

The Pathway to a Career in Medicine – An Overview

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Additional details can be found at: <http://www.missouristate.edu/bms/programs/premed.html>

So you want to become a physician? When should your firm decision to become a physician be made?

Recommendation: Know medicine enough so that you know that medicine best fits you. Know yourself enough to determine that you have the attributes, abilities, and perseverance to pursue a career in medicine.

If you are sure you know what a career in medicine is about, begin your planning and preparation at that point. Remember that most of your preparation will be self-driven. Do not claim that you have always wanted to be a physician unless that statement is true. If it is true, examine whether your concept of medicine is correct? It is estimated that over two-thirds of the students who enter college as “premeds”, have an unrealistic perception of what it takes to be a premedical student, a medical student, and a medical resident. The vast majority of students entering college as premeds will find other career interests or encounter difficulties in their science courses that place them in a non-competitive category for admission into medical school.

The fact that you have always wanted to be a "doctor" may imply immaturity and the inability to make good decisions. Your deeds and activities should reflect your interest in medicine and helping people, not just your words. Different health fields require a different commitment and different competencies. You need to be aware of, and have explored other health field options to know that medicine matches your abilities, preferences, and needs and that you are “a fit” for medicine. Is medicine **your** choice or an expectation of your parents or others, chosen because **they** are pleased? Are you driven by the “image of being a physician” or the reality and work of being a physician? Do you have a realistic view of the time commitment that will be required and your own abilities to persevere in a long, rigorous educational program? Are you academically interested and prepared in the arts and sciences of medicine?

What kind of doctor do you want to become? The primary role of licensed physicians with MD (medical doctorate) and DO (doctor of osteopathy) degrees is to diagnose and to prescribe treatments to alleviate disease. Other health professionals assist the physician with diagnostic tests and assist in patient treatment. Some health professions have their own educational pathway and specific degrees. Pharm-D for pharmacy, DC (doctor of chiropractic) for chiropractic, DPM (doctor of podiatric medicine) for podiatry, DO (doctor of optometry) for optometry, DDS (doctor of dental surgery) for dentistry, and ND (nursing doctorate) for nursing (also ND for naturopathic physicians). Also there are “clinical doctorates” for a variety of specialties including physical therapy. The PhD (doctor of philosophy) degree is considered to be the research doctorate for any discipline.

In the health areas, other types of doctorates often carry out applied or clinical research and may carry out limited basic research. Most basic scientific and health-applied research is supported through tax dollars and the NIH (National Institutes of Health) and NSF (National Science Foundation) funding agencies. Total financial support for all scientific and applied health research now equals about 1.2 cents for every federal tax dollar. Of this, about one cent supports over 25 health agencies of the NIH that carry out applied and basic research. The remaining two-tenths of a cent supports basic scientific research and scientific equipment in science education, primarily a function of the NSF. Public donations represent only a small fraction of the money required for researching those particular diseases that solicit public donations.

Your College/University Preparation

Students preparing for the MD or DO degrees are called “premedical students” or simply “premeds”.

Which college should I attend to be a pre-med?

The specific choice is important for the student who plans to utilize the opportunities available at that college whether it is a small college or a large university. Considerations include: environment, cost, convenience, prestige, and quality of undergraduate programs preprofessional advisement. Parents and students should not compare medical school acceptance percentages of different schools as an important criterion. Acceptance percentages depend on how the undergraduate school calculates acceptance percentages. Many different methods are used, the least useful being those that show the highest percentage. Since one does not know how that calculation is made by a specific school, acceptance percentages of different schools are meaningless for comparisons and can be quite deceiving. Remember that it is each individual student who is being evaluated for admission into medical school and how well they do in the programs from which they come, not the particular school from which they come. In all cases, students and parents should give weight to the quality of pre-medical student advisement at a particular school. Being a successful and competitive applicant to medical school requires more personal attention from a knowledgeable advisor than just being given a list of premedical prerequisite courses. Also, being a successful premedical student requires responsibility on the part of the student to be proactive in getting the information they need. You can not expect a premedical advisor to do for you what must be done by yourself.

What academic major should I choose?

Considerations – Most pre-meds are science majors, but medical school is not all science! Pick a major that you enjoy and can perform well in. If you are not in the sciences, know what courses are the minimal requirements and make sure you complete those courses before the end of your junior year of college. Both science and non-science majors must be sure they understand the differences among courses that (1) are required for medical school admission, and courses that (2) help prepare for the Medical College Admission Test (MCAT), and courses that (3) will prepare you for success in medical school.

In case you are not successful in being admitted into medical school, do you have a “Plan B”, an alternate career objective that fits your talents and needs?

Are you developing into an educated person with personal and professional attributes in preparation for medical school admission and physician practice?

Examples of desirable attributes:

- a. Have you developed a knowledge and appreciation of culture and history in a diverse culture?
- b. Are you able to communicate effectively?
- c. Are you in the process of developing a fundamental scientific knowledge and study skills needed in a demanding professional program?
- d. Are you developing efficient time management, space management, and organizational skills?
- e. Are you developing a healthy lifestyle, physically, spiritually, and psychologically?
- f. Do you have the competence and self-confidence to approach new situations and challenges?
- g. Are you able to manage your emotions in an appropriate manner?
- h. Have you developed independence and autonomy?
- i. Do you know yourself enough to identify and discuss your strengths and weaknesses?
- j. Can you relate to others those strategies that are you employing to overcome your weaknesses?

Second Semester of Junior Year of College

- a. Preparing and presenting your performance credentials (GPA).
- b. Scheduling and final preparation for the Medical College Admissions Test (MCAT) 3 sections: scored 1-15 (national average = 29.6). Verbal section is important in predicting success in medical school.
- c. Preparing your application through the American Medical College Application Service (AMCAS – for allopathic medicine) and/or the American Association of Osteopathic Medicine Application Service (AACOMAS – for osteopathic medicine) .

- d. Preparing to present yourself through the composition of your "personal statement".
- e. Securing letters of evaluation (academic, professional, committee)
- f. Assessing your strengths and weaknesses with a personal assessment - Enhancing the elements of professionalism - the substance of those “secondary” applications.
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| Academic performance | Maturity |
| Adherence to standards | “Other centeredness” |
| Altruism | Persistence |
| Attitude | Stress tolerance |
| Compassion | Service orientation |
| Respectfulness | Self-awareness and self-reflectiveness |
| Accountability | Stability |
| Ability to self-initiate | Foundations of knowledge |
| Knowledge of one’s own boundaries | Intellectual capability |
- g. Applicants to medical school are evaluated on their credentials and merits of becoming a model physician first, not one planning for a medical specialty after medical school! Most medical students have not had the experience to know what each medical specialty has to offer. Your goal should be to become a good physician first and later explore the options for a physician specialty. It may be important to emphasize your potential interest in one of the primary care areas of medicine and practice in a rural setting. Do not claim these interests unless they are sincere and you can demonstrate that interest through your actions. Actions should include active involvements with agencies and organizations that promote rural medicine in the state.
- h. Interviews offer those responsible for selecting students the opportunity to check any questions about you and your knowledge/commitment to medicine. Be prepared and know what to expect. If you haven’t considered the questions that might be asked, you are not prepared. The ability to present yourself and communicate well at a professional level is as important as the answers to the questions you are asked. Interviewers will rate you overall on the basis of your interview and will address various individual criteria using written statements or a report.
- i. Acceptance or rejection. About two out three applicants are not accepted because the remaining “one out of three” applicants are better qualified.

Medical School

First two years (Biomedical Sciences background – limited clinical experiences. Exposure to various information gathering and learning strategies including problem-based learning, group learning, and evidence-based decision making.

USMLE Step 1 (United States Medical Licensing Examination – Step 1 - Two 2 days in four 3-hr blocks). Subject areas include anatomy, behavioral sciences, biochemistry, microbiology, pathology, pharmacology, physiology, nutrition, genetics, and aging. (Osteopathic students take the comparable three part examination called COMLEX-US.)

Next two years (consists mostly clinical rounds or clerkships)

End of year four: USMLE Step 2 (part CK – clinical knowledge and part CS – clinical skills)- Two days in four 3-hr blocks. Clinical scenarios in internal medicine, obstetrics and gynecology, pediatrics, preventative medicine and public health, psychiatry, surgery, and other areas relevant to medical care under supervision.

Residency Selection and Applications. - During early part of fourth year of medical school.

Considerations: Grades (honors) in preclinical related areas, scores on USMLE step 1 or COMLEX-US part 1, grades in 3rd year clerkships, grades in 4th year specialty clerkships, grades in senior electives, letters of recommendation.

Applications and interviews followed by formulation of residency selection list by applicants and applicant selection list by residency programs - National Resident Matching Program results on Match Day (about the 15th of March) (non-matches are announced the day before Match Day).

Post graduate: USMLE Step 3 during or after the first residency year. Step 3 consists of two formats: multiple-choice questions and *Primum* computer-based case simulations (CCS), a testing format that allows the examinee to provide care for a simulated patient.

Chief Resident – Position in the final year of a residency with administrative and teaching responsibilities in guiding new residents.

Physician Specialties (numbers in parentheses represent residency training in years)
Residency positions are limited.

Group One – Major Specialties: Has 20,000 to 110,000 Practitioners in Each Specialty

1. Internal Medicine (3 with additional 2 if specializing in one of the five subspecialties)
2. Family Practice (3 with additional 2 if specializing in Geriatrics)
3. Pediatrics (2-3 with additional 3-4 for subspecialties)
4. General Surgery (5-7)
5. Psychiatry (4-5)
6. Obstetrics and Gynecology (4-5)
7. Anesthesiology (3-4)
8. Radiology [all types] (4-6)
9. General Practice
10. Orthopedic Surgery

Group Two – Intermediate Specialties: Has 8,000 to 20,000 Practitioners in Each Specialty

11. Pathology [Anat/Clin] (3-4 with additional 2 for subspecialties)
12. Cardiovascular Disease (3-6)
13. Emergency Medicine (3-4)
14. Ophthalmology (4)
15. Neurology
16. Urology
17. Otolaryngology
18. Dermatology (3)
19. Gastroenterology (5-6)

Group Three – Minor Specialties: Has 400 to 8,000 Practitioners in Each Specialty

20. Pulmonary Diseases
21. Plastic Surgery (6-8)
22. Child Psychiatry (5)
23. Colon and Rectal Surgery (5-6)
24. Physical Medicine and Rehabilitation (4-5)
25. Allergy and Immunology (4-5)
26. Radiation Oncology
27. Occupational Medicine
28. Thoracic Surgery
29. Public Health
30. Nuclear Medicine (4-5)
31. General Preventative Medicine (3)
32. Pediatric Cardiology
33. Colon and Rectal Surgery
34. Aerospace Medicine (3-4)
35. Forensic Pathology

Residency

3-6 years depending on medical specialty (medical residents get a limited salary – general range \$39,000 to \$50,000 per year + benefits)

Residency Boards Certification

Board Certification Examinations – “Board Certified” physician.

Continuing Medical Education (CME)

Recertification Examinations

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