

GENERAL CAREER INFORMATION

Physicians and surgeons serve a fundamental role in our society and have an effect upon all our lives. They diagnose illnesses and prescribe and administer treatment for people suffering from injury or disease. Physicians examine patients, obtain medical histories, and order, perform, and interpret diagnostic tests. They counsel patients on diet, hygiene, and preventive health care.

There are two types of physicians: M.D.—Doctor of Medicine—and D.O.—Doctor of Osteopathic Medicine. M.D.s also are known as allopathic physicians. While both M.D.s and D.O.s may use all accepted methods of treatment, including drugs and surgery, D.O.s place special emphasis on the body’s musculoskeletal system, preventive medicine, and holistic patient care. D.O.s are more likely than M.D.s to be primary care specialists although they can be found in all specialties. About half of D.O.s practice general or family medicine, general internal medicine, or general pediatrics.

Physicians work in one or more of several specialties, including, but not limited to, anesthesiology, family and general medicine, general internal medicine, general pediatrics, obstetrics and gynecology, psychiatry, and surgery.

Anesthesiologists. Anesthesiologists focus on the care of surgical patients and pain relief. Like other physicians, they evaluate and treat patients and direct the efforts of those on their staffs. Anesthesiologists confer with other physicians and surgeons about appropriate treatments and procedures before, during, and after operations. These critical care specialists are responsible for maintenance of the patient’s vital life functions—heart rate, body temperature, blood pressure, breathing—through continual monitoring and assessment during surgery. They often work outside of the operating room, providing pain relief in the intensive care unit, during labor and delivery, and for those who suffer from chronic pain.

Family and general practitioners. Family and general practitioners are often the first point of contact for people seeking health care, acting as the traditional family doctor. They assess and treat a wide range of conditions, ailments, and injuries, from sinus and respiratory infections to broken bones and scrapes. Family and general practitioners typically have a patient base of regular, long-term visitors. Patients with more serious conditions are referred to specialists or other health care facilities for more intensive care.

General internists. General internists diagnose and provide nonsurgical treatment for diseases and injuries of internal organ systems. They provide care mainly for adults who have a wide range of problems associated with the internal organs, such as the stomach, kidneys, liver, and digestive tract. Internists use a variety of diagnostic techniques to treat patients through medication or hospitalization. Like general practitioners, general internists are commonly looked upon as primary care specialists. They have patients referred to them by other specialists, in turn referring patients to those and yet other specialists when more complex care is required.

General pediatricians. Providing care from birth to early adulthood, pediatricians are concerned with the health of infants, children, and teenagers. They specialize in the diagnosis and treatment of a variety of ailments specific to young people and track their patients’ growth to adulthood. Like most physicians, pediatricians work with different health care workers, such as nurses and other physicians, to assess and treat children with various ailments, such as muscular dystrophy. Most of the work of pediatricians, however, involves treating day-to-day illnesses that are common to children—minor injuries, infectious diseases, and immunizations—much as a general practitioner treats adults. Some pediatricians specialize in serious medical conditions and pediatric surgery, treating autoimmune disorders or serious chronic ailments.

Obstetricians and gynecologists. Obstetricians and gynecologists (ob/gyns) are specialists whose focus is women's health. They are responsible for general medical care for women, but also provide care related to pregnancy and the reproductive system. Like general practitioners, ob/gyns are concerned with the prevention, diagnosis, and treatment of general health problems, but they focus on ailments specific to the female anatomy, such as breast and cervical cancer, urinary tract and pelvic disorders, and hormonal disorders. Ob/gyns also specialize in childbirth, treating and counseling women throughout their pregnancy, from giving prenatal diagnoses to delivery and postpartum care. Ob/gyns track the health of, and treat, both mother and fetus as the pregnancy progresses.

Psychiatrists. Psychiatrists are the primary caregivers in the area of mental health. They assess and treat mental illnesses through a combination of psychotherapy, psychoanalysis, hospitalization, and medication. Psychotherapy involves regular discussions with patients about their problems; the psychiatrist helps them find solutions through changes in their behavioral patterns, the exploration of their past experiences, and group and family therapy sessions. Psychoanalysis involves long-term psychotherapy and counseling for patients. In many cases, medications are administered to correct chemical imbalances that may be causing emotional problems. Psychiatrists may also administer electroconvulsive therapy to those of their patients who do not respond to, or who cannot take, medications.

Surgeons. Surgeons are physicians who specialize in the treatment of injury, disease, and deformity through operations. Using a variety of instruments, and with patients under general or local anesthesia, a surgeon corrects physical deformities, repairs bone and tissue after injuries, or performs preventive surgeries on patients with debilitating diseases or disorders. Although a large number perform general surgery, many surgeons choose to specialize in a specific area. One of the most prevalent specialties is orthopedic surgery: the treatment of the musculoskeletal system. Others include neurological surgery (treatment of the brain and nervous system), cardiovascular surgery, otolaryngology (treatment of the ear, nose, and throat), and plastic or reconstructive surgery. Like primary care and other specialist physicians, surgeons also examine patients, perform and interpret diagnostic tests, and counsel patients on preventive health care.

A number of other medical and surgical specialists, including allergists, cardiologists, dermatologists, emergency physicians, gastroenterologists, ophthalmologists, pathologists, and radiologists, also work in clinics, hospitals, and private offices.

EDUCATION AND TRAINING

Formal education and training requirements for physicians are among the most demanding of any occupation—4 years of undergraduate school, 4 years of medical school, and 3 to 8 years of internship and residency, depending on the specialty selected. Premedical students must complete undergraduate work in physics, biology, mathematics, English, and inorganic and organic chemistry. Students also take courses in the humanities and the social sciences. Some students volunteer at local hospitals or clinics to gain practical experience in the health professions.

The minimum educational requirement for entry into a medical school is 3 years of college; most applicants, however, have at least a bachelor's degree, and many have advanced degrees. There are 146 medical schools in the United States—125 teach allopathic medicine and award a Doctor of Medicine (M.D.) degree; 23 teach osteopathic medicine and award the Doctor of Osteopathic Medicine (D.O.) degree. Acceptance to medical school is highly competitive. Applicants must submit transcripts, scores from the Medical College Admission Test, and letters of recommendation. Schools also consider an

applicant's character, personality, leadership qualities, and participation in extracurricular activities. Most schools require an interview with members of the admissions committee.

Students spend most of the first 2 years of medical school in laboratories and classrooms, taking courses such as anatomy, biochemistry, physiology, pharmacology, psychology, microbiology, pathology, medical ethics, and laws governing medicine. They also learn to take medical histories, examine patients, and diagnose illnesses. During their last 2 years, students work with patients under the supervision of experienced physicians in hospitals and clinics, learning acute, chronic, preventive, and rehabilitative care. Through rotations in internal medicine, family practice, obstetrics and gynecology, pediatrics, psychiatry, and surgery, they gain experience in the diagnosis and treatment of illness.

Following medical school, almost all M.D.s enter a residency—graduate medical education in a specialty that takes the form of paid on-the-job training, usually in a hospital. Most D.O.s serve a 12-month rotating internship after graduation and before entering a residency, which may last 2 to 6 years.

All States, the District of Columbia, and U.S. territories license physicians. To be licensed, physicians must graduate from an accredited medical school, pass a licensing examination, and complete 1 to 7 years of graduate medical education. Although physicians licensed in one State usually can get a license to practice in another without further examination, some States limit reciprocity. Graduates of foreign medical schools generally can qualify for licensure after passing an examination and completing a U.S. residency.

PERSONAL QUALITIES

People who wish to become physicians must have a desire to serve patients, be self-motivated, and be able to survive the pressures and long hours of medical education and practice. Physicians also must have a good bedside manner, emotional stability, and the ability to make decisions in emergencies. Prospective physicians must be willing to study throughout their career in order to keep up with medical advances.

MEDICAL EDUCATION IN TEXAS

There are eight medical schools in Texas; seven allopathic medical schools and one osteopathic medical school. Seven are state-supported medical schools and one, Baylor College of Medicine, is a private medical school. Though private, Baylor receives a subsidy from the Texas legislature that allows Texas residents to pay the same tuition to attend Baylor as to attend a state-supported medical school. For further information on medical programs in Texas, you should visit the websites of the schools.

Baylor College of Medicine

One Baylor Plaza
Houston, TX 77030
Tel: (713) 798-4951
www.bcm.edu

UNT Health Science Center at Fort Worth

Texas College of Osteopathic Medicine
3500 Camp Bowie Blvd
Fort Worth, TX 76107-2699
Tel: (817) 735-2204 or (800) 535-TCOM
www.hsc.unt.edu

Texas A&M Health Science Center College of Medicine

147 Joe H. Reynolds Medical Bldg
College Station, TX 77843-1114
Tel: (979) 845-3431
www.tamhsc.edu

Texas Tech University Health Sciences Center School of Medicine

Lubbock, TX 79430
Tel: (806) 743-2297
www.ttuhs.edu

**The University of Texas
Medical Branch at Galveston**

301 University Blvd
Galveston, TX 77555-0133
Tel: (409) 772-2671
www.som.utmb.edu

**The University of Texas at
San Antonio Medical School**

7703 Floyd Curl Dr
San Antonio, TX 78229-3900
Tel: (210) 567-6080
www.uthscsa.edu

**The University of Texas at Houston
Medical School**

6431 Fannin, MSB G.024
Houston, TX 77030
Tel: (713) 500-5116
www.med.uth.tmc.edu

**The University of Texas
Southwestern Medical School**

5323 Harry Hines Blvd
Dallas, TX 75390-9162
Tel: (214) 648-5617
www.utsouthwestern.edu

UNDERGRADUATE MAJOR AND COURSE REQUIREMENTS

Medical schools across the country differ in terms of their course requirements for entry into the medical curriculum. Medical schools generally encourage students to major in the discipline in which they have the most interest. A science major is not required. Most applicants to medical schools are science majors (biology being the most popular major among pre-med students), but many other successful applicants to medical schools come from majors as diverse as humanities, social and behavioral sciences, engineering, business, and the arts. The most popular majors at UT Dallas for pre-med students are biology, molecular biology, neuroscience, and business.

Because medicine is a field that deals directly with helping people, most medical schools like for applicants to have some academic background in the humanities. UT Dallas offers many courses that could be helpful for students in this regard; courses such as medical Spanish, medical ethics, history of science and medicine, medicine and the law. These courses can also be helpful in broadening students' reading, writing and critical thinking skills.

The specific courses required for entry into medical schools (called pre-requisites) vary some by school. However, in general, the following courses are necessary for fulfilling the requirements and for making an applicant as competitive as possible.

- 2 semesters of English (RHET courses, LIT courses, or adv. writing courses at UT Dallas)
- 1 semester of calculus or statistics
- 2 semesters of physics with lab
- 2 semesters of general chemistry with lab
- 2 semester of organic chemistry with lab
- 4 semesters of biology (2 semesters with lab; biochemistry is strongly recommended)

GUIDELINES FOR APPLYING TO TEXAS MEDICAL SCHOOLS

Medical schools will usually assess six basic factors to judge performance in college and other qualifications for admission. These factors are residence status (preference given to Texas residents), cumulative grade point average (GPA), Medical College Admissions Test (MCAT) scores, a completed application form, the evaluation(s) submitted by the health professions advisor or advisory committee, and a personal interview.

State Residence: By Texas State law, the enrollment of non-Texas resident applicants is limited to 10% of the entering class of Medical and Dental schools which receive state funding. Consequently, Texas residents are given preference in admissions and pay the more favorable resident tuition. The Residency Status Rules and Regulation for determining residency published by the Texas Higher Education Coordinating Board may be found at www.utexas.edu/student/giac/residency.html.

Academic Performance: The GPA is the major factor in evaluating academic performance. Also considered are consistency of grades, performance in required courses, course load per semester, number and academic rigor of colleges attended, discrepancies between GPA and MCAT scores, and social, economic, and/or educational background. Transcripts of all coursework and grades must be submitted to TMDSAS directly from each academic institution attended. In addition, a complete set of official transcripts must be provided, prior to enrollment, to the medical school to which you were accepted. The GPA will be a composite of all college work at all colleges attended and will be calculated by year, overall courses, and science courses. All grades will be used in the calculations, regardless of whether courses were repeated. The grades will be converted to a simple A, B, C, D, and F-system for purposes of calculating the GPA.

Medical College Admissions Test (MCAT): The MCAT is given more than 20 times during the year. Most test dates are available from April through July throughout the United States and in many other countries. The MCAT is a standardized, largely multiple-choice examination designed to assist admission committees in predicting which of their applicants will perform adequately in the medical school curriculum. Candidates should register electronically through the American Association of Medical Colleges web site: www.aamc.org/students/mcat/start.htm. The MCAT is a five-hour, computer-based test that assesses problem solving, critical thinking, and writing skills, in addition to the knowledge of science concepts and principles. It is administered in four sections: Physical Sciences, Verbal Reasoning, Writing Samples (two), and Biological Sciences.

The Physical Science (PS) section assesses reasoning in General Chemistry and Physics. The section consists of 77 questions on 9-12 passages and takes 100 minutes. Passages cover Physics and General Chemistry topics and experiments with 6-12 questions per passage in addition to 10-15 freestanding questions.

The Verbal Reasoning (VR) section is designed to assess the student's ability to understand, evaluate, and apply arguments presented in prose passages. The passages are excerpted from periodicals with subjects ranging from Humanities to Social and Natural Sciences.

The Writing Sample (WS) section assesses the skill in developing a central idea; synthesizing concepts and ideas; presenting ideas cohesively and logically; and writing clearly using accepted practices of grammar, syntax, and punctuation consistent with timed, first-draft composition. It consists of writing two 30-minute essays generated from philosophical and ethical prompts. The list of prompts is presented on the AAMC web site.

The Biological Science (BS) section assesses reasoning in Biology and Organic Chemistry. This section and the Physical Science section do not test the ability to memorize scientific facts, but assess knowledge of concepts and the facility at problem-solving in General Chemistry, Organic Chemistry, Biology, and Physics. The Biological Science section is designed like the Physical Science section except the passages cover Biology and Organic Chemistry topics and experiments, including DNA and genetics.

One alphabetical and three numerical scores are derived from and reported for the MCAT. Scores on the PS and BS sections are reported as scaled scores, each ranging from 1 (low) through 15 (high). The scaled score on the VR section ranges from 1 through 15. Although frequently done, referring to total points on the MCAT is less than meaningful. As an example, consider two students with total MCAT scores of 28. One has a 9 in both PS and BS and a 10 in VR. The other has a 12 in both PS and BS and a 4 in VR. An admissions committee with respect to their MCAT scores would undoubtedly view these two applicants differently. The Writing Sample is scored on an alphabetic scale ranging from J (lowest) to T (highest). Each letter represents the sum of the two scores on each of the two Writing Sample topics. The 50th percentile alphabetic score is O. Scaled score means and standard deviations for each section, percentages of students receiving each scaled score, and percentile rank ranges are provided to students with their MCAT score reports so that they may compare their performance to that of other students.

The mean total MCAT score for those students accepted to medical schools in Texas during the last several years has been well above the national mean of applicants. Your health professions advisor can counsel you regarding your MCAT score and whether you should retake the MCAT. Applicants with high total MCAT scores and GPAs have a high likelihood of being interviewed by medical school admissions committees.

The Application: There is a common electronic application for the state-supported medical and dental schools in Texas. Application is made to the Texas Medical and Dental Schools Application Service (TMDSAS) at www.utsystem.edu/tmdsas. Application to Baylor College of Medicine is made through the American Medical Colleges Application Service (AMCAS) at www.aamc.org.

Poorly or incorrectly prepared application forms can cause delays in action on the application and may influence initial screening or later consideration of the application. Following these hints can reduce the probability of a sloppy or inaccurate form:

- Budget sufficient time to complete the application,
- Use your college transcripts to input courses taken,
- Have a current photograph available,
- Be honest in responding to application questions,
- Get assistance in writing the application personal statement,
- Accurately classifying courses as science or non-science,
- Proofread carefully all information in the application (not just the personal statement,
- Keep a copy of the completed application,
- Periodically check on the status of your application.

The application deadlines for most medical schools are between early October and mid November. However, it is strongly recommended that applicants submit their applications as early as practical after May 1. The Health Professions Advising Center encourages applicants to submit their applications sometime between May 1 and August 1 in order to be well positioned for early interview invitations.

Health Professions Evaluation: In addition to your MCAT scores and college transcript(s), your TMDSAS application will request a written evaluation submitted by the health professions advisor or advisory committee at your undergraduate institution. A written evaluation from the Health Professions Advisory Committee at the applicant's school is preferred. If an applicant's institution does not have a Committee, two individual faculty letters are acceptable. The UT Dallas Health Professions Evaluation process will meet the requirements of the Texas medical schools.

Interview: An interview is required prior to a student's acceptance into medical school. An applicant may be invited (from August through December) to interview with the Admissions Committee. Interview invitations are usually based on your GPA, MCAT score, and personal statement. The Committee will assess non-cognitive factors such as communication skills, extracurricular activities, and motivation for a career in medicine. After your interview, the admissions committee will consider your acceptance based on the above information in addition to the results of the interview and the letters of evaluation.

TIMELINE FOR MEDICAL SCHOOL APPLICATION

Spring of Junior year

- Take the MCAT no later than June 15 if possible.
- Complete registration information for the UT Dallas Health Professions Evaluation (HPE) process. Attend required seminars for the HPE process.
- Submit of on-line application to TMDSAS starting May 1.
- Complete secondary application for applicable schools.
- Submit AMCAS application for Baylor and allopathic medical schools outside of Texas starting June 1. Also consider submitting the ACOMAS application for osteopathic medical schools outside of Texas.

Summer between Junior and Senior years

- Request the Health Professions Advising Center to submit your HPE packet to TMDSAS and other medical schools to which you may be applying.
- Retake the MCAT in August or September, if necessary.

Fall of Senior year

- Interview at medical schools when invited.
- Inform the UT Dallas Health Professions Advising Center when you get interviews.

SUGGESTED READING

Following is a short list of reading materials that may be useful in preparing to enter medical school. Please realize that this is a selected list and that new books and other materials are continuously being published. Ask your advisor about any recent volumes that may be helpful.

Medical School Catalogs. These may be available in your health professions advisor's office or you can access a catalog by visiting a medical school's web site.

Medical Professions Admission Guide: Strategy for Success. NAAHP, P.O. Box 1518, Champaign, IL 61824-1518; (217) 355-0063. See also www.naahp.org.

The following publications are available from the Association of American Medical Colleges (AAMC) and may be ordered on their website at www.aamc.org.

Medical School Admissions Requirements United States and Canada (revised annually).

MCAT Student Manual

Scoring the MCAT Writing Sample: Examples of Writing Sample Responses and Explanations of Their Scores, 1995.

Minority Student Opportunities in United States Medical Schools. Provides information to underrepresented minorities (Blacks, Hispanics, Native Americans) applying to medical school.

WEBSITES TO VISIT

There are a number of excellent websites available to students interested in medicine as a career. Students are encouraged to visit the websites of particular medical schools. Following are a few other websites that can be helpful.

Association of American Medical Colleges	www.aamc.org
American Association of Colleges of Osteopathic Medicine	www.aacom.org
U.S. Department of Labor	www.bls.gov/oco/ocos074.htm
National Institutes of Health	www.training.nih.gov
Aspiring Docs	www.aspiringdocs.org
Exploring Health Careers	www.explorehealthcareers.org
Texas Medical and Dental Schools Application Service	www.utsystem.edu/tmdsas
American Medical Colleges Application Service	www.amcas.org
American Colleges of Osteopathic Medicine Application Service	www.acomas.org