

Pharmacists

(All information, except UB degree program information, is from the US Department of Labor, Bureau of Labor Statistics 2004-2005 Occupational Outlook Handbook.)

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- **UB Graduate Programs:**
 - [PharmD](#)

- **UB Undergraduate Programs:**
 - [BS Biochemical Pharmacology](#)
 - [BS, BS/MS Pharmaceutics](#)

Significant Points

- Pharmacists are becoming more involved in drug therapy decisionmaking and patient counseling.
- A license is required; one must graduate from an accredited college of pharmacy and pass a State examination.
- Very good employment opportunities are expected.
- Earnings are very high, but some pharmacists work long hours, nights, weekends, and holidays.

Employment

Pharmacists held about 230,000 jobs in 2002. About 62 percent work in community pharmacies that are either independently owned or part of a drugstore chain, grocery store, department store, or mass merchandiser. Most community pharmacists are salaried employees, but some are self-employed owners. About 22 percent of salaried pharmacists work in hospitals, and others work in clinics, mail-order pharmacies, pharmaceutical wholesalers, home healthcare agencies, or the Federal Government.

Job Outlook

Very good employment opportunities are expected for pharmacists over the 2002-12 period because the number of degrees granted in pharmacy is expected to be less than the number of job openings created by employment growth and the need to replace pharmacists who retire or otherwise leave the occupation. Recently, enrollments in pharmacy programs are rising as more students are attracted by high salaries and good job prospects. Despite this increase in enrollments, pharmacist jobs should still be more numerous than those seeking employment.

Employment of pharmacists is expected to [grow faster than the average](#) for all occupations through the year 2012, due to the increased pharmaceutical needs of a growing elderly population and increased use of medications. The growing numbers of middle-aged and elderly people—who, on average, use more prescription drugs than do younger people—will continue to spur demand for pharmacists in all employment settings. Other factors likely to increase the demand for pharmacists include scientific advances that will make more drug products available, new developments in genome research and medication distribution systems, increasingly sophisticated consumers seeking more information about drugs, and coverage of prescription drugs by a greater number of health insurance plans and by Medicare.

Community pharmacies are taking steps to manage increasing prescription volume. Automation of drug dispensing and greater employment of pharmacy technicians and pharmacy aides will help these establishments to dispense more prescriptions.

With its emphasis on cost control, managed care encourages the use of lower cost prescription drug distributors, such as mail-order firms and online pharmacies, for purchases of certain medications. Prescriptions ordered through the mail via the Internet are filled in a central location and shipped to the patient at a lower cost. Mail-order and online pharmacies typically use automated technology to dispense medication and employ fewer pharmacists. If the utilization of mail-order pharmacies increases rapidly, job growth among pharmacists could be limited.

Employment of pharmacists will not grow as fast in hospitals as in other industries, as hospitals reduce inpatient stays, downsize, and consolidate departments. The increase in outpatient surgeries means more patients are discharged and purchase medications through retail, supermarket, or mail-order pharmacies, rather than through the hospital. An aging population means more pharmacy services are required in nursing homes, assisted living facilities, and home care settings, where the most rapid job growth among pharmacists is expected.

New opportunities are emerging for pharmacists in managed-care organizations, where they may analyze trends and patterns in medication use for their populations of patients, and for pharmacists trained in research, disease management, and pharmacoconomics—determining the costs and benefits of different drug therapies. Pharmacists also will have opportunities to work in research and development as well as sales and marketing for pharmaceutical manufacturing firms. New breakthroughs in biotechnology will increase the potential for drugs to treat diseases and expand the opportunities for pharmacists to conduct research and sell medications.

Job opportunities for pharmacists in patient care will arise as cost-conscious insurers and health systems continue to emphasize the role of pharmacists in primary and preventive health services. Health insurance companies realize that the expense of using medication to treat diseases and various health conditions often is considerably less than the potential costs for patients whose conditions go untreated. Pharmacists also can reduce the

expenses resulting from unexpected complications due to allergic reactions or medication interactions.

Earnings

Median annual wage and salary earnings of pharmacists in 2002 were \$77,050. The middle 50 percent earned between \$66,210 and \$87,250 a year. The lowest 10 percent earned less than \$54,110, and the highest 10 percent earned more than \$94,570 a year. Median annual earnings in the industries employing the largest numbers of pharmacists in 2002 were as follows:

Grocery stores	\$78,270
Health and personal care stores	76,800
General medical and surgical hospitals	76,620

Training, Other Qualifications, and Advancement

A license to practice pharmacy is required in all States, the District of Columbia, and U.S. territories. To obtain a license, one must graduate from a college of pharmacy accredited by the American Council on Pharmaceutical Education (ACPE) and pass an examination. All States except California require the North American Pharmacist Licensure Exam (NAPLEX) and the Multistate Pharmacy Jurisprudence Exam (MPJE), both administered by the National Association of Boards of Pharmacy. California has its own pharmacist licensure exam. In addition to the NAPLEX and MPJE, some States require additional exams unique to their State. All States except California currently grant a license without extensive re-examination to qualified pharmacists already licensed by another State. In Florida, reexamination is not required if a pharmacist passed the NAPLEX and MPJE within 12 years of his or her application for license transfer. Many pharmacists are licensed to practice in more than one State. States may require continuing education for license renewal. Persons interested in a career as a pharmacist should check with State boards of pharmacy for details on examination requirements and license transfer procedures.

In 2002, 85 colleges of pharmacy were accredited to confer degrees by the American Council on Pharmaceutical Education. Pharmacy programs grant the degree of Doctor of Pharmacy (Pharm.D.), which requires at least 6 years of postsecondary study and the passing of the licensure examination of a State board of pharmacy. Courses offered at colleges of pharmacy are designed to teach students how to dispense prescriptions and communicate with patients and other health care providers about drug information and patient care. Students also learn professional ethics.. In addition to classroom study, students in the Pharm.D. program are provided in-depth exposure to and active

participation in a variety of pharmacy practice settings under the supervision of licensed pharmacists. The Pharm.D. degree has replaced the Bachelor of Pharmacy (B.Pharm.) degree, which is no longer offered to new students and will cease to be awarded after 2005.

The Pharm.D. is a 4-year program that requires at least 2 years of college study prior to admittance, although most applicants have 3 years prior to entering the program. 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. Approximately half of all colleges require the applicant to take the Pharmacy College Admissions Test (PCAT).

In 2003, the American Association of Colleges of Pharmacy (AACP) launched the Pharmacy College Application Service, known as PharmCAS, for students interested in applying to schools and colleges of pharmacy. This centralized service allows applicants to use a single Web-based application and one set of transcripts to apply to multiple Pharm.D. degree programs. A total of 43 pharmacy programs participated in 2003.

In the 2002-03 academic year, 66 colleges of pharmacy awarded the master of science degree or the Ph.D. degree. Both the master's and Ph.D. degrees are awarded after completion of a Pharm.D. degree. These degrees are designed for those who want more laboratory and research experience. Many master's and Ph.D. degree holders do research for a drug company or teach at a university. Other options for pharmacy graduates who are interested in further training include 1- or 2-year residency programs or fellowships. Pharmacy residencies are postgraduate training programs in pharmacy practice, and usually require the completion of a research study. Pharmacy fellowships are highly individualized programs designed to prepare participants to work in research laboratories. Some pharmacists who run their own pharmacy obtain a master's degree in business administration (MBA).

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.

Prospective pharmacists should have scientific aptitude, good communication 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.

In community pharmacies, pharmacists usually begin at the staff level. In independent pharmacies, after they gain experience and secure the necessary capital, some become owners or part owners of pharmacies. 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.
Pharmacists in the pharmaceutical industry may advance in marketing, sales, research, quality control, production, packaging, or other areas.