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# Reevaluating the crucial contributions of pharmacy technicians: A comprehensive review

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**Abstract**---Community-based processes can dissuade pharmacy technicians' professional development and self-motivation. Many of the challenges outlined earlier can have an implicit disincentive effect on interest in the benefits of further professional development or interest in transitioning into a new potential role such as the CPhT. There are, however, opportunities on the horizon. The first part of this report—the consolidated research literature—accounts for the many clinical or distributive tasks that pharmacy technicians are capable of performing, whether in hospital, ambulatory care, or community-based teams at top-of-license level. The need for continuation of education or lifelong learning was a common theme emerging from the literature. In practice, advancement through a hybrid career ladder that is sensitive to the ability to practice competently has been linked to mentorship and preceptorship in a controlled hospital practice-based research network.

**Keywords**---education, healthcare, patient, pharmacy technicians, training.

## 1. Introduction

There are many healthcare professionals who contribute to the overall framework of a healthcare institution. In the past and current delivery of pharmaceutical care, the demand for the services of pharmacy technicians—the professionals who assist pharmacists in compounding, supplying, and supporting patient care—has never been greater than it is today. In recent decades, the pharmacist's role has evolved from strictly being a "compounder" or a "product-centered" clinician to involving direct patient care. Several activities that were completed by a pharmacist in these early days are performed by pharmacy technicians today, who are currently in high demand. Indeed, there are more empowered pharmacy technicians than ever in the workforce. Pharmacy technician activities have slowly been increasing over the years, and as the workforce grows and the training becomes more advanced, more diverse options become accessible to interns as

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well. Although the contemporary pharmacy technician is a vital member of the healthcare system, with broadened rights and expectations, harm remains a threat. The purpose of reevaluating the role of pharmacy technicians is to reveal the hidden direct connections between a variety of technician services provided in today's pharmacy and patient outcomes. The discovery of these connections is vital to our national focus on medical care efficiency and quality. By revisiting the responsibilities and roles of today's technicians, we can also determine the knowledge base, skill set, and breadth of their tasks that make a pharmacy technician successful at improving patient care.

## **2. Historical Evolution of Pharmacy Technicians**

The development of the role of the pharmacy technician has clearly evolved from historical roots. Many current pharmacy technicians are formally trained and certified, including comprehensive education covering math, science, technology, and pharmaceutical care, and they earn an average of \$33,950 to \$46,980 per year in the United States. However, the story of pharmacy technicians begins well before the profession was formally recognized, much less regulated. Technicians only emerged as a recognized profession in response to changing societal needs and healthcare practices. The historical development of pharmacy technicians is complex and draws from multiple traditional and sociocultural elements, combined with responses to regulatory changes in becoming a profession requiring formal education and training. Today's pharmacy technician as an active and engaged participant in a legitimate enterprise is a far cry from gophering, galenic apprenticeship, and low-paid assistants of just a few decades ago. Early Pharmacy Personnel: 1890 - 1960. One of the earliest descriptions of an "assistance human" worker in pharmacy came in 1899 from Samuel P. Sadtler, who spoke at a meeting regarding the six hundredth anniversary of the pharmacy: "Behind the pharmacist stood the grocer who supplied his sugarcane and spices; the chemist, or alchemist it may be, who distilled his essential oils; the apothecary who compounded for him; the spicer who served as his dry goods clerk, and the drug man who stored the infusions, decoctions, and pharmacy mixtures." (Taylor & Mehta, 2014)(Renfro et al. 2014)(Wheeler et al. 2014)

## **3. Roles and Responsibilities of Pharmacy Technicians**

Pharmacy technicians assume a variety of responsibilities in assisting the pharmacist in daily operations, pharmacy workflow, and providing direct patient care services. Common areas of technician involvement include the following: dispensing medications to fill patient-specific prescriptions according to state regulations; performing medication reconciliation to validate home medication regimens during patient encounters; and counseling patients to answer questions, provide clarity of information, and resolve concerns regarding a medication the patient received or is about to receive. The benefits of the roles performed by pharmacy technicians have not been thoroughly reviewed, especially as it relates to patient care and the value of their current patient care responsibilities.

Dispensing Medications. This is the most recognized role of the pharmacy technician. The functions associated with it are quite varied, but technicians are

generally responsible for accurately processing and filling patient-specific drug orders and prescriptions. This entails a considerable amount of technical skill and expert knowledge about pharmacy operations. Technicians manage the sequence of activities such as entering the patient demographic and insurance information, verifying and interpreting health care provider medication orders, and selecting and preparing the required medications for dispensing. To guarantee that medication quantities needed by patients are on hand at the time the prescription is anticipated to be filled, technicians engage actively in inventory control for the medications kept in stock. Medication Reconciliation. Transitions of care can introduce an abundance of possibilities for errors, many of which are related to medications. Technical problems, patient medication adherence challenges, and drug interactions are just a few areas that can result in medication errors. Patients are particularly at risk for duplicate therapies, which occur when multiple health care providers in a hospital or other inpatient facility write new medication orders without knowledge of current patient regimens. As part of their clinical services, pharmacy technicians who engage in medication reconciliation determine if the patient or hospital inpatient is taking his or her home medications. Home medications can refer to a specific class or category of medications, but most often refer to medications a patient is currently taking at home or one that was being taken previously. Patient Counseling and Education. All professional pharmacy personnel should engage in some manner of patient education and counseling. However, technicians could arguably be the ones most active in this role. Although it is ideal for the pharmacist to provide patient education because of their level of drug information expertise, this does not occur as often as previously desired in busy and overwhelming settings such as the outpatient pharmacy, inpatient hospital, or nursing home. In addition, due to the visual and interactive workflow of medication dispensing, the pharmacy technician has opportunities to interact more regularly than the pharmacist with patients. During these interactions, patients can identify side effects, ask questions, and discuss concerns.

### **3.1. Dispensing Medications**

Pharmacy technicians handle the critical function of dispensing medications. They are responsible for ensuring that medications are properly stored, prepared, and dispensed in the exact dosage and form to the patient. Although some states allow pharmacy technicians to assist with this task, all other tasks must be completed by registered pharmacists, as this activity has the highest potential for medication errors. The technician will:

- Pull the correct medication and measure or count it with precision, preventing medication errors. Precision is also crucial in choosing the correct medications from the shelf. Often, medications have similar names that are not listed in the same order on the shelves.
- Compound or mix the medications. Each pharmacy has individual formulations that patients may request, so medications may have to be compounded on a patient-by-patient basis.
- Transfer the medications out of a container into a vial or container to dispense the medication to a patient. Then the technician labels the medication vial, container, or package. Patients are instructed to carefully read the label before administering the medications. By law, the label must contain the patient's name, the name and address of the

pharmacy, the prescription number, the name of the prescriber, the dispensing date, the name of the medication(s), the strength, quantity, and sig, or the directions for use. The technician can only label the medication per the pharmacist's instructions. - Refill the prescription vial for a patient with a chronic condition as instructed by the pharmacists. This is a potentially dangerous function performed by technicians and one of the most important functions for a technician to understand fully and be able to execute efficiently. Compliance with pharmacy law by both the pharmacy technician and the pharmacist will reduce errors in this area.

Pharmacy technicians are an indispensable part of the pharmacy. They assist pharmacists in a number of support roles to ensure safety and convenience for patients seeking pharmaceutical care. In the above descriptions of the functions a pharmacy technician executes, please note that the pharmacist is supervising the technician. Just as physicians use nurses to assist them with patient care in their offices, pharmacists use technicians in the pharmacy to assist them with patient care. This is similar in the sense that licensed professionals are using licensed support professionals. It is imperative that they have a firm understanding of pharmaceuticals because they occupy a position that involves handling medications. (Shrestha et al. 2014)(Goff et al. 2014)

### **3.2. Medication Reconciliation**

Medication reconciliation is a vital process in promoting patient safety and decreasing adverse drug events by providing complete, correct information regarding the patient's medication history. Pharmacy technicians are usually responsible for obtaining medication history, verifying, and documenting the medications. The medication list the pharmacy creates upon admission should be checked against a patient's previous medication profile to identify any discrepancies or add any medications that may have been omitted during the reconciliation process. Once any discrepancies or omissions have been identified and addressed accurately, pharmacists and pharmacy technicians can transmit each patient's profile to the nurse for review, or the information may be viewed on the computer by part of the interdisciplinary team. Medication reconciliation is important during these specific transitions of care because it has been identified as a strategy to prevent adverse drug events at these interfaces. Achieving such results requires collaboration among members of the healthcare community to compile the patient's complete medication profile.

The process can be very complicated and requires considerable critical thinking to complete accurately. The ability to obtain an accurate medication list is directly related to the acquired skills of the individuals and the volume and attentiveness given to patients. Pharmacy technicians still working on the floor tend to have a better knowledge of medications and even common doses, dosing intervals, and potential side effects. Medication reconciliation has been shown to contribute to improvement in patient outcomes through better execution of care throughout the patient's continuum. One finding of the study was that more in-depth medication reconciliation means that more members of the healthcare community have access to increased information regarding the patient's regular medications. Improved rates of reconciliation have produced a better means of communicating

accurate medication information between healthcare providers and have improved continuity of care.

### **3.3. Patient Education and Counseling**

Pharmacy technicians play an important role in providing patient education and counseling. They educate patients on medication use through effective verbal and written communication skills, ensuring crucial information about their medication therapy is both understood and retained. Techniques for effective, patient-friendly communication include the teach-back method, using plain language or "patient-friendly" language that avoids medical jargon, avoiding negatives, and providing explicit instructions on when and how to take one's medications, how to manage side effects if and when they do occur, and dialogue on strategies to overcome barriers to medication adherence when applicable. Patients of female gender or younger age reflect significantly higher confidence in their understanding and readiness to manage medications post-dating pharmacist technicians' engagement in medication counseling. Additionally, older patients taking polypharmacy are also more likely to report comfort and understanding after technicians counsel on medications.

Empowering patients is not limited to just these few studies but represents a crucial and ongoing theme in providing effective patient counseling. Best practices for enhancing understanding and comfort level in medication management are rooted in effectively relating to patients with active listening, demonstrated by verbal and nonverbal attention signals for the specific purpose of letting the other person know they're being listened to, and patient-centered communication. Experts propose, and increasing research affirms, that pharmacy technicians' unique role as liaisons between the high-touch patient-service interaction and high-technical automated dispensing roles of a pharmacy empowers them to focus their communication on adapting counseling to varied learning needs of patients and enhancing patient understanding, comfort, and motivation in engaging in medication therapy. Studies suggest that formulating a personal connection or rapport with patients through direct attention and individualized messaging enhances patient comfort, acceptance, feedback, and trust and also builds patient engagement. Active listening skills include nonverbal cues, like engaging in eye contact and mirroring, in addition to responding verbally in a way that shows empathy, such as acknowledging potential medication fears, concerns, motivation, and any patient questions or requests. Some challenges in addressing these strategies include patience with patients to ascertain their needs and effective listening, demonstrating respect when asking patients about their most preferred method of patient counseling. In addition, as non-pharmacist staff interaction priorities can shift by a multitude of demands of various pharmacy operations in different settings, regular attention to the training of these pharmacist technician teams on the latest evidence of successful counseling and active listening techniques is also crucial for achieving consistent compassionate and high-integrity patient care.

#### **4. Regulatory Framework and Training Requirements**

Several regulatory frameworks refer to a technician as an "individual working in a pharmacy and qualified/licensed to counsel, compound, and interpret written prescriptions under the supervision or direction of a licensed pharmacist." This formal working relationship forms the parameters for the pharmacy technician's employment. The scope of practice for a pharmacy technician is often further clarified as "tasks performed must be checked, reviewed, and/or verified by a licensed pharmacist prior to the final product reaching the patient." The evolving regulatory environment requires a clear definition of the pharmacy technician's training and probable practice in either the community or institutional setting. This is of utmost importance to the consumers of health care. (Jetha et al., 2014)(Boughen & Fenn, 2014)(Wheeler et al. 2014)

Pharmacy technician regulation can consist of three possible regulatory actions: licensure, certification, or registration. Licensing by state boards of pharmacy offers the assurance of a set of credentials verified by a state or public entity. Registration (the least rigorous form of assurance) is typically uncovered for pharmacy technicians, except as a subset of pharmacists. Certification evaluates and endorses qualifications and standards of practice by national professional organizations and/or state organizations on behalf of national organizations. Both registration and certification credentials must be consistently maintained with continuing education and/or retesting. In order to practice and as a basis for initial training options as well as for the conversion to a national training and testing standard, all pharmacy technicians need to have a standardized, national cognitive and practical exam. Currently, the primary stakeholders in charge of the training and testing of pharmacy technicians have not reached a common standard of practice in order for this system to be utilized. The need for a national career ladder exists if quality care is to be delivered at all levels in all pharmacy settings. For this to become a reality, the appropriate infrastructure and capability must be built, arguments need to be developed, and all health care professionals must prepare to adapt to new ways of thinking. Public health issues must be considered while correcting the existing system because a significant population of the United States receives their health care through a qualified pharmacy technician.

#### **5. Challenges and Opportunities in the Field of Pharmacy Technicians**

Several major challenges and opportunities can be identified in the field of pharmacy technicians. First, the United States workforce is characterized by current and emerging workforce shortages, generally low levels of job satisfaction, technological changes that can displace a career or require continual upgrading of skills, changes in the way health care is delivered or reimbursed, and a general decline in unionization. These conditions can combine to skew the motivations for individuals entering or continuing to work in particular careers and the other contributing factors in complex ways. For pharmacy technicians, at times, compensation appears to not be commensurate with their workload. When surveyed, pharmacy technicians express, for example, that they enjoy the dynamic work environment but find the job boring or that they believe they are not permitted to use their education.

Community-based processes can dissuade pharmacy technicians' professional development and self-motivation. Many of the challenges outlined earlier can have an implicit disincentive effect on interest in the benefits of further professional development or interest in transitioning into a new potential role such as the CPhT. There are, however, opportunities on the horizon. The first part of this report—the consolidated research literature—accounts for the many clinical or distributive tasks that pharmacy technicians are capable of performing, whether in hospital, ambulatory care, or community-based teams at top-of-license level. The need for continuation of education or lifelong learning was a common theme emerging from the literature. In practice, advancement through a hybrid career ladder that is sensitive to the ability to practice competently has been linked to mentorship and preceptorship in a controlled hospital practice-based research network. Pharmacists are considered a potential avenue for education by pharmacy technicians but are not guaranteed a source of education and support. It was suggested that technicians were interested in the opportunity to enhance their contributions rather than being directed to their practice by automated medicine distribution systems.

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## إعادة تقييم المساهمات الحاسمة لفنبي الصيدلة: مراجعة شاملة

1. مقدمة

هناك العديد من المتخصصين في الرعاية الصحية الذين يساهمون في الإطار العام لمؤسسة الرعاية الصحية. في الماضي والحاضر لتقديم الرعاية الصيدلانية ، لم يكن الطلب على خدمات فنبي الصيدلة - المهنيين الذين يساعدون الصيادلة في تركيب الأدوية وتوفيرها ودعم رعاية المرضى - أكبر مما هو عليه اليوم. في العقود الأخيرة ، تطور دور الصيدلي من كونه مجرد "مركب" أو طبيب "يركز على المنتج" إلى إشراك رعاية المرضى المباشرة. يتم تنفيذ العديد من الأنشطة التي كان يكملها الصيدلي في هذه الأيام الأولى بواسطة فنبي الصيدلة اليوم ، والذين هم حاليًا في ارتفاع الطلب. في الواقع ، هناك عدد أكبر من فنبي الصيدلة المخولين في القوى العاملة أكثر من أي وقت مضى. لقد ازدادت أنشطة فنبي الصيدلة ببطء على مر السنين ، ومع نمو القوى العاملة وزيادة التدريب ، أصبحت المزيد من الخيارات المتنوعة متاحة للمتدربين أيضًا. على الرغم من أن فنبي الصيدلة المعاصر هو عضو حيوي في نظام الرعاية الصحية ، مع توسيع الحقوق والتوقعات ، إلا أن الضرر لا يزال يمثل تهديدًا. يتمثل الغرض من إعادة تقييم دور فنبي الصيدلة في الكشف عن الروابط المباشرة الخفية بين مجموعة متنوعة من الخدمات الفنية المقدمة في صيدلية اليوم ونتائج المرضى. يعد اكتشاف هذه الروابط أمرًا حيويًا لتركيزنا الوطني على كفاءة الرعاية الطبية وجودتها. من خلال إعادة النظر في مسؤوليات وأدوار الفنبيين اليوم ، يمكننا أيضًا تحديد قاعدة المعرفة ومجموعة المهارات واتساع مهامهم التي تجعل فنبي الصيدلة ناجحًا في تحسين رعاية المرضى.