

Related Occupations

Other health workers who provide direct patient care that requires a similar level of skill and training include occupational therapists, physical therapists, and speech-language pathologists and audiologists.

Sources of Additional Information

For information on a career as a physician assistant, contact:

► American Academy of Physician Assistants Information Center, 950 North Washington St., Alexandria, VA 22314-1552. Internet: <http://www.aapa.org>

For a list of accredited programs and a catalog of individual PA training programs, contact:

► Association of Physician Assistant Programs, 950 North Washington St., Alexandria, VA 22314-1552. Internet: <http://www.apap.org>

For eligibility requirements and a description of the Physician Assistant National Certifying Examination, contact:

► National Commission on Certification of Physician Assistants, Inc., 157 Technology Pkwy., Suite 800, Norcross, GA 30092-2913. Internet: <http://www.nccpa.net>

Physicians and Surgeons

(O*NET 29-1061.00, 29-1062.00, 29-1063.00, 29-1064.00, 29-1065.00, 29-1066.00, 29-1067.00)

Significant Points

- Physicians are much more likely to work as salaried employees of group medical practices, clinics, or integrated healthcare systems than in the past.
- Formal education and training requirements are among the most demanding of any occupation, but earnings are among the highest.

Nature of the Work

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 healthcare.

There are two types of physicians: The M.D.—Doctor of Medicine—and the 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.

About a third of M.D.s—and more than half of D.O.s—are primary care physicians. They practice general and family medicine, general internal medicine, or general pediatrics and usually are the first health professionals patients consult. Primary care physicians tend to see the same patients on a regular basis for preventive care and to treat a variety of ailments. General and family practitioners emphasize comprehensive healthcare for patients of all ages and for the family as a group. Those in general internal medicine provide care mainly for adults who may have problems associated with the body's organs. General pediatricians focus on the whole range of children's health issues. When appropriate, primary care physicians refer patients to specialists, who are experts in medical fields such as obstetrics and gynecology, cardiology, psychiatry, or surgery (table 1).

D.O.s are more likely to be primary care providers than M.D.s, although they can be found in all specialties. Over half of D.O.s practice general or family medicine, general internal medicine, or general pediatrics. Common specialties for D.O.s include

Table 1. Percent distribution of M.D.s by specialty, 1999

	<i>Percent</i>
Total	100.0
<i>Primary care</i>	
Internal medicine	16.1
General and family practice	10.7
Pediatrics	7.5
<i>Medical specialties</i>	
Allergy	0.5
Cardiovascular diseases	2.5
Dermatology	1.2
Gastroenterology	1.3
Obstetrics and gynecology	4.9
Pediatric cardiology	0.2
Pulmonary diseases	1.0
<i>Surgical specialties</i>	
Colon and rectal surgery	0.1
General surgery	4.9
Neurological surgery	0.6
Ophthalmology	2.2
Orthopedic surgery	2.7
Otolaryngology	1.1
Plastic surgery	0.7
Thoracic surgery	0.1
Urological surgery	1.3
<i>Other specialties</i>	
Aerospace medicine	0.1
Anesthesiology	4.4
Child psychiatry	0.7
Diagnostic radiology	2.6
Emergency medicine	2.8
Forensic pathology	0.1
General preventive medicine	0.4
Neurology	1.5
Nuclear medicine	0.2
Occupational medicine	0.4
Pathology	2.3
Physical medicine and rehabilitation	0.8
Psychiatry	4.9
Public health	0.2
Radiology	1.0
Radiation oncology	0.5
Other specialty	0.7
Unspecified/unknown/inactive	16.0

SOURCE: American Medical Association

emergency medicine, anesthesiology, obstetrics and gynecology, psychiatry, and surgery.

Surgeons are physicians who specialize in the treatment of injury, disease, and deformity through operations. With patients under general or local anesthesia, a surgeon operates using a variety of instruments to correct physical deformities, repair bone and tissue after injuries, or perform preventive surgeries on patients with debilitating diseases or disorders. Though 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 skeletal system and associated organs. Others include ophthalmology (treatment of the eye), neurological surgery (treatment of the brain and nervous system), and plastic or reconstructive surgery. Surgeons, like primary care and other specialist physicians, also examine patients, perform, and interpret diagnostic tests, and counsel patients on preventive healthcare.



Physicians and surgeons work in various specialties, including sports medicine.

Working Conditions

Many physicians work in small private offices or clinics, often assisted by a small staff of nurses and other administrative personnel. Increasingly, physicians practice in groups or healthcare organizations that provide back-up coverage and allow for more time off. These physicians often work as part of a team coordinating care for a population of patients; they are less independent than solo practitioners of the past.

Surgeons typically work in well-lit, sterile environments while performing surgery and often stand for long periods. Most work in hospitals or in surgical outpatient centers. Many physicians and surgeons work long, irregular hours. Almost one-third of physicians worked 60 hours or more a week in 2000. They must travel frequently between office and hospital to care for their patients. Physicians and surgeons who are on call deal with many patients' concerns over the phone, and may make emergency visits to hospitals or nursing homes.

Employment

Physicians and surgeons held about 598,000 jobs in 2000. About 7 out of 10 were in office-based practice and about 2 out of 10 were employed by hospitals. Others practiced in the Federal Government, most in U.S. Department of Veterans Affairs hospitals and clinics or in the Public Health Service of the Department of Health and Human Services.

A growing number of physicians are partners or salaried employees of group practices. Organized as clinics or as groups of physicians, medical groups can afford expensive medical equipment and realize other business advantages. Also, hospitals are integrating physician practices into healthcare networks that provide a continuum of care both inside and outside the hospital setting.

The New England and Middle Atlantic States have the highest ratio of physicians to population; the South Central States have the lowest. D.O.s are more likely than M.D.s to practice in small cities and towns and in rural areas. M.D.s tend to locate in urban areas, close to hospital and educational centers.

Training and Other Qualifications

It takes many years of education and training to become a physician: 4 years of undergraduate school, 4 years of medical school, and 3 to 8 years of internship and residency, depending on the specialty selected. A few medical schools offer a combined undergraduate and medical school program that lasts 6 years instead of the customary 8 years.

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 also 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 144 medical schools in the United States—125 teach allopathic medicine and award a Doctor of Medicine (M.D.) degree; 19 teach osteopathic medicine and award the Doctor of Osteopathic Medicine (D.O.) degree. Acceptance to medical school is very competitive. Applicants must submit transcripts, scores from the Medical College Admission Test, and letters of recommendation. Schools also consider 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 illness. During the last 2 years, students work with patients under the supervision of experienced physicians in hospitals and clinics to learn 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 before entering a residency which may last 2 to 6 years. Physicians may benefit from residencies in managed care settings by gaining experience with this increasingly common type of medical practice.

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 can usually get a license to practice in another without further examination, some States limit reciprocity. Graduates of foreign medical schools usually can qualify for licensure after passing an examination and completing a U.S. residency.

M.D.s and D.O.s seeking board certification in a specialty may spend up to 7 years—depending on the specialty—in residency

training. A final examination immediately after residency, or after 1 or 2 years of practice, also is necessary for board certification by the American Board of Medical Specialists (ABMS) or the American Osteopathic Association (AOA). There are 24 specialty boards, ranging from allergy and immunology to urology. For certification in a subspecialty, physicians usually need another 1 to 2 years of residency.

A physician's training is costly and, whereas education costs have increased, student financial assistance has not. More than 80 percent of medical students borrow money to cover their expenses.

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 to keep up with medical advances. They also will need to be flexible to respond to the changing demands of a rapidly evolving health care environment.

Job Outlook

Employment of physicians and surgeons will grow about as fast as the average for all occupations through the year 2010 due to continued expansion of the health care industries. The growing and aging population will drive overall growth in the demand for physician services. In addition, new technologies will permit more intensive care: Physicians will be able to do more tests, perform more procedures, and treat conditions previously regarded as untreatable.

Although job prospects may be better for primary care physicians such as general and family practitioners, general pediatricians, and general internists, a substantial number of jobs for specialists will also be created in response to patient demand for access to specialty care.

The number of physicians in training has leveled off and is likely to decrease over the next few years, alleviating the effects of any physician oversupply. However, future physicians may be more likely to work fewer hours, retire earlier, have lower earnings, or have to practice in underserved areas. Opportunities should be good in rural and low income areas, because some physicians find these areas unattractive due to lower earnings potential, isolation from medical colleagues, or other reasons.

Unlike their predecessors, newly trained physicians face radically different choices of where and how to practice. New physicians are much less likely to enter solo practice and more likely to take salaried jobs in group medical practices, clinics, and integrated healthcare systems.

Earnings

Physicians have among the highest earnings of any occupation. According to the latest data available from the American Medical Association, median income, after expenses, for allopathic physicians was about \$160,000 in 1998. The middle 50 percent earned between \$120,000 and \$240,000 a year. Self-employed physicians—those who own or are part owners of their medical practice—had higher median incomes than salaried physicians. Earnings vary according to number of years in practice, geographic region, hours worked, and skill, personality, and professional reputation. As shown in table 2, median income of allopathic physicians, after expenses, also varies by specialty.

Related Occupations

Physicians work to prevent, diagnose, and treat diseases, disorders, and injuries. Professionals in other occupations requiring similar skills and critical judgment include chiropractors, dentists,

Table 2. Median net income of M.D.s after expenses, 1998

All physicians	\$160,000
Surgery	240,000
Radiology	230,000
Anesthesiology	210,000
Obstetrics/gynecology	200,000
Emergency medicine	184,000
Pathology	184,000
General internal medicine	140,000
General/Family practice	130,000
Psychiatry	130,000
Pediatrics	126,000

SOURCE: American Medical Association

optometrists, physician assistants, podiatrists, speech-language pathologists and audiologists, and veterinarians.

Sources of Additional Information

For a list of medical schools and residency programs, as well as general information on premedical education, financial aid, and medicine as a career, contact:

► Association of American Medical Colleges, Section for Student Services, 2450 N St. NW., Washington, DC 20037-1126. Internet: <http://www.aamc.org>

► American Association of Colleges of Osteopathic Medicine, 5550 Friendship Blvd., Suite 310, Chevy Chase, MD 20815-7321. Internet: <http://www.aacom.org>

For general information on physicians, contact:

► American Medical Association, Department of Communications and Public Relations, 515 N. State St., Chicago, IL 60610. Internet: <http://www.ama-assn.org>

► American Osteopathic Association, Department of Public Relations, 142 East Ontario St., Chicago, IL 60611. Internet: <http://www.aoa-net.org>

Information on Federal scholarships and loans is available from the directors of student financial aid at schools of medicine.

Information on licensing is available from State boards of examiners.

Podiatrists

(O*NET 29-1081.00)

Significant Points

- A limited number of job openings for podiatrists is expected because the occupation is small and most podiatrists remain in the occupation until they retire.
- Most podiatrists are solo practitioners, although more are entering partnerships and multispecialty group practices.
- Podiatrists enjoy very high earnings.

Nature of the Work

Americans spend a great deal of time on their feet. As the Nation becomes more active across all age groups, the need for footcare will become increasingly important to maintaining a healthy lifestyle.

The human foot is a complex structure. It contains 26 bones—plus muscles, nerves, ligaments, and blood vessels—and is designed for balance and mobility. The 52 bones in your feet make up about one-fourth of all the bones in your body. Podiatrists, also known as *doctors of podiatric medicine (DPMs)*, diagnose and treat disorders,