

# **Pharmacist**

## **Professional Activities**

Pharmacists dispense drugs prescribed by physicians and other health practitioners and provide information to patients about medications and their use. They advise physicians and other health practitioners on the selection, dosages, interactions, and side effects of medications. Pharmacists also monitor the health and progress of patients in response to drug therapy to ensure safe and effective use of medication. Pharmacists must understand the use, clinical effects, and composition of drugs, including their chemical, biological, and physical properties. Compounding—the actual mixing of ingredients to form powders, tablets, capsules, ointments, and solutions—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. Traditionally, most pharmacists work in a community setting, such as a retail drugstore, or in a healthcare facility, such as a hospital, nursing home, mental health institution, or neighborhood health clinic.

Pharmacists in community and retail pharmacies counsel patients and answer questions about prescription drugs, including questions regarding possible side effects or interactions among various drugs. They provide information about over-the-counter drugs and make recommendations after talking with the patient. They also may give advice about diet, exercise, or stress management, or about durable medical equipment and home healthcare supplies. They also 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 manage conditions such as diabetes, asthma, smoking cessation, or high blood pressure. Some community pharmacists are also certified to administer vaccinations.

Pharmacists in healthcare facilities dispense medications and advise the medical staff on the selection and effects of drugs. They may make sterile solutions and buy medical supplies. They also assess, plan, and monitor drug programs or regimens. They counsel patients on the use of drugs while in the hospital, and on their use at home when the patients are discharged. Pharmacists also may evaluate drug use patterns and outcomes for patients in hospitals or managed care organizations.

Pharmacists who work in home healthcare 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 psychopharmacotherapy (the treatment of mental disorders with drugs).

Most pharmacists keep confidential computerized records of patients’ drug therapies to ensure that harmful drug interactions do not occur. 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. They also frequently oversee pharmacy students serving as interns in preparation for graduation and licensure.

Increasingly, pharmacists pursue nontraditional pharmacy work. Some are involved in research for pharmaceutical manufacturers, developing new drugs and therapies and testing their effects on people. Others work in marketing or sales, providing expertise to clients on a drug’s use, effectiveness, and possible side effects. Some pharmacists also work for health insurance companies, developing pharmacy benefit packages and carrying out cost-benefit analyses on certain drugs. Other pharmacists work for the government and 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.

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 potentially dangerous pharmaceutical products, pharmacists wear gloves and masks and work with other special protective equipment. Many community and hospital pharmacies are open for extended hours or around the clock, so pharmacists may work evenings, nights, weekends, and holidays. Consultant pharmacists may travel to nursing homes or other facilities to monitor patients' drug therapy.

Most full-time salaried pharmacists worked approximately 40 hours a week. Some, including many self-employed pharmacists, worked more than 50 hours a week.

## **Educational Requirements**

Pharmacists who are trained in the United States must earn a Pharm.D. degree from an accredited college or school of pharmacy. The Pharm.D. degree has replaced the Bachelor of Pharmacy 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 specific professional study. This requirement generally includes courses in mathematics and natural sciences, such as chemistry, biology, and physics, as well as courses in the humanities and social sciences. In addition, most applicants have completed 3 or more years at a college or university before moving on to a Pharm.D. program, although this is not specifically required.

Pharm.D. programs generally take 4 years to complete. The courses offered are designed to teach students about all aspects of drug therapy. In addition, students learn how to communicate with patients and other healthcare providers about drug information and patient care. Students also learn professional ethics, concepts of public health, and business management. In addition to receiving classroom instruction, students in Pharm.D. programs spend time working with licensed pharmacists in a variety of practice settings.

Some Pharm.D. graduates obtain further training through 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. The programs are often mandatory for pharmacists who wish to work in a clinical setting. 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.

A license to practice pharmacy is required in all States and the District of Columbia, as well as in Guam, Puerto Rico, and the U.S. Virgin Islands. To obtain a license, a prospective pharmacist generally must obtain a Pharm.D. degree from a college of pharmacy that has been approved by the Accreditation Council for Pharmacy Education. After obtaining the Pharm.D. degree, the individual must 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. Besides requiring the NAPLEX and law examination, some States and territories require additional exams that are unique to their jurisdictions. All jurisdictions also require a specified number of hours of experience in a practice setting before a license is awarded. In most jurisdictions, this requirement can be met while obtaining the Pharm.D. In many States, applicants must meet an age requirement before a license can be obtained, and some States require a criminal background check.

All States and U.S. territories except Puerto Rico permit licensure for graduates of foreign pharmacy schools. 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. Then they

must pass all of the exams required by the licensing jurisdiction, such as the NAPLEX and MJPE, and meet the requirements for practical experience. In some States, applicants who graduated from programs accredited by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) between 1993 and 2004 are exempt from FPGE certification and examination requirements.

## **Academic Programs**

[Chicago State University](#)

[Midwestern University](#)

[Roosevelt University](#)

[Southern Illinois University Edwardsville](#)

[University of Illinois at Chicago](#)

## **Employment/Salary Outlook**

Employment of pharmacists is expected to grow by 17 percent between 2008 and 2018, which is 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. In addition, as scientific advances lead to new drug products, and as an increasing number of people obtain prescription drug coverage, the need for these workers will continue to expand.

Pharmacists also are becoming more involved in patient care. As prescription drugs become more complex, and as the number of people taking multiple medications increases, the potential for dangerous drug interactions will grow. Pharmacists will be needed to counsel patients on the proper use of medication, assist in drug selection and dosage, and monitor complex drug regimens. This need will lead to rapid growth for pharmacists in medical care establishments, such as doctors' offices, outpatient care centers, and nursing care facilities.

Demand also will increase in mail-order pharmacies, which often are more efficient than pharmacies in other practice settings. Employment also will continue to grow in hospitals, drugstores, grocery stores, and mass retailers, because pharmacies in these settings will continue to process the majority of all prescriptions and increasingly will offer patient care services, such as the administration of vaccines.

## **State and National Wages**

Location	Pay Period	2009				
		10%	25%	Median	75%	90%
United States	Hourly	\$38.11	\$46.05	\$52.49	\$59.29	\$64.56
	Yearly	\$79,300	\$95,800	\$109,200	\$123,300	\$134,300
Illinois	Hourly	\$37.37	\$44.54	\$51.24	\$57.95	\$63.66
	Yearly	\$77,700	\$92,600	\$106,600	\$120,500	\$132,400

## **State and National Trends**

United States	Employment		Percent Change	<a href="#">Job Openings</a> <sup>1</sup>
	2008	2018		
Pharmacists	269,900	315,800	+17%	10,580
Illinois	Employment		Percent Change	<a href="#">Job Openings</a> <sup>1</sup>
	2008	2018		
Pharmacists	10,250	11,400	+11%	340

<sup>1</sup>Job Openings refers to the average annual job openings due to growth and net replacement.

## **Professional Organizations**

National Association of Boards of Pharmacy

1600 Feehanville Drive

Mount Prospect, IL 60056

Tel: 847-391-4406

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

American Association of Colleges of Pharmacy

1727 King Street

Alexandria, VA 22314

(703) 739-2330

<http://www.aacp.org>

American Pharmacists Association

2215 Constitution Avenue NW

Washington, DC 20037

T 202.628.4410

<http://www.pharmacist.com/>

## **References**

Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2010-11 Edition, Pharmacists, on the Internet at <http://www.bls.gov/oco/ocos079.htm>

O\*NET OnLine, on the Internet at

<http://online.onetcenter.org/link/summary/29-1051.00>

Date Last Modified: May 23, 2011