
Pharmacists

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Significant Points

- Excellent job opportunities are expected.
- Earnings are high, but some pharmacists are required to work nights, weekends, and holidays.
- Pharmacists are becoming more involved in counseling patients and planning drug therapy programs.
- A license is required; the prospective pharmacist must graduate from an accredited college of pharmacy and pass a series of examinations.

Nature of the Work

Pharmacists distribute prescription drugs to individuals. They also advise their patients, as well as physicians and other health practitioners, on the selection, dosages, interactions, and side effects of medications. Pharmacists monitor the health and progress of patients to ensure the safe and effective use of medication. Compounding—the actual mixing of ingredients to form medications—is a small part of a pharmacist’s practice, because most medicines are produced by pharmaceutical companies in a standard dosage and drug delivery form. Most pharmacists work in a community setting, such as a retail drugstore, or in a health care facility, such as a hospital, nursing home, mental health institution, or neighborhood health clinic.

Pharmacists in community pharmacies dispense medications, counsel patients on the use of prescription and over-the-counter medications, and advise physicians about patients’ medication therapy. They also advise patients about general health topics such as diet, exercise, and stress management, and provide information on products such as durable medical equipment or home health care supplies. In addition, they may complete third-party insurance forms and other paperwork. Those who own or manage community pharmacies may sell non-health-related merchandise, hire and supervise personnel, and oversee the general operation of the pharmacy. Some community pharmacists provide specialized services to help patients with conditions such as diabetes, asthma, smoking cessation, or high blood pressure; others also are trained to administer vaccinations.

Pharmacists in health care facilities dispense medications and advise the medical staff on the selection and effects of drugs. They may make sterile solutions to be administered intravenously. They also plan, monitor and evaluate drug programs or regimens. They may counsel hospitalized patients on the use of drugs before the patients are discharged.

Pharmacists who work in home health care monitor drug therapy and prepare infusions—solutions that are injected into patients—and other medications for use in the home.

Some pharmacists specialize in specific drug therapy areas, such as intravenous nutrition support, oncology (cancer), nuclear pharmacy (used for chemotherapy), geriatric pharmacy, and psychiatric pharmacy (the use of drugs to treat mental disorders).

Most pharmacists keep confidential computerized records of patients’ drug therapies to prevent harmful drug interactions. Pharmacists are responsible for the accuracy of every prescription that is filled, but they often rely upon pharmacy technicians and pharmacy aides to assist them in the dispensing process. Thus, the pharmacist may delegate prescription-filling and administrative tasks and supervise their completion. Pharmacists also frequently oversee pharmacy students serving as interns.

Increasingly, pharmacists are pursuing nontraditional pharmacy work. Some are involved in research for pharmaceutical manufacturers, developing new drugs and testing their effects. Others work in marketing or sales, providing clients with expertise on the use, effectiveness, and possible side effects of drugs. Some pharmacists work for health insurance companies, developing pharmacy benefit packages and carrying out cost-benefit analyses on certain drugs. Other pharmacists work for the government, managed care organizations, public health care services, the armed services, or pharmacy associations. Finally, some pharmacists are employed full time or part time as college faculty, teaching classes and performing research in a wide range of areas.

Work environment. Pharmacists work in clean, well-lighted, and well-ventilated areas. Many pharmacists spend most of their workday on their feet. When working with sterile or dangerous pharmaceutical products, pharmacists wear gloves, masks, and other protective equipment.

Most full-time salaried pharmacists work approximately 40 hours a week, and about 10 percent work more than 50 hours. Many community and hospital pharmacies are open for extended hours or around the clock, so pharmacists may be required to work nights, weekends, and holidays. Consultant pharmacists may travel to nursing homes or other facilities to monitor patients’ drug therapy. About 16 percent of pharmacists worked part time in 2006.

Training, Other Qualifications, and Advancement

A license is required in all States, the District of Columbia, and all U.S. territories. In order to obtain a license, pharmacists must earn a Doctor of Pharmacy (Pharm.D.) degree from a college of pharmacy and pass several examinations.

Education and training. Pharmacists must earn a Pharm. D. degree from an accredited college or school of pharmacy. The Pharm.D. degree has replaced the Bachelor of Pharmacy



Pharmacists counsel patients and answer questions about medications.

degree, which is no longer being awarded. To be admitted to a Pharm.D. program, an applicant must have completed at least 2 years of postsecondary study, although most applicants have completed 3 or more years. Other entry requirements usually include courses in mathematics and natural sciences, such as chemistry, biology, and physics, as well as courses in the humanities and social sciences. In 2007, 92 colleges and schools of pharmacy were accredited to confer degrees by the Accreditation Council for Pharmacy Education (ACPE). About 70 percent of Pharm.D. programs require applicants to take the Pharmacy College Admissions Test (PCAT).

Courses offered at colleges of pharmacy are designed to teach students about all aspects of drug therapy. In addition, students learn how to communicate with patients and other health care providers about drug information and patient care. Students also learn professional ethics, concepts of public health, and medication distribution systems management. In addition to receiving classroom instruction, students in Pharm.D. programs spend about one-fourth of their time in a variety of pharmacy practice settings under the supervision of licensed pharmacists.

In the 2006–07 academic year, 70 colleges of pharmacy also awarded the master-of-science degree or the Ph.D. degree. Both degrees are awarded after the completion of a Pharm.D. degree and are designed for those who want additional clinical, laboratory, and research experience. Areas of graduate study include pharmaceuticals and pharmaceutical chemistry (physical and chemical properties of drugs and dosage forms), pharmacology (effects of drugs on the body), and pharmacy administration. Many master's and Ph.D. degree holders go on to do research for a drug company or teach at a university.

Other options for pharmacy graduates who are interested in further training include 1-year or 2-year residency programs or fellowships. Pharmacy residencies are postgraduate training programs in pharmacy practice and usually require the completion of a research project. These programs are often mandatory for pharmacists who wish to work in hospitals. Pharmacy fellowships are highly individualized programs that are designed to prepare participants to work in a specialized area of pharmacy, such as clinical practice or research laboratories. Some pharmacists who own their own pharmacy obtain a master's degree in business administration (MBA). Others may obtain a degree in public administration or public health.

Licensure. A license to practice pharmacy is required in all States, the District of Columbia, and all U.S. territories. To obtain a license, a prospective pharmacist must graduate from a college of pharmacy that is accredited by the ACPE and pass a series of examinations. All States, U.S. territories, and the District of Columbia require the North American Pharmacist Licensure Exam (NAPLEX), which tests pharmacy skills and knowledge. Forty-four States and the District of Columbia also require the Multistate Pharmacy Jurisprudence Exam (MPJE),

which tests pharmacy law. Both exams are administered by the National Association of Boards of Pharmacy (NABP). Each of the eight States and territories that do not require the MJPE has its own pharmacy law exam. In addition to the NAPLEX and MPJE, some States and territories require additional exams that are unique to their jurisdiction.

All jurisdictions except California currently grant license transfers to qualified pharmacists who already are licensed by another jurisdiction. Many pharmacists are licensed to practice in more than one jurisdiction. Most jurisdictions require continuing education for license renewal. Persons interested in a career as a pharmacist should check with individual jurisdiction boards of pharmacy for details on license renewal requirements and license transfer procedures.

Graduates of foreign pharmacy schools may also qualify for licensure in some U.S. States and territories. These individuals must apply for certification from the Foreign Pharmacy Graduate Examination Committee (FPGEC). Once certified, they must pass the Foreign Pharmacy Graduate Equivalency Examination (FPGEE), Test of English as a Foreign Language (TOEFL) exam, and Test of Spoken English (TSE) exam. They then must pass all of the exams required by the licensing jurisdiction, such as the NAPLEX and MJPE. Applicants who graduated from programs accredited by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) between 1993 and 2004 are exempt from FPGEC certification and examination requirements.

Other qualifications. Prospective pharmacists should have scientific aptitude, good interpersonal skills, and a desire to help others. They also must be conscientious and pay close attention to detail, because the decisions they make affect human lives.

Advancement. In community pharmacies, pharmacists usually begin at the staff level. Pharmacists in chain drugstores may be promoted to pharmacy supervisor or manager at the store level, then to manager at the district or regional level, and later to an executive position within the chain's headquarters. Hospital pharmacists may advance to supervisory or administrative positions. After they gain experience and secure the necessary capital, some pharmacists become owners or part owners of independent pharmacies. Pharmacists in the pharmaceutical industry may advance in marketing, sales, research, quality control, production, or other areas.

Employment

Pharmacists held about 243,000 jobs in 2006. About 62 percent worked in community pharmacies that were either independently owned or part of a drugstore chain, grocery store, department store, or mass merchandiser. Most community pharmacists were salaried employees, but some were self-employed owners. About 23 percent of pharmacists worked in hospitals. A small proportion worked in mail-order and Internet pharmacies, phar-

Projections data from the National Employment Matrix

Occupational Title	SOC Code	Employment, 2006	Projected employment, 2016	Change, 2006-2016	
				Number	Percent
Pharmacists	29-1051	243,000	296,000	53,000	22

NOTE: Data in this table are rounded. See the discussion of the employment projections table in the *Handbook* introductory chapter on *Occupational Information Included in the Handbook*.

maceutical wholesalers, offices of physicians, and the Federal Government.

Job Outlook

Employment is expected to increase much faster than the average through 2016. As a result of rapid growth and the need to replace workers who leave the occupation, job prospects should be excellent.

Employment change. Employment of pharmacists is expected to grow by 22 percent between 2006 and 2016, which is much faster than the average for all occupations. The increasing numbers of middle-aged and elderly people—who use more prescription drugs than younger people—will continue to spur demand for pharmacists throughout the projection period. Other factors likely to increase the demand for pharmacists include scientific advances that will make more drug products available and the coverage of prescription drugs by a greater number of health insurance plans and Medicare.

As the use of prescription drugs increases, demand for pharmacists will grow in most practice settings, such as community pharmacies, hospital pharmacies, and mail-order pharmacies. As the population ages, assisted living facilities and home care organizations should see particularly rapid growth. Demand will also increase as cost-conscious insurers, in an attempt to improve preventative care, use pharmacists in areas such as patient education and vaccination administration.

Demand is also increasing in managed care organizations where pharmacists analyze trends and patterns in medication use, and in pharmacoeconomics—the cost and benefit analysis of different drug therapies. New jobs also are being created in disease management—the development of new methods for curing and controlling diseases—and in sales and marketing. Rapid growth is also expected in pharmacy informatics—the use of information technology to improve patient care.

Job prospects. Excellent opportunities are expected for pharmacists over the 2006 to 2016 period. Job openings will result from rapid employment growth, and from the need to replace workers who retire or leave the occupation for other reasons.

Earnings

Median annual of wage-and-salary pharmacists in May 2006 were \$94,520. The middle 50 percent earned between \$83,180 and \$108,140 a year. The lowest 10 percent earned less than \$67,860, and the highest 10 percent earned more than \$119,480 a year. Median annual earnings in the industries employing the largest numbers of pharmacists in May 2006 were:

Department stores	\$99,050
Grocery stores	95,600
Pharmacies and drug stores.....	94,640
General medical and surgical hospitals.....	93,640

According to a 2006 survey by *Drug Topics Magazine*, pharmacists in retail settings earned an average of \$92,291 per year, while pharmacists in institutional settings earned an average of \$97,545. Full-time pharmacists earned an average of \$102,336, while part-time pharmacists earned an average of \$55,589.

Related Occupations

Pharmacy technicians and pharmacy aides also work in pharmacies. Persons in other professions who may work with pharmaceutical compounds include biological scientists, medical scientists, and chemists and materials scientists. Increasingly, pharmacists are involved in patient care and therapy, work that they have in common with physicians and surgeons.

Sources of Additional Information

For information on pharmacy as a career, preprofessional and professional requirements, programs offered by colleges of pharmacy, and student financial aid, contact:

➤ American Association of Colleges of Pharmacy, 1426 Prince St., Alexandria, VA 22314. Internet: <http://www.aacp.org>

General information on careers in pharmacy is available from:

➤ American Society of Health-System Pharmacists, 7272 Wisconsin Ave., Bethesda, MD 20814.

Internet: <http://www.ashp.org>

➤ National Association of Chain Drug Stores, 413 N. Lee St., P.O. Box 1417-D49, Alexandria, VA 22313-1480.

Internet: <http://www.nacds.org>

➤ Academy of Managed Care Pharmacy, 100 North Pitt St., Suite 400, Alexandria, VA 22314. Internet: <http://www.amcp.org>

➤ American Pharmacists Association, 1100 15th Street, NW, Suite 400., Washington, DC 20005.

Internet: <http://www.aphanet.org>

Information on the North American Pharmacist Licensure Exam (NAPLEX) and the Multistate Pharmacy Jurisprudence Exam (MPJE) is available from:

➤ National Association of Boards of Pharmacy, 1600 Feehanville Dr., Mount Prospect, IL 60056.

Internet: <http://www.nabp.net>

State licensure requirements are available from each State's board of pharmacy. Information on specific college entrance requirements, curriculums, and financial aid is available from any college of pharmacy.