

# Pharmacist and Pharmacy Technician Certification, Licensure, and Registration

**T**HE ROLE OF THE PHARMACIST has evolved over the past 100 years from a compounder and dispenser of natural medications to a dispenser of synthetic medications and medication information. Safeguarding the health of the public is one of the main concerns of a pharmacist. Today, pharmacists are highly educated professionals who are licensed to practice in a wide variety of settings. Most pharmacy practices employ one or more pharmacy technicians who are supervised by a licensed pharmacist.



## Objective:



Differentiate between pharmacists, pharmacy technicians, and pharmacist specialties.

## Key Terms:



accredited	infectious disease	pediatrics
antimicrobial	license	pharmacist
Antimicrobial	malignancy	pharmacokinetics
Stewardship Program	medicinal	pharmacology
(ASP)	microbiology	pharmacotherapy
apprenticeship	nutrition	pharmacy technician
certification	oncology	psychiatry
enteral nutrition	parenteral nutrition	registered

# Pharmacy Occupations

Over the past 80 years, the curriculum in pharmacy has expanded from two to six years because of the complexity of new drugs and the expanded role of the pharmacist. Pharmacy technicians assist with this workload, thereby allowing the pharmacist to spend more time counseling patients and/or communicating with physicians. To better assist the pharmacist in providing patient care, formal technician programs have been developed to better train them for their expanded roles in the pharmacy.

## PHARMACIST

A **pharmacist** is an individual professionally qualified to prepare and dispense medicinal drugs. **Medicinal** is having healing properties.

### Educational Requirements

Until 1920, a formal education was not required to take an examination to become a pharmacist. Prior to this, an individual could complete a three- to four-year apprenticeship. An **apprenticeship** is a type of job training that involves following and studying a master at the trade on the job instead of in school before taking an exam.

Now you must complete a doctor of pharmacy (PharmD) program from an **accredited** (officially recognized or authorized) pharmacy program and then obtain a state license. A **license** is a permit from an authority to engage in a business or occupation. A registered pharmacist uses the abbreviation RPh after his or her name. Admission requirements vary by program. However, all doctor of pharmacy programs require applicants to complete coursework in biology, physics, chemistry, mathematics, humanities, and social sciences. These requirements are usually completed in two years. Most colleges of pharmacy require applicants to take the Pharmacy College Admission Test (PCAT), and most require an on-site interview. A typical candidate takes an additional four years to complete the program.

Program candidates complete courses in **pharmacology**, which is the study of the uses, effects, and modes of actions of drugs, pharmacokinetics, pharmacy law, pharmacy practice, healthcare systems, pharmacy management, and professional ethics.

**Pharmacokinetics** is the study of absorption, distribution, metabolism, and excretion of drugs.



**FIGURE 1.** Pharmacy students complete courses in pharmacology, which is the study of the uses, effects, and modes of actions of drugs.

You spend your final program year completing supervised work experiences to acquire clinical experience in different settings (e.g., hospitals, clinics, and nursing homes) to expose and better prepare you to practice all functions of pharmacy.

## PHARMACY TECHNICIAN

A **pharmacy technician** is a medical professional working under the supervision of a licensed pharmacist. The modern day role of the pharmacist would not be possible without the assistance of a trained pharmacy technician. Aside from a high school diploma, no formal training requirements exist to become a pharmacy technician. Many receive on-the-job training. Programs vary in length and subject matter, according to the employers' requirements. Pharmacy technicians may complete a one- to two-year pharmacy technology program. These programs are usually offered by vocational schools or community colleges and cover a variety of subjects, including:

- ◆ Pharmacy math
- ◆ Pharmacy law
- ◆ Pharmacy ethics
- ◆ Pharmacology
- ◆ Pharmacy terminology



**FIGURE 2.** A pharmacy technician is a medical professional working under the supervision of a licensed pharmacist. The modern day role of the pharmacist would not be possible without the assistance of a trained pharmacy technician.

### Licensure and Certification Options

All pharmacists in the United States are required to be licensed. One can pursue licensure after graduating from an accredited college of pharmacy. Graduates must pass the North American Pharmacist Licensure Examination (NAPLEX) and the Multistate Pharmacy Jurisprudence Examination (MPJE).

### Examinations

The NAPLEX measures a candidate's knowledge of the practice of pharmacy. The MPJE is a state specific test on pharmacy law and covers the legal aspects of working with and distributing pharmaceuticals.

### Continuing Education

In most states, pharmacists must complete continuing education requirements to renew their license. For example, Illinois requires pharmacists to complete 30 hours of continuing education every two years.

## Vaccinations and Immunizations

Most states require pharmacists who administer vaccinations and immunizations to be certified. To become certified, you must be licensed and complete an approved immunization course. You are then authorized to administer immunizations to patients 18 years of age or older to prevent:

- ◆ Influenza
- ◆ Pneumococcal disease
- ◆ Meningococcal disease
- ◆ Shingles
- ◆ Tetanus
- ◆ Diphtheria
- ◆ Pertussis (whooping cough)

## Certification Options

Most states regulate pharmacy technicians in some way. Even when it is not required, certification may make it easier to get a job. **Certification** is an official document attesting to a status or level of achievement. Two organizations offer certification: the Pharmacy Technician Certification Board (PTCB) and the National Healthcare Association (NHA).

- ◆ PTCB certification: A candidate must satisfy several requirements. The candidate must possess a high school diploma, must comply with full disclosure of all criminal activities, and must receive a passing score on the Pharmacy Technician Certification Exam (PTCE). Once all of these requirements have been satisfied, PTCB will award the candidate the credential of Certified Pharmacy Technician (CPhT). Certified pharmacy technicians must recertify every two years by earning 20 continuing education credits.
- ◆ NHA certification: A candidate must satisfy several requirements. The candidate must:
  - Possess a high school diploma
  - Have successfully completed a formal training program through an accredited school or employer-based training program
  - Have completed 1,200 hours of supervised pharmacy-related experience
  - Have passed the ExCPT certification exam
  - Pharmacy technicians certified through NHA must recertify every two years by earning 20 continuing education credits.



**FIGURE 3.** Pharmacists can become certified to administer immunizations to patients 18 years or older to prevent diseases (e.g., influenza and shingles).



## Registration

To become a registered pharmacist, you must complete the application process for a particular state. **Registered** is officially or legally certified by a government officer or board. For example, the candidate typically must complete the application for licensure and examination and include all the supporting documents required by the state. Most states require a fee be included with the application.

To become a registered pharmacy technician, you must complete the application process for a particular state. For instance, the candidate generally must complete the application for pharmacy technician licensure and include all the supporting documents required by the state. Most states require a fee be included with the application.

## PHARMACIST SPECIALTIES

Various areas of specialization exist for pharmacists.

### Oncology Pharmacist

**Oncology** is the study and treatment of tumors and cancers. Oncology pharmacy provides evidence-based, patient-centered medication therapy management, and direct patient care for people with cancer. A board certified oncology pharmacist (BCOP) has the advanced knowledge and experience to manage cancer-related and drug-related adverse events or clinical situations not encountered in other disease states. A BCOP is specially trained to recommend, design, implement, monitor, and modify therapy plans to optimize outcomes in patients with malignant diseases.

Regarding a tumor or a growth, a diagnosis of **malignancy** is the quality or condition of uncontrolled growth; cancerous. Pharmacists work to reduce errors. In addition, they are trained to recognize and respond to adverse physical and emotional issues that may arise during treatment, including pain, nausea, and hair loss.

An eligible candidate must have graduated from an accredited school of pharmacy to study for this specialty. The candidate must possess a current, active license to practice pharmacy in the United States. In addition, you must have completed four years of practice experience, post



**FIGURE 4.** Agents used in cancer chemotherapy are considered hazardous drugs. Pharmacists must be familiar with the special storage, preparations, and monitoring of these drugs in the community and hospital settings.

pharmacist licensure, with at least 50 percent of the time spent in oncology pharmacy activities. Another option is to complete a post-graduate one-year residency in oncology plus two additional years of practice post pharmacist licensure with at least 50 percent of the time spent in oncology pharmacy activities. Also, the candidate must achieve a passing score on the Oncology Pharmacy Specialty Certification Examination.

### Fees and Continuing Education

Board Certified Oncology Pharmacists are required to:

- ◆ You are required to pay a \$125 annual certification maintenance fee each year for years one through six and a \$400 recertification fee in year seven.
- ◆ You are required to earn 100 hours of continuing education credits or achieve a passing score on the recertification examination every seven years.

### Nutrition Pharmacist

**Nutrition** is the process of providing or obtaining the food necessary for health and growth. Nutrition pharmacy addresses the care of patients receiving specialized nutrition support. **Parenteral nutrition** is food taken into the body in a manner other than through the digestive canal (e.g., through an intravenous tube). **Enteral nutrition** is food that passes through the intestine, either naturally via the mouth and esophagus or through an artificial opening (e.g., a feeding tube). A board certified nutrition support pharmacist (BCNSP) has the advanced knowledge and expertise to promote maintenance of and restore optimal nutritional status through the design and modification of individualized treatment plans.

A board certified nutrition pharmacist has responsibility for direct patient care, including the type of feeding design, clinical monitoring, dosing of specific nutrients, and identification of unusual nutrient deficiencies to guarantee patient safety. The pharmacist ensures that parenteral and enteral feeding formulations are properly prepared and administered. In addition, he or she is responsible for monitoring and maintaining the patient's nutritional status during the critical transition to a care facility or home.



**FIGURE 5.** A total parenteral nutrition provides calories of the nutrition needs for a patient of any age who is unconscious or who cannot receive food, water, or medication by mouth. Total parenteral nutrition is commonly prepared by a pharmacist in the hospital setting but may be prepared in an offsite pharmacy.

An eligible candidate must have graduated from an accredited school of pharmacy to study for this specialty. The candidate must possess a current, active license to practice pharmacy in the United States. Also, you must have completed three years of practice experience, post pharmacist licensure, with at least 50 percent of the time spent in nutrition support pharmacy activities. You could complete a post-graduate two-year residency in nutrition support pharmacy. In addition, you must achieve a passing score on the Nutrition Support Pharmacy Specialty Examination.

### Fees and Continuing Education

Board certified nutrition support pharmacists are required to:

- ◆ You are required to pay a \$125 annual certification maintenance fee each year for year's one through six and a \$400 recertification fee in year seven.
- ◆ You must earn 30 hours of continuing education credits and achieve a passing score on the recertification examination every seven years.

### Pediatric Pharmacist

**Pediatrics** is the branch of medicine concerned with the development, care, and diseases of babies and children. Pediatric pharmacy ensures safe and effective drug use and optimal medication therapy outcomes in children up to 18 years old. A board certified pediatric pharmacist (BCPPS) has advanced knowledge and expertise to provide patient care to children, including providing alternative dosage forms and specialized drug therapy monitoring required for pediatric patients. A board certified pediatric pharmacist also advocates for and educates children and their families to promote health and wellness.

An eligible candidate must have graduated from an accredited school of pharmacy to study for this specialty. The candidate must possess a current, active license to practice pharmacy in the United States. You must have completed four years of practice experience, post pharmacist licensure, with at least 50 percent of the time spent in pediatric pharmacy activities. You could complete a post-graduate one-year residency plus two additional years of practice with at least 50 percent of the time spent in pediatric pharmacy activities. You must achieve a passing score on the Pediatric Pharmacy Specialty Certification Examination.



**FIGURE 6.** The job of a pediatric pharmacist is to make sure that all medications prescribed to children are safe, effective, properly dosed, and age appropriate. All medication prescribed to children should be dispensed in child-resistant containers.

## Fees and Continuing Education

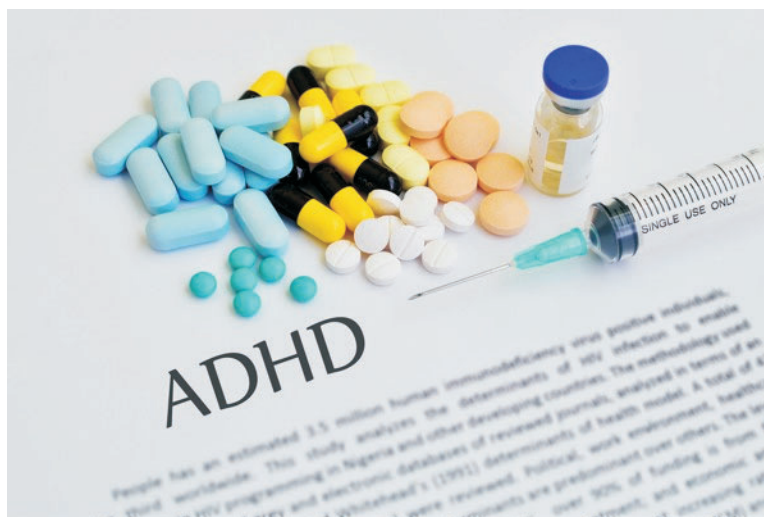
Board certified pediatric pharmacists are required to:

- ◆ You are required to pay a \$125 annual certification maintenance fee each year for year's one through six and a \$400 recertification fee in year seven.
- ◆ You must earn 100 hours of continuing education credits or achieve a passing score on the recertification examination every seven years.

## Psychiatric Pharmacist

**Psychiatry** is the practice or science of diagnosing and treating mental disorders. Psychiatric pharmacy addresses the pharmaceutical care of patients with psychiatric-related illnesses. The board certified psychiatric pharmacist (BCPP) is often responsible for optimizing drug treatment and patient care by conducting such activities as monitoring patient response, handling patient assessment, recognizing drug-induced problems, and recommending appropriate treatment plans. A board certified psychiatric pharmacist has advanced knowledge and expertise to safely manage complex medications, monitor for potential adverse reactions and interactions and adjust medication regimes accordingly. He or she serves as a valuable resource for patients and healthcare teams in inpatient and outpatient settings.

An eligible candidate must have graduated from an accredited school of pharmacy to study for this specialty. The candidate must possess a current, active license to practice pharmacy in the United States. You must have completed four years of practice experience, post pharmacist licensure, with at least 50 percent of the time spent in psychiatric pharmacy activities. You could complete a post-graduate one-year residency plus two additional years of practice post pharmacist licensure, with at least 50 percent of the time spent in psychiatric pharmacy activities. In addition, you must achieve a passing score on the Psychiatric Pharmacy Specialty Certification Examination.



**FIGURE 7.** The medications used to help manage the symptoms of psychiatric illnesses are varied, and the drug regimens can be complex. Pharmacists must understand the interactions between these medications and help guide physicians to choose the most appropriate ones.

## Fees and Continuing Education

Board certified psychiatric pharmacists are required to:

- ◆ You are required to pay a \$125 annual certification maintenance fee each year for year's one through six and a \$400 recertification fee in year seven.





## FURTHER EXPLORATION...

### ONLINE CONNECTION: Accreditation Matters

The Council for Higher Education Accreditation (CHEA) is an organization that functions to ensure and improve higher education quality and to assist institutions and programs using a set of standards developed by peers. An institution or program that has successfully completed an accreditation review has in place the needed instructional, student support, and other services to assist students to achieve their educational goals.

Visit the Health Careers Web site at <http://www.explorehealthcareers.org>. Click on the Issues in Health Care Education tab. Then click on Accreditation. Read the article “Accreditation Resources.” Next, click on the Ask Before You Decide: Accreditation Matters brochure. Review the questions accreditors think you need to ask to make smart choices.

Finally, return to the article. Click on Career Exploration Database. Then click on Accredited Schools and Programs. Scroll down, and click on the term “pharmacist.” Click on your state. Review two or more accredited pharmacy schools in your state.

- ◆ You must earn 100 hours of continuing education credits or achieve a passing score on the recertification examination every seven years.

### Pharmacotherapy Pharmacist

**Pharmacotherapy** is medical treatment by means of drugs. Pharmacotherapy pharmacy ensures the safe, appropriate, and economical use of medications. A board certified pharmacotherapy specialist (BCPS) has the advanced knowledge and expertise to optimize medication use; improve patient’s outcomes; and serve as an objective, evidence-based source for therapeutic information and recommendations. A BCPS works with physicians in hospitals to design and/or modify patient’s medication therapy regimens, recommending adjustments to dosage or alternative medications when appropriate. A BCPS works with physicians in outpatient settings to optimize medication therapy. In addition, he or she tracks progress and compliance and makes suggestions about diet and lifestyle changes to better manage patient health.

An eligible candidate must have graduated from an accredited



**FIGURE 8.** As pharmacotherapy specialists, pharmacists have responsibility for direct patient care, often functioning as part of a multidisciplinary team and acting as the primary source of drug-related information for other health professionals.

school of pharmacy to study for this specialty. You must possess a current, active licensure to practice pharmacy in the United States. In addition, you must have completed three years of practice experience, post pharmacist licensure, with at least 50 percent of the time spent in pharmacotherapy activities. You could complete a post-graduate one-year residency in pharmacotherapy. Also, you must achieve a passing score on the Pharmacotherapy Specialty Certification Examination.

### Fees and Continuing Education

Board certified pharmacotherapy pharmacists are required to:

- ◆ You are required to pay a \$125 annual certification maintenance fee each year for year's one through six and a \$400 recertification fee in year seven.
- ◆ You must earn 120 hours of continuing education credits or achieve a passing score on the recertification examination every seven years.

### Infectious Diseases Pharmacist

An **infectious disease** is an illness caused by microbes, especially from pathogenic (disease-causing agent) microorganisms. Microorganisms are microscopic organisms (bacteria, viruses, fungi, and parasites) found everywhere (e.g., plants, animals, and humans) and are passed between organisms in numerous ways. Infectious diseases kill more people worldwide than any other single cause. The infectious diseases pharmacy specialist oversees therapy for inpatient care at hospitals.

**Antimicrobial** is destructive to or inhibits the growth of microorganisms. The infectious diseases pharmacy specialist evaluates, monitors, and provides recommendations to medical staff regarding anti-infective therapy. This pharmacist is also responsible for antibiotic monitoring and utilization programs.

As of this writing, training and certification requirements for infectious diseases—trained clinical pharmacists—have not been established. Although a pharmacist may have nurtured an interest in infectious diseases by self-directed learning or by on-the-job experiences, this mode of training is not considered sufficient for reliable training of future clinical specialists in infectious diseases. It is being recommended that future pharmacists wishing to obtain clinical positions as infectious diseases trained pharmacists should complete a postgraduate year (PGY) residency and a residency in infectious diseases.



**FIGURE 9.** Antibiotics are among the most frequently prescribed medications. They cure diseases by killing or inhibiting the growth of bacteria.

It is recommended that:

- ◆ Practitioners should become board-certified pharmacotherapy specialists.
- ◆ A certification examination in infectious diseases should be developed. Candidates would be required to maintain a portfolio of educational experiences to maintain qualifications.

## ANTIMICROBIAL STEWARDSHIP CERTIFICATE PROGRAM

The **Antimicrobial Stewardship Program (ASP)** is an intensive practice-based activity for pharmacists focusing in the area of appropriate use of antimicrobial agents. The program, which emphasizes a healthcare team approach, seeks to foster the development of a strong knowledgebase in microbiology and disease state management.

**Microbiology** is the branch of science that deals with microorganisms, pharmacology, and disease state management. The goal is to successfully implement an antibiotic stewardship program that improves patient care, potentially reduces rates of resistance, and prolongs the longevity of the limited number of antimicrobial agents available to treat infections. Upon successful completion of all three components, a certificate of achievement is issued from the Society of Infectious Diseases Pharmacists. The Antimicrobial Stewardship Program is conducted in three parts:

- ◆ Self-study: The self-study learning component is approximately three months.
- ◆ Live Webinars: The live webinars component is approximately five months.
- ◆ Skills experience: The skills component is completed in the practice setting and is approximately four months.

### Summary:



Until 1920, a formal education was not required to take an examination to become a pharmacist. Prior to this, an individual could complete a three- to four-year apprenticeship before taking the pharmacy exam. Now to become a pharmacist, you need to complete a Doctor of Pharmacy program from an accredited pharmacy program and must obtain a state license.

The modern pharmacist's duties would not be possible without the assistance of a trained pharmacy technician. Aside from a high school diploma, there are no formal training requirements for becoming a pharmacy technician. Many receive on-the-job training. Other pharmacy technicians complete a one- to two-year pharmacy technology program. These programs are usually offered by vocational schools or community colleges.

In the United States, all states require pharmacists to be licensed. You can pursue licensure after graduating from an accredited college of pharmacy. You will need to pass the North American Pharmacist Licensure Exam (NAPLEX) and the

Multistate Pharmacy Jurisprudence Exam (MPJE). Most states regulate pharmacy technicians in some way. Even when it is not required, certification may make it easier to get a job. Two organizations offer certification: The Pharmacy Technician Certification Board (PTCB) and the National Healthcare Association (NHA). Some pharmacy specializations are oncology, nutrition, pediatrics, psychiatry, and pharmacotherapy.

## Checking Your Knowledge:



1. Explain the educational requirements to become a licensed pharmacist.
2. Explain the educational requirements to become a certified pharmacy technician.
3. List the six types of pharmacy specialists.
4. Describe the role of the infectious diseases pharmacist.
5. Explain the purpose of an antimicrobial stewardship certification.

## Expanding Your Knowledge:



If possible, interview pharmacy students from accredited pharmacy schools about the process of becoming a pharmacist. Be prepared to ask questions on how to select the most appropriate school, the application process, the prerequisite classes, pharmaceutical classes, and supervised work experiences. You may need to contact the college first to request for a current student to contact you. If this is not permitted, speak with the director of the program for additional information about their school's process.

## Web Links:



### Board of Pharmacy Specialists

<http://www.bpsweb.org/>

### How to Become a Pharmacy Technician

<http://www.learnhowtobecome.org/pharmacy-technician/>

### Pharmacist

[http://study.com/articles/Pharmacist\\_Educational\\_Requirements\\_and\\_Career\\_Summary.html](http://study.com/articles/Pharmacist_Educational_Requirements_and_Career_Summary.html)

### Pharmacy Technician Certification

<http://www.nhanow.com/certifications/pharmacy-technician>