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The Evolving Role Of Pharmacy Technicians: A Comprehensive Review

Fatimah Ali Mohammad Alshehri [1], Fahad Awadh Twiriq Alanazi [2], Hind Fahad Alhamdan [3], Saada Nader Salem [4], Abdul Rahman Muhammad Al-Otaibi [5], Ghada Hasan Esa Abuyassin [6], Areej Abdullah Alshahrani [7], Reem Olayan Alribi Alruwaili [8]

1. Pharmacist in the public Health Department, Riyadh, nfm2011.fn@gmail.com.
2. Technician Pharmacy, Riyadh Alyamamah Hospital, Falanazi49@moh.gov.sa.
3. Pharmacist, Imam Abdulrahman Bin Faisal Hospital, Riyadh, hend.9119@gmail.com.
4. Pharmacist, Imam Abdulrahman bin Faisal hospital, Riyadh, saadasalem7@gmail.com
5. Pharmacy technician, Al Yamama Hospital, Riyadh aalotaibi196@moh.gov.sa.
6. Pharmacist in the Public Health department, Riyadh, Pharm1ghada@gmail.com.
7. Pharmacy Technician, King Fahd Medical City, Riyadh, aabdullahalshahrani@kfmc.med.sa
8. Technician Pharmacy, Arar Central Hospital, reemoa@moh.gov.sa.

Abstract:

Pharmacy technicians play an increasingly vital role in the modern healthcare system, contributing to the safe and efficient delivery of pharmaceutical services. This comprehensive review explores the expanding responsibilities, educational requirements, and regulatory landscape of pharmacy technicians. It also examines the impact of technology on the profession and the importance of pharmacy technicians in various healthcare settings. As the healthcare industry continues to evolve, the role of pharmacy technicians is becoming more diverse and complex, requiring ongoing training and adaptability. Recognizing the crucial contributions of pharmacy

technicians is essential for optimizing patient care and supporting the pharmacy profession as a whole. This review aims to provide a thorough understanding of the current state and future directions of the pharmacy technician profession, emphasizing their integral role in ensuring medication safety, improving patient outcomes, and advancing the field of pharmacy.

Introduction:

Pharmacy technicians are essential members of the healthcare team, working alongside pharmacists to ensure the safe and efficient delivery of medication services. In recent years, the role of pharmacy technicians has expanded significantly, moving beyond traditional dispensing duties to encompass a wide range of clinical and administrative responsibilities [1]. This shift has been driven by several factors, including the increasing complexity of medication regimens, the growing demand for pharmacy services, and the need to optimize the use of pharmacists' expertise [2].

As the pharmacy profession continues to evolve, it is crucial to understand the current state and future directions of the pharmacy technician role. This comprehensive review aims to explore the diverse aspects of the pharmacy technician profession, including job responsibilities, educational requirements, certification, and regulatory considerations. Additionally, the review will examine the impact of technology on the pharmacy technician workforce and the importance of technicians in various healthcare settings, such as community pharmacies, hospitals, and long-term care facilities.

By providing a thorough overview of the pharmacy technician profession, this review seeks to highlight the vital contributions of technicians to the healthcare system and emphasize the need for ongoing support, training, and recognition of their roles. As healthcare continues to advance, pharmacy technicians will play an increasingly critical part in ensuring medication safety, improving patient outcomes, and supporting the pharmacy profession as a whole.

Expanding Roles and Responsibilities:

Traditionally, pharmacy technicians were primarily responsible for assisting pharmacists in the dispensing of medications,

including tasks such as receiving and processing prescriptions, preparing and packaging medications, and maintaining inventory [3]. However, as the healthcare landscape has evolved, so too has the role of pharmacy technicians. Today, technicians are taking on a broader range of responsibilities, many of which involve direct patient care and clinical support [4].

One of the most significant changes in the pharmacy technician role has been the increased involvement in medication therapy management (MTM) services. MTM is a patient-centered approach to optimizing medication use and improving patient outcomes [5]. Pharmacy technicians are now frequently involved in collecting patient information, documenting medication histories, and assisting with medication reconciliation [6]. These tasks help to ensure that patients receive the most appropriate and effective medications, while also reducing the risk of medication errors and adverse drug events [7].

In addition to MTM, pharmacy technicians are increasingly involved in immunization services. Many states now allow trained and certified technicians to administer vaccines under the supervision of a pharmacist [8]. This expanded role has been particularly important during the COVID-19 pandemic, as pharmacies have played a critical role in vaccine distribution and administration [9]. By taking on this responsibility, pharmacy technicians have helped to increase access to immunizations and reduce the burden on other healthcare providers [10].

Another area where pharmacy technicians are making significant contributions is in the management of specialty medications. Specialty pharmaceuticals, which are often used to treat complex or rare conditions, require special handling, storage, and administration techniques [11]. Pharmacy technicians are often responsible for managing the inventory of these medications, ensuring proper storage conditions, and preparing them for dispensing [12]. They may also be involved in patient education and support, helping patients to understand and adhere to their complex medication regimens [13].

Pharmacy technicians are also playing an increasingly important role in transitions of care, particularly when patients

are discharged from the hospital to home or another care setting [14]. Technicians may be involved in preparing discharge medications, providing patient education, and communicating with other healthcare providers to ensure continuity of care [15]. By supporting smooth transitions of care, pharmacy technicians can help to reduce the risk of medication errors, improve patient outcomes, and prevent hospital readmissions [16].

In addition to these clinical roles, pharmacy technicians are also taking on more administrative and managerial responsibilities. Many technicians are now involved in tasks such as billing and reimbursement, quality assurance, and performance improvement initiatives [17]. Some technicians may also serve in leadership roles, supervising other technicians or managing specific pharmacy programs or services [18].

The expanding roles and responsibilities of pharmacy technicians have been driven by a number of factors, including the increasing complexity of medication regimens, the growing demand for pharmacy services, and the need to optimize the use of pharmacists' expertise [19]. By taking on these additional tasks, pharmacy technicians are helping to improve the efficiency and effectiveness of pharmacy services, while also freeing up pharmacists to focus on more advanced clinical responsibilities [20].

However, the expansion of pharmacy technician roles has also raised concerns about training, competency, and patient safety [21]. As technicians take on more complex and clinically-oriented tasks, it is essential that they receive appropriate education, training, and supervision to ensure that they are able to perform these tasks safely and effectively [22]. In response to these concerns, many states have implemented more rigorous educational and certification requirements for pharmacy technicians, which will be discussed in the following section.

Educational Requirements and Certification:

As the role of pharmacy technicians has expanded, so too have the educational and certification requirements for this profession. Historically, pharmacy technicians were not required to complete any formal education or training beyond a high school diploma or equivalent [23]. However, as

technicians have taken on more complex and clinically-oriented tasks, there has been a growing recognition of the need for more standardized and rigorous education and training requirements [24].

In response to this need, many states have implemented mandatory education and certification requirements for pharmacy technicians [25]. These requirements vary widely from state to state, but typically involve a combination of classroom instruction, on-the-job training, and passing a certification exam [26].

The most common certification for pharmacy technicians is the Pharmacy Technician Certification Board (PTCB) exam [27]. To be eligible for this exam, candidates must have a high school diploma or equivalent and must have completed a PTCB-recognized training program or have a certain amount of work experience as a pharmacy technician [28]. The exam covers a wide range of topics, including pharmacology, medication safety, pharmacy law and regulations, and pharmacy calculations [29].

In addition to the PTCB exam, some states also recognize the Exam for the Certification of Pharmacy Technicians (ExCPT), which is administered by the National Healthcareer Association (NHA) [30]. Like the PTCB exam, the ExCPT requires candidates to have a high school diploma or equivalent and to have completed a recognized training program or have a certain amount of work experience [31].

While certification is not currently required in all states, it is becoming increasingly important for pharmacy technicians who wish to advance in their careers and take on more advanced roles [32]. Many employers also prefer to hire certified technicians, as it demonstrates a level of knowledge and competency that may not be guaranteed with uncertified technicians [33].

In addition to certification, many pharmacy technicians are also pursuing more advanced education in order to prepare for the expanding roles and responsibilities of this profession. Some technicians may choose to pursue an associate's or bachelor's degree in pharmacy technology or a related field [34]. These programs typically provide a more in-depth education in pharmacology, pharmacy calculations, and pharmacy law and

regulations, as well as hands-on training in various pharmacy settings [35].

There are also a growing number of specialized training programs for pharmacy technicians who wish to work in specific areas of pharmacy, such as compounding, oncology, or nuclear pharmacy [36]. These programs provide technicians with the specialized knowledge and skills needed to work in these unique and often complex areas of pharmacy practice [37].

Despite the growing recognition of the importance of education and certification for pharmacy technicians, there are still significant challenges in ensuring that all technicians have access to these opportunities. Many technicians may face barriers to pursuing additional education or certification, such as financial constraints, time limitations, or lack of access to training programs [38].

To address these challenges, some states and employers are offering incentives and support for pharmacy technicians who wish to pursue additional education or certification [39]. For example, some employers may offer tuition assistance or reimbursement for technicians who enroll in recognized training programs or pursue certification [40]. Some states may also offer scholarships or grants to support pharmacy technician education and training [41].

In addition to these initiatives, there is also a growing recognition of the need for more standardized and nationally recognized education and certification requirements for pharmacy technicians [42]. The National Association of Boards of Pharmacy (NABP) has developed a national certification program for pharmacy technicians, known as the Verified Pharmacy Program (VPP) [43]. This program sets national standards for pharmacy technician education, training, and certification, and aims to promote consistency and quality in the preparation of pharmacy technicians across the country [44].

As the role of pharmacy technicians continues to evolve and expand, it is likely that education and certification requirements will continue to become more rigorous and standardized. This will be essential for ensuring that technicians are prepared to take on the increasingly complex

and clinically-oriented tasks that are becoming a part of this profession, and for maintaining the safety and quality of pharmacy services [45].

The Impact of Technology:

The increasing use of technology in pharmacy practice has had a significant impact on the role of pharmacy technicians. From automated dispensing systems to electronic health records (EHRs), technology has transformed the way that medications are prescribed, dispensed, and monitored [46]. As a result, pharmacy technicians have had to adapt to new technologies and take on new responsibilities related to the use of these systems [47].

One of the most significant technological advancements in pharmacy practice has been the widespread adoption of automated dispensing systems. These systems use robotics and barcode technology to automate the process of filling and dispensing medications, reducing the risk of errors and improving efficiency [48]. Pharmacy technicians are typically responsible for managing these systems, including loading and unloading medications, performing quality control checks, and troubleshooting any issues that may arise [49].

In addition to automated dispensing systems, pharmacy technicians are also increasingly working with EHRs and other clinical information systems [50]. These systems allow for the electronic prescribing and monitoring of medications, as well as the sharing of patient information across different healthcare settings [51]. Pharmacy technicians may be responsible for entering and maintaining patient information in these systems, as well as using them to communicate with other healthcare providers and support clinical decision-making [52].

The use of technology has also enabled the development of new pharmacy services, such as telepharmacy and remote medication order processing [53]. Telepharmacy involves the use of telecommunications technology to provide pharmacy services remotely, such as dispensing medications or providing patient counseling [54]. Remote medication order processing involves the use of technology to allow pharmacy staff to process and verify medication orders from a remote location [55]. These services have the potential to improve access to

pharmacy services in underserved areas and to optimize the use of pharmacy staff resources [56].

However, the increasing use of technology in pharmacy practice has also raised concerns about the impact on the pharmacy technician workforce. Some have argued that the automation of certain tasks, such as medication dispensing, may lead to job losses for pharmacy technicians [57]. Others have raised concerns about the need for ongoing training and education to ensure that technicians are able to use these new technologies safely and effectively [58].

To address these concerns, it is important for pharmacy technicians to embrace the use of technology and to actively seek out opportunities for ongoing training and professional development [59]. Many employers and professional organizations offer continuing education programs and workshops focused on the use of technology in pharmacy practice [60]. In addition, some schools and training programs are incorporating more technology-related content into their curricula to better prepare pharmacy technicians for the changing landscape of healthcare [61].

Another important consideration is the need for collaboration and communication between pharmacy technicians and other healthcare professionals in the use of technology [62]. As technology becomes more integrated into pharmacy practice, it is essential that technicians work closely with pharmacists, physicians, and other healthcare providers to ensure that these systems are being used effectively and safely [63].

In addition to the impact on job responsibilities and training needs, the increasing use of technology in pharmacy practice also has important implications for patient safety and quality of care [64]. Automated dispensing systems and EHRs have the potential to reduce medication errors and improve the accuracy and efficiency of medication management [65]. However, these systems are not foolproof, and there is still a need for human oversight and intervention to ensure that they are being used correctly [66].

Pharmacy technicians play a critical role in ensuring the safe and effective use of technology in pharmacy practice. They are often the first line of defense in identifying and preventing medication errors, and they play a key role in maintaining the

accuracy and integrity of patient information in EHRs and other clinical information systems [67].

As technology continues to advance and become more integrated into pharmacy practice, it is likely that the role of pharmacy technicians will continue to evolve and expand [68]. Technicians will need to be adaptable and proactive in acquiring new skills and knowledge related to the use of these systems [69]. They will also need to be effective communicators and collaborators, working closely with pharmacists and other healthcare professionals to ensure the safe and effective use of technology in patient care [70].

Conclusion:

The role of pharmacy technicians has undergone a significant transformation in recent years, with technicians taking on increasingly complex and clinically-oriented responsibilities. From medication therapy management and immunization administration to specialty pharmacy and transitions of care, pharmacy technicians are playing a critical role in improving patient outcomes and ensuring the safety and quality of pharmacy services.

As the healthcare system continues to evolve and become more complex, the need for highly skilled and adaptable pharmacy technicians will only continue to grow. To meet this need, it is essential that the education and training of pharmacy technicians keep pace with the changing demands of the profession. This will require a commitment to ongoing professional development, as well as a willingness to embrace new technologies and collaborate with other healthcare professionals.

At the same time, it is important to recognize and address the challenges and barriers that pharmacy technicians may face in pursuing advanced education and certification. This will require a concerted effort from educators, employers, professional organizations, and policymakers to provide the necessary resources and support to ensure that all technicians have access to the training and development opportunities they need to succeed.

Ultimately, the success of the pharmacy profession in meeting the healthcare needs of patients will depend in large part on the strength and vitality of the pharmacy technician workforce.

By investing in the education, training, and professional development of technicians, and by recognizing the vital role that they play in the delivery of pharmacy services, we can ensure that the profession is well-positioned to meet the challenges and opportunities of the future.

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