

# Pharmacy Technician Orientation : Introduction to Pharmacy Technician

## Lesson 1 Overview

Pharmacy is defined as the art and science of preparing, compounding, and dispensing drugs. However, the practice of pharmacy has greatly developed from this core function to include various aspects of enhancing health.

This lesson will provide a foundation of the early origins and development of the pharmacy profession. You'll also receive core information on the current, exciting, and promising new roles of pharmacy technicians in healthcare delivery.



## 1.1 Summarize the history of pharmacy and of technician career development

### History of Pharmacy

#### READING ASSIGNMENT

### Early Practice of Medicinal Chemistry

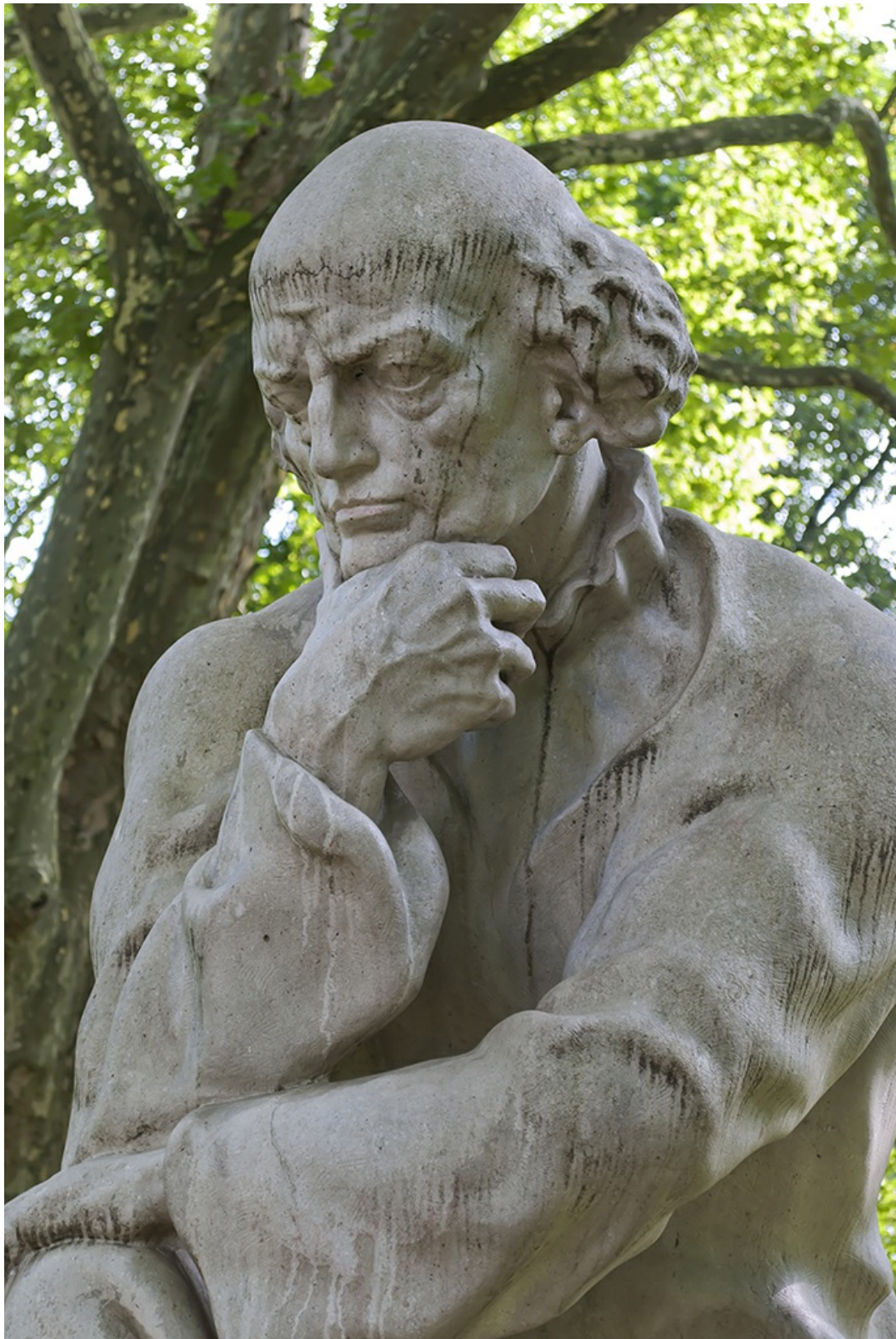
A *pharmaceutical* is related to the preparation, sale, or use of a medicinal drug. In early times, in different parts of the world, a health practitioner or healer wasn't only a medical doctor, but a pharmacist and sometimes even a priest. These practitioners often combined these roles by preparing and mixing a healing substance, administering it, and then praying for positive outcomes.

Many of the practices of those times are the foundations of medical and pharmacy practice today. For instance, *pharmacognosy* is the study of the medical properties of drugs obtained from natural sources such as plants.

During the first century CE, Pedanius Dioscorides was an important figure who provided a strong foundation for the development of pharmacy practice. He recorded and developed the rules for the proper collection and storage of drugs. His work was respected and used for many centuries. Another prominent pharmaceutical record originated in ancient Egypt. The collection called the *Papyrus Ebers*, a papyrus paper book of herbal knowledge, contains information about 700 drugs and over 800 prescriptions. About 10 centuries ago or more, monks collected and grew natural herbs in monastery gardens (still practiced in various countries). They used these plants to prepare mixtures for healing various sicknesses.

## **Apothecaries**

What you call the pharmacist or pharmaceutical professional today was referred to as an apothecary or chemist in the fifteenth and sixteenth centuries. The term chemist is still used in some parts of Europe. *Apothecaries* prepared chemicals or drug products for medical use. The term apothecary is still used today to refer to the sale or practice of preparing natural or alternative medicinal products (aromatherapy, phytotherapy, and so on) or the shops that sell these products. Businesses that specially prepare medicines for individuals (*compounding*) are also often referred to as apothecaries. By the early 1900s however, this role primarily transformed into the earliest form of what you know today as the pharmacist.



A statue of Paracelsus in Salzburg, Kurgarten, Austria

## Alchemy

Also during the fifteenth and sixteenth centuries, the science of alchemy was practiced. *Alchemy* refers to the transmutation of metals, that is, transforming or purifying metals into more valuable or useful materials. Alchemy declined with the emergence of modern science and the scientific method. Alchemy's application to pharmacy was termed *iatrochemistry*. An early leader in the practice of iatrochemistry was Paracelsus, who is also considered the founder of *toxicology*, the study of toxins on living things. He and his followers viewed the body as a chemical system and disease as disturbances in the body's chemical makeup. Therefore, their approach to treatment was to restore the body's chemical balance using extracts of plants and other earth substances (metals, sulfur, and iron, for example). As you can see, the practice of alchemy set the early stage for the practice of pharmacy (dispenses or compounds the drugs), medicine (prescribes or administers the drugs), and pharmaceutical industry (major manufacturing drug developers and producers).

## The Emergence of Modern Pharmacist Roles

### The Modern Pharmacy

William Procter Jr. is considered the father of American pharmacy. He graduated from the Philadelphia College of Pharmacy in 1837. In addition to having operated a retail pharmacy, Procter was a professor of pharmacy for 20 years at the college from which he graduated. He founded the American Pharmaceutical Association and was editor of the *American Journal of Pharmacy*. Procter greatly influenced the modern practice of pharmacy in the United States.

Read a biography of [William Procter Jr.](#) on the House of Procter website.

In the United States, apothecaries became widely known as pharmacists over a century ago. This change was promoted by Edward Parrish of what was then the

American Pharmaceutical Association (now called the American Pharmacists Association). It was determined that pharmacists made, prescribed, and dispensed medicines. However, in the 1950s, federal laws led to the changes that made a medical doctor's prescription required to dispense medications. Due to the legislative changes, pharmacists were responsible primarily for product safety activities and drug dispensing based on prescriptions. A *prescription* is an order for a medication written by a medical doctor for a pharmacist to prepare and fulfill. *Dispensing* refers to providing medicinal drugs. However, pharmacists could still recommend drugs that didn't require a medical doctor's prescription (over-the-counter drugs). Additionally, the production of most drugs and medications shifted from pharmacists to drug manufacturers

### **The Modern Pharmacist**

In the last 30 years, pharmacists began to interact more with the healthcare system by using their knowledge and abilities to help patients receive the information needed to take their medications properly and safely. This area of practice is *clinical pharmacy*, in which the pharmacist provides advice and suggestions regarding dispensed prescription and over-the-counter medications. Although their role is different from that of medical doctors, pharmacists still contribute greatly to patient healthcare.

The role of the pharmacist has expanded significantly and the scope of pharmacy practice has widened. In many states, there are regulations that allow pharmacists to directly collaborate with medical doctors to manage the therapy of patients. Many pharmacists even work with medical doctors in patient assessment.

Today's pharmacists have roles spanning many different settings that involve advising other health professionals—such as nurses and medical doctors—regarding many aspects of the proper and successful use of drugs. Some of the

more technical and scientific roles include distribution and dispensing of drugs, patient safety, and providing advice on proper use of prescribed drugs. In addition to those roles, pharmacists are involved in the business management end of pharmacy practice. They also help to determine the most cost-effective medication strategies.

In collaboration with other healthcare personnel, pharmacists give advice on drug side effects, the best dose ranges, and the available drugs for a doctor's prescribing needs. They also must be aware of and adhere to the laws and regulations regarding drug supplies and dispensing.

In pharmaceutical industry settings, pharmacists can have supervisory roles in quality assessment and control to ensure that the manufactured drugs are suitable for distribution to pharmacies and patients.

### **Pharmacist Specializations**

Pharmacists can also specialize in a particular area of pharmacy allowing them to practice at advanced levels. There are eight distinct specialty areas where pharmacists can have their specific qualifications certified by a board of specialists:

- Ambulatory care pharmacy
- Critical care pharmacy
- Nuclear pharmacy
- Nutrition support pharmacy
- Oncology pharmacy
- Pediatric pharmacy
- Pharmacotherapy
- Psychiatric pharmacy

Changes in technology and healthcare laws require changes in the

responsibilities and activities of pharmacy professionals. As the role of the pharmacist has changed, so has that of the pharmacy technician. Many of the roles once occupied by pharmacists have been assumed by pharmacy technicians.

## **The Developing Roles of Pharmacy Technicians**

The changes in the pharmacy role have shifted the division of responsibilities between pharmacists and pharmacy technicians. A *technician* is a person with expertise in the practical application of a technology, in this case, pharmacy. Now that the role of pharmacists has expanded to advising patients regarding their prescribed drugs and collaborating with their medical doctors, there's limited time for participating in other activities that were once very common. This is where pharmacy technicians come in. They help to pick up many of the tasks that pharmacists can't do given the time spent on the other emerging responsibilities.

As in the case of the pharmacist, pharmacy technicians contribute in various settings. They're no longer clerks and cashiers, but valuable members of the pharmaceutical healthcare team. Some of the tasks pharmacy technicians perform that were previously performed by pharmacists include:

- Filling prescriptions and interacting with medical offices
- Managing pharmacy inventory
- Taking part in prescription-filling verification
- Helping resolve insurance issues, including questions regarding deductibles
- Providing patient education
- Advising on how to improve pharmacy operations
- Narcotic control
- Managing/scheduling other technicians
- Medication order entry

- Auditing
- Ordering supplies

This expansion in the role of the pharmacy technician is bound to require an increase in knowledge and training to perform these roles. Pharmacy technicians are becoming increasingly involved in the patient care arena as the healthcare structure changes. Well-trained and highly skilled technicians are important and vital members of an excellent pharmacy and healthcare team.

## **Key Points**

### READING ASSIGNMENT

## **Key Points**

- Centuries ago, a health practitioner had several roles including medical doctor, pharmacist, and sometimes priest.
- Earlier apothecaries are founders of today's practice of pharmacy.
- Legislative changes in the United States resulted in a change in the roles of early pharmacists.
- Advances in technology and changes in healthcare delivery resulted in the expansion of pharmacist and pharmacy technician roles.
- A technician is a person with expertise in the practical application of a technology.
- Some of the tasks pharmacy technicians perform that were previously performed by pharmacists include:
  - Filling prescriptions and interacting with medical offices
  - Managing pharmacy inventory
  - Taking part in prescription-filling verification
  - Helping resolve insurance issues, including questions regarding deductibles
  - Providing patient education



- Advising on how to improve pharmacy operations
- Narcotic control
- Managing/scheduling other technicians
- Medication order entry
- Auditing
- Ordering supplies

## Link

- [William Procter Jr.](#)

## 1.2 Explain the advantages of formal training for pharmacy technicians

### Professional Standards of the Pharmacy Practice

#### READING ASSIGNMENT

### Then and Now

The role of a pharmacy technician used to be more secretarial. Pharmacy technicians were trained on the job to do such things as use the cash register and label medications.

As the pharmacy field has advanced, the more valuable a properly trained pharmacy technician has become. Employers now realize that a technician can be more helpful as a type of assistant. With formal training, state licensure and/or national certification, and a wider knowledge base, a technician can get more involved in the prescription-filling process.

Formal training doesn't conclude upon graduation. Pharmacy technicians are required to maintain their national and state certifications. They do so by

participating in continuing education courses and by submitting license renewal applications. Pharmacy technician licensure expires every two years. Twenty hours of continuing education must be completed within every two-year cycle, part of which must be spent reviewing pharmacy law and patient safety.

## **A History of Pharmacy Technician Training**

The following timeline shows the history of how modern pharmacy technician training was developed:

- February 1969—Rhode Island Hospital initiates a formal technician training program.
- November 1978—The state of Washington initiates registration-type licensure of pharmacy technicians graduated from Board-of-Pharmacy–approved training program.
- June 1979—The Association of Pharmacy Technicians is founded in California.
- April 1981—The Association of Pharmacy Technicians becomes a national organization.
- June 1981—The Michigan Pharmacists' Association initiates an examination-based certification program for pharmacy technicians.
- September 1983—ASHP accredits first technician training program (Thomas Jefferson University Hospital).
- January 1987—Illinois Council of Hospital Pharmacists begins to develop a technician certification program.

- March 1988—APhA House of Delegates endorses the term pharmacy technician.
- 1992—Creation of an APhA Task Force for the scope of Pharmacy Practice Project and a subgroup entitled “The Focus Panel on Pharmacy Technicians.”
- March 1995—ASHP holds the first meeting of a Technician Advisory Group. They’re charged with advising ASHP on actions, products, and services with respect to the development of pharmacy technician as a well-defined occupation in pharmacy practice.
- December 2001—The Pharmacy Technician Certification Board (PTCB) expands its corporate partnership to include the National Association of Boards of Pharmacy (NABP). PTCB’s corporate partners become ASHP, APhA, ICHP, the Michigan Society of Health-System Pharmacists, and the NABP.
- July 2006—NPTA invited to join USP and to appoint a delegate to the US Pharmacopeial Convention, which is the membership body of the US Pharmacopeia. (The USP Convention is a unique forum that brings together medicine, pharmacy, and other healthcare professions and sciences, industry, government, trade and consumer groups, as well as international organizations.)
- October 2006—The Pharmacy Technician Certification Board (PTCB) certified more than 250,000 pharmacy technicians for its professional designation, Certified Pharmacy Technician (CPhT).

## The Purpose of Formal Training

By now, you recognize that there a lot of steps that people don't realize are required for a prescription to be filled. First, consider the importance of the pharmacist's many tasks. A patient's medical history and current medications need to be taken into account. Counseling, adjusting drug therapy, and calls to the physician might all be necessary before actually being able to dispense the medication. There also might be a chance that the physician needs to call the pharmacist for suggestions and questions. This leads to very little time left for a pharmacist to tackle the tasks that a pharmacy technician can accomplish on his or her own. However, by law, technicians are still required to work under the supervision of a pharmacist.

The primary focus of a pharmacy technician is to help the busy pharmacist. The best way to do so is to have a firm understanding of thousands of medications. Necessary information includes brand and generic names, strengths, forms, dosages, and how the drug works in the body. *Brand-name medications* are trademarked medications manufactured and advertised by a pharmaceutical company. A *generic name* is the official drug name given by the Food and Drug Administration (FDA). For example, Tylenol is the brand name of the generic drug acetaminophen. The generic name describes the chemical nature of the drug. With thousands of brand and generic names to remember, a person would likely feel extremely overwhelmed and confused if thrown into the pharmacy environment without any prior training or schooling.

In addition to understanding medications, formal training will also include training in the specialized mathematics needed to calculate dosages, as well as how to prepare sterile (disease free) products. Pharmacy technicians with formal training also make life a little easier for their employers. When all incoming pharmacy technicians have the same basic pharmacy knowledge, employers will know where to begin the training for their particular workplace. This can lead

to a more streamlined and consistent in-house training process. Consistency will lead to better pharmacy practices and a better chance of success as a technician. In fact, many pharmacies and other employers of pharmacy professionals require previous formal training and technicians with a more advanced skill set.



Completing a formal training program will lead to better success as a pharmacy technician.

Formal training allows you to make a more seamless entry into your role as a pharmacy technician, with fewer mistakes and the knowledge of where to focus your attention and when to ask questions. Furthermore, pharmacy technicians with formal training truly understand the importance and value of their job and will know to always be cautious and care about what they do.

## **Key Points and Link**

READING ASSIGNMENT

## **Key Points**

- Formal training allows you to make a more seamless entry into your role as pharmacy technician, with fewer mistakes and the knowledge of where to focus your attention and when to ask questions.
- A pharmacy technician needs to have a firm understanding of thousands of medications, including information about their brand and generic names, strengths, forms, and dosages.
- While all incoming pharmacy technicians have the same basic pharmacy knowledge, employers will know where to begin the training for their particular workplace, leading to a more streamlined and consistent training process.
- Some pharmacies and employers of pharmacy professionals require formal training and technicians with a more advanced skill set.

## **1.3 Identify the roles of pharmacy technicians in different work environments**

### **Pharmacy Law and Ethics**

#### READING ASSIGNMENT

There are many different practice sites that offer roles for pharmacy technicians, including ambulatory pharmacies, institutional pharmacies, and online pharmacies. To decide which one might be right for you, take a closer look at each one.

### **Ambulatory Pharmacies**

*Ambulatory pharmacies* include community pharmacies, clinic pharmacies, mail order pharmacies, and managed care pharmacies. The term ambulatory refers to patients who can walk and aren't bedridden or admitted into an institution.

These “walk-in” facilities are where a patient or caregiver would go to purchase prescription or nonprescription medications (otherwise known as *over-the-counter [OTC] medication*) or supplies or to get pharmaceutical advice or counseling and be assisted right away.

*Community pharmacies* include large chain drugstores (such as Walgreens and CVS), privately owned pharmacies, grocery store pharmacies (such as Walmart) and large discount store pharmacies (such as Sam's Club). In some instances, community pharmacies accept and forward prescriptions to centralized locations where they're filled and then delivered back to the community pharmacy. This system pairs discounted prices with personalized service.

*Clinic pharmacies* cater more toward patients who have insurance through *health maintenance organizations (HMOs)* or *preferred provider organizations (PPOs)*. An HMO is a form of health insurance combining a wide range of coverages on a group basis, and included medical professionals offer plan participants a flat monthly rate with no deductibles. A PPO is another type of health insurance arrangement, one that allows the plan participants freedom to choose the doctors and hospitals in which they prefer, not in which they're assigned. These insurance companies have more regulations to follow which might generate more work for the pharmacy technician.

*Mail order pharmacies* use large automated dispensing machines at a main distribution center and may fill prescriptions for a three-month supply. Technicians and pharmacists at mail order pharmacies are still available to provide help patients and answer questions, but they have very little interaction with the customer.

Finally, pharmacy technicians working in the *managed care pharmacy* environment will use skills similar to that of a community pharmacy while also

compounding and preparing medication. Pharmacy technicians in this field will work with clients with state-sponsored medical plans, such as Medicaid, to get them the medication they need when they need it.

## **Institutional Pharmacies**

*Institutional pharmacies* include hospitals, long-term care facilities, psychiatric facilities, and rehabilitation centers. These pharmacies care for *inpatients*, or patients physically in or admitted to the institution.

Institutional pharmacy technicians fill a high volume of prescriptions, prepare IV dosing solutions and syringes, stock medications and supplies, and collect patient information needed for billing.

Institutional pharmacies deal with a wide variety of medications and routes of medication. Rather than working in large quantities, medications are administered in single-use packets. Automated dispensing machines are used to cut down on errors and to improve the documentation processes.

*Long-term care facilities* are very similar to hospitals and rehabilitation centers except, as the name suggests, these facilities are for patients needing long-term care. These patients' medications need supervision and monitoring as the patients' needs change.

## **Online Pharmacies**

The privacy and convenience of computer-related shopping make *online pharmacies* very attractive to patients.

The duties of the technicians employed at online pharmacies are closely related to the duties of a mail order pharmacy technician. The administrative duties and work relating to orders are vast, but the compounding, medication filling, and medication delivery aren't done in this setting.



Not all online pharmacies act entirely within the laws that govern pharmacy practice in the United States. Many of the online pharmacies offering medications at a deep discount obtain the medications from outside the United States; this means that the FDA hasn't approved them. Licensed online pharmacies will carry a Verified Internet Pharmacy Practice Sites (VIPPS) seal on their websites. You can read more about [VIPPS](#) on the National Association of Boards of Pharmacy (NABP) website.

## What Type of Pharmacy Is Right for You?



Many pharmacy settings will allow you to interact directly with patients.

If you're interested in working with patients directly, you might consider retail or a drug store, a grocery store, an ambulatory healthcare setting or something similar. The pharmacy technicians in these settings are most likely going to be the first person the patients come into contact with and will set the tone of the department. They will be responsible for filling prescriptions, using the cash registers, and answering phones. The working schedule for technicians may

also be more flexible. Most employers of retail pharmacy technicians list a high school diploma (or GED) as an education requirement and will provide on-the-job training for use and handling of their pharmacy computer systems. However, many now are seeking those who complete formal pharmacy technician programs.

If you think you're interested in working closely with a pharmacist and other pharmacy technicians, you might consider one of the following locations:

- *Hospital*
- *Compounding pharmacy*—specializes in preparing personalized medications for patients
- *Infusion therapy*—administration of medication through an IV or needle for patients whose condition is too poor to take oral medication
- *Clinical pharmacy setting*—patient care that uses medication therapy and promotes healthy living and disease prevention.
- *Nursing home*
- *Nuclear pharmacy*—the handling and preparation of radioactive materials for use in nuclear medicine
- *Mail order*—fills faxed, emailed or phoned prescriptions
- *Home healthcare*—medical assistance provided to patients directly in their home environments. Home care pharmacy technicians may have duties that are a combination of those for outpatient and inpatient technicians. They prepare single-dose prescriptions for nurses and may also fill prescriptions for patients on a monthly basis.

The pharmacy technicians in these settings will be spending most of their time filling prescriptions, delivering medications, and mixing or compounding. In most cases, formal education and certification are required, as well as previous pharmacy practice experience. Such technicians typically have a stronger working knowledge of medications and medical terminology than retail pharmacy

technicians. There's also a higher capacity to work independently, although they do still work under the supervision of a licensed pharmacist. Many pharmacy technicians begin their careers in retail, and then later move into a hospital position.

If you're more interested in computer-based pharmacy, there are plenty of options:

- *Order entry*—data entry such as prescription and refill information, printing labels and forms, calculating dosages, and processing orders
- *Automated dispensing technician*—filling and maintaining automated medication dispensing systems
- *Insurance companies*—file patient information for insurance billing purposes
- *Medication reconciliation*—comparing patient drugs and dosages with the medical doctor's records to prevent discrepancies
- *Information technology*—implementing and maintaining technology in the use of pharmacy practice
- *Online pharmacies*

The opportunities are vast and available to those who are seeking them. Other employers of pharmacy technicians include governmental pharmacies, the armed forces, correctional facilities, dispensaries at schools and universities and pharmaceutical industries. Pharmacy technicians can also advance to become instructors for pharmacy technician programs in colleges and other educational institutions.

As a new pharmacy technician, you might start out as a Pharmacy Technician I, or as an "Associate Pharmacy Technician". Then, as you gain experience, put in more time and become more knowledgeable, you might advance to a Pharmacy Technician II, III or "Senior Pharmacy Technician". You could also advance to "Lead Pharmacy Technician", which is a supervisor position. There are often

increases in pay with these advancements.

## **Key Points and Link**

### READING ASSIGNMENT

## **Key Points**

- Ambulatory pharmacies include community pharmacies, clinic pharmacies, mail order pharmacies, and managed care pharmacies and serve those who want to purchase prescription or OTC medication or get pharmaceutical advice right away.
- Community pharmacies include large chain drugstores, privately owned pharmacies, grocery store pharmacies, and large discount store pharmacies
- Clinic pharmacies cater more toward patients who have insurance through HMOs or PPOs.
- Mail order pharmacies use large automated dispensing machines at a main distribution center and have very little interaction with customers.
- Institutional pharmacies include hospitals, long-term care facilities, and rehabilitation centers and deal with a wide variety of medications and routes of medication for inpatients.
- Long-term care facilities are very similar to hospitals and rehabilitation centers except, as the name suggests, these facilities are for patients needing long-term care.
- Licensed online pharmacies will carry a VIPPS seal, designating they have been approved by the NABP.
- The opportunities for pharmacy technicians are vast and available for those who seek them.

## **Link**

- [VIPPS](#)