controls both the endocrine and reproductive system and organs related to them.

- ***Clinical Medicine Series Objectives (1-7)—Students will be able to:***
    - Demonstrate the appropriate biomedical and clinical knowledge base for each system
    - Compare and contrast each system's contributions to anatomy, physiology, pathophysiology, clinical presentations, and patient management
    - Identify important structural components and other features of systems
    - Demonstrate appropriate content knowledge acquisition (biomedical and clinical) by successfully passing part I of the Comprehensive Osteopathic Medical Licensure exam (COMLEX Part I)

Forums: feature unique community experiences through a combination of meeting leaders in the concentration area, working with community agencies, and understanding the types of data used by those agencies.

- ***Learning Objectives—Students will demonstrate:***
    - The ability to provide a critical appraisal approach to the health professions literature
    - An in-depth understanding of the interrelationships of technology, the healthcare industry, health policy, and other areas that influence the work of health care teams.

THE CLINICAL YEARS -- Years 3 and 4

Below are descriptions and learning objectives of the ***core clinical rotations*** for osteopathic medical students.

Family Medicine

Students will:

- Learn to provide comprehensive, continuous, coordinated, patient-centered health care to all patients, regardless of age, gender, culture, care setting, or type of problem.
- Develop a depth and breadth of knowledge based on each organ system while also applying the biopsychosocial model and osteopathic principles and philosophy to each patient encounter.
- Learn to assess acute patient complaints, manage chronic disease, and focus on disease prevention and health promotion.
- Learn to coordinate and advocate for their patients across inpatient, outpatient, surgical, nursing home, and rehabilitation settings.
- Gain an understanding of and respect for social, economic, cultural, psychological, and environmental factors that affect patients.
- Professionally interact with other members of the health care team (nurses, physician assistants, social workers, physical therapists, etc.), and develop an understanding of each team member's scope of practice and contributions to patient care.

Internal Medicine I & II

Students will:

- Spend two rotations during their third year on Internal Medicine: one, on inpatient service and the other in an ambulatory internal medicine practice.
- Learn the cognitive work and interpersonal skills necessary to provide care for both acute and chronic medical problems seen within Internal Medicine.
- Learn to expand history and physical diagnosis skills,
- Gain an understanding of the indications and applications of differing diagnostic techniques,
- Develop the ability to prioritize patient problems and treatment, generate a differential diagnosis, and implement patient management strategies.
- Develop extensive problem-solving skills utilizing structured, scientifically researched, and founded processes; inductive and deductive reasoning; and a team approach to the care of the adult patient.
- Learn to understand how a disease impacts not only the patient's health but also their emotional and social well-being.
- Gain an understanding of the role of the Internal Medicine physician as a primary care provider and of the subspecialties Internal Medicine physicians can practice.

Pediatrics

Students will:

- Spend a four-week rotation learning all aspects of pediatric care—from the newborn through childhood and adolescence.
- Be exposed to differing sub-specialties of pediatrics practice and the challenges, conditions and milestones that must be considered to ensure the proper developmental medical outcomes.
- Develop the communication and interpersonal skills to treat the parents and sometimes, the family rather than just the child.
- Learn about issues of guardianship, privacy, legal responsibility, and informed consent.
- Learn about the psychosocial, legal, and medical needs at all stages of childhood and adolescent development.

Behavioral Medicine/Psychiatry

Students will:

- Become knowledgeable about normal and abnormal psychiatric and behavioral functions.
- Learn the psychopathology behind psychiatric conditions as well as their evaluation, diagnosis, and treatment.
- Learn to recognize psychiatric emergencies and develop knowledge of appropriate interventions.
- Reinforce previously learned pharmacological treatment methods.

- Develop knowledge of counseling and non-pharmacological method for common behavioral and organic-based conditions.
- Will gain an understanding of the role of the psychiatrist and board-certified psychiatric sub-specialties.

OB/Women's Health

Students will learn about/be active in:

- The operative and non-operative care of the pregnant and obstetrical patient.
- Medical and surgical management of pathology surrounding reproductive health and malignancies.
- Preventive health care and procedure.
- The treatment of acute and chronic illness.
- The evaluation, diagnosis, and treatment of both medical and surgical patients.
- The medical interview and physical examination of women, incorporating ethical, social and diverse perspectives that provide culturally competent health care.

Surgery

Students will:

- Develop a basic knowledge of surgery that all physicians should know through exposure to a variety of clinical problems routinely seen on the surgical service.
- Gain an understanding of surgical disease processes and their evaluation/treatment.
- Understand the indications for surgery vs medical therapy and the appropriate prophylactic treatment of the patient.
- Explore the role of Osteopathic Principles and Practices as they relate to surgical care.
- Assist in surgery while practicing aseptic/sterile techniques, and operating room principles.
- Acquire competency in the management of nutrition, blood, fluid, electrolytes, pain and infection.
- Learn to perform basic surgical techniques.
- Demonstrate an understanding of which patients may have surgical pathology and when referral to a surgeon is appropriate.

Emergency Medicine

Students will:

- Learn to effectively manage all acute or life-threatening conditions in an emergency setting.
- Experience day, night, weekday, and weekend practice of emergency medicine.
- Acquire the ability to work in a high intensity, team-based environment, evaluate information and make decisions, problem solve and establish a relationship with the patient rapidly and effectively.
- Gain exposure to a variety of procedures in an emergency setting.

- Develop the ability to propose a plan for management and workup of the ER patient, including lab evaluation, radiology, and consults.
- Learn to recognize and treat cardiopulmonary arrest, shock, blunt and penetrating trauma
- Learn to use evidence-based medicine in diagnosis and treatment, evaluate research and figure out how the research may be applied to patient care.

Culminating assessment of clinical years:

- Demonstrate appropriate content knowledge acquisition (biomedical and clinical) by successfully passing part II of the Comprehensive Osteopathic Medical Licensure exam (COMLEX Part II)

Appendix 6

Mean GPA MCAT Scores for Osteopathic Medical Students

Mean GPA and MCAT Scores for osteopathic medical students

Medical schools rarely post a minimum Grade Point Average (GPA) requirement. To calculate a student's GPA, the American Association of Colleges of Osteopathic Medicine (AACOM) Application Service considers students' cumulative GPA, which takes all their courses into account, and students' science GPA, which accounts for their courses in the biological sciences, such as Biology and Biochemistry, Chemistry, Physics, and Math.

Mean GPAs for Entering Osteopathic Students
2018 Science: 3.43 Non-Science: 3.65 Overall GPA: 3.53
2019 Science: 3.51 Non-Science: 3.67 Overall GPA: 3.57
2020 Science: 3.45 Non-Science: 3.64 Overall GPA: 3.54
2021 Science: 3.51 Non-Science: 3.69 Overall GPA: 3.59

Mean MCAT Scores for Entering Osteopathic Students
2018 Psychological, Social, & Bio: 126.5 Bio. & Biochemical: 126.2 Chemical & Physical:125.8 Critical Analysis & Reasoning: 125.4 ***TOTAL MCAT: 503.1***
2019 Psychological, Social, & Bio: 126.78 Bio. & Biochemical: 126.26 Chemical & Physical:125.9 Critical Analysis & Reasoning: 125.32 ***TOTAL MCAT: 504.25***
2020 Psychological, Social, & Bio: 126.92 Bio. & Biochemical: 126.29 Chemical & Physical:125.89 Critical Analysis & Reasoning: 125.20 ***TOTAL MCAT: 504.31***
2021 Psychological, Social, & Bio: 127.14 Bio. & Biochemical: 126.47 Chemical & Physical:125.97 Critical Analysis & Reasoning: 125.31 ***TOTAL MCAT: 504.89***

Appendix 8

MDCOM Facilities

MDCOM FACILITIES

Space for use by DO Students	Space Description
1st Floor	
Auditorium 1	Student Seating
Auditorium 2	Student Seating
OMM Lab	Interactive Lab
Lobby / Lounge	Student Seating
Café	Coffee Shop
Men's Locker Room	Changing Area & Showers
Women's Locker Room	Changing Area & Showers
Fitness Center	Recreation
Control Room	Auditorium Controls
Spiritual Room	Individual Contemplation / Prayer
Office	Lobby, Admissions, Administration
2nd Floor	
Lounge	Student Lounge
Check-in / Waiting	Sim Entry
Actor Lounge	OSCE Actor Green Room
Changing Room 1	Actor Changing
Changing Room 2	Actor Changing
Exam Room 1	OSCE Suite
Exam Room 2	OSCE Suite
Exam Room 3	OSCE Suite
Exam Room 4	OSCE Suite
Exam Room 5	OSCE Suite
Exam Room 6	OSCE Suite
Exam Room 7	OSCE Suite
Exam Room 8	OSCE Suite
Exam Room 9	OSCE Suite
Exam Room 10	OSCE Suite
Exam Room 11	OSCE Suite
Exam Room 12	OSCE Suite
Control Room	OSCE Control
Observation Room	OSCE Observation
SIM Room 1	Simulation Education
SIM Room 2	Simulation Education
SIM Room 3	Simulation Education
SIM Room 4	Simulation Education
SIM Room 5	Simulation Education
SIM Room 6	Simulation Education
Control Room 1	SIM Control Room
Control Room 2	SIM Control Room

Control Room 3	SIM Control Room
Debrief Room	SIM Debrief
Classroom 1	Student Seating
Classroom 2	Student Seating
Virtual Anatomy Lab	Interactive Lab
Library	Quiet Study
Research Lab	Bench Research
IT Support	IT Support
Study Room 1	Group Study
Study Room 2	Group Study
Study Room 3	Group Study
Study Room 4	Group Study
Study Room 5	Group Study
Study Room 6	Group Study
Study Room 7	Group Study
Study Room 8	Group Study
Study Room 9	Group Study
Study Room 10	Group Study
Study Room 11	Group Study
Study Room 12	Group Study
Study Room 13	Group Study
Study Room 14	Group Study
Study Room 15	Group Study
Study Room 16	Group Study
Study Room 17	Group Study
Study Room 18	Group Study
Study Room 19	Group Study
Study Room 20	Group Study
Study Room 21	Group Study
Study Room 22	Group Study
Study Room 23	Group Study
Study Room 24	Group Study
Study Room 25	Group Study
Media Room	Educational Streaming
Mother's Room	Privacy Nursing Room
3rd Floor	
Testing Room	Accommodations /Testing

Space for use by Employees	**Space Description**
4th Floor	
Offices	Faculty, Staff offices