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Hospital and Health-System

PHARMACY TECHNICIANS

ASHP ASSESSMENT OF CRITICAL ROLES SUPPORTING PATIENT CARE

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EXECUTIVE SUMMARY

FOR HOSPITAL AND HEALTH-SYSTEM PHARMACY AND HUMAN RESOURCES EXECUTIVES

Hospitals and health systems rely on technical staff to support the patient care and operational functions of healthcare professionals. All disciplines require well-trained and competent technical staff to perform the essential services necessary to support the many patient care areas of hospitals and health systems. Hospital and health-system pharmacy technicians support pharmacists with essential patient care and medication-related functions such as clinical, medication supply chain, dispensing and compounding, financial management, information technology, patient assistance, and regulatory compliance. ASHP and its Pharmacy Executive Leadership Alliance Advisory (PELA®) Panel conducted an analysis of hospital and health-system pharmacy technicians that provides an evaluation of 166 job functions and associated skill mix complexities (Table 1).

KEY FINDINGS:

- Pharmacy technicians support important patient care job functions in all patient care areas of pharmacy practice (e.g. hospitals, community, specialty, home infusion, and large chain).
- Pharmacy technicians provide essential job functions that support patient safety initiatives and ensure medication management and distribution are accurate and technology and automation are efficient.
- Hospital and health-system pharmacy technician job functions are as complex as many other hospital and health-system technical positions; many functions require specialized knowledge, skills and abilities such as sterile intravenous compound preparation, automation and technology support, and healthcare data management.
- Hospital and health-system pharmacy technicians have the most "high complexity" and "specialized" job functions when compared to other patient care areas of pharmacy practice, which needs to be considered when utilizing any market data that generalizes "pharmacy technician" for wage analysis and wage grades.

TABLE 1: NUMBER OF JOB FUNCTIONS PER PHARMACY TECHNICIAN PRACTICE DOMAIN

PROCESSING MEDICATION ORDERS	21
COMPOUNDING, STERILE	20
SUPPLY CHAIN AND INVENTORY MANAGEMENT	18
PURCHASING AND CONTRACTING	14
QUALITY ASSURANCE AND REPORTING	14
CLINICAL PHARMACY SUPPORT	12
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Hospital and health-system pharmacy technician job functions are **AS COMPLEX AS MANY OTHER HOSPITAL AND HEALTH-SYSTEM TECHNICAL POSITIONS**; many job functions require specialized knowledge, skills, and abilities such as sterile intravenous compound preparation, automation and technology support, and collecting and compiling health care data.

PHARMACY TECHNICIAN JOB FUNCTION COMPLEXITY ANALYSIS SUMMARY

The job function analysis categorized functions by complexity utilizing a range of high, medium, and low (Table 2). Assessing complexity is critical as it delineates the job functions necessary for each pharmacy patient care area. This assessment also demonstrates the similarities with other hospital and health-system technical job categories.

TABLE 2: PHARMACY TECHNICIAN PRACTICE DOMAIN JOB FUNCTIONS BY COMPLEXITY

PHARMACY TECHNICIAN PRACTICE DOMAINS *(N=NUMBER OF JOB FUNCTIONS IN DOMAIN)*	High Complexity	Medium Complexity	Low Complexity
Automation and Technology (n=11)	6	4	1
Billing and Reimbursement (n=7)	4	2	1
Clinical Pharmacy Support (n=12)	7	5	0
Compounding, Nonsterile (n=12)	3	6	3
Compounding, Sterile (n=20)	8	10	2
Customer Service (n=7)	1	2	4
Hazardous Drugs Handling (n=6)	0	3	3
Immunization Management (n=4)	2	1	1
Pharmacy Operations Management (n=6)	3	1	2
Processing Medication Orders (n=21)	2	5	14
Purchasing and Contracting (n=14)	10	4	0
Quality Assurance and Reporting (n=14)	9	3	2
Regulatory Compliance (n=7)	4	2	1
Supply Chain and Inventory Management (n=18)	3	6	9
Transport and Distribution of Medications (n=7)	1	1	5

Hospital and health-system pharmacy technicians require **SPECIALIZED** training and skills with 37% of 166 job functions rated as **HIGHLY COMPLEX**

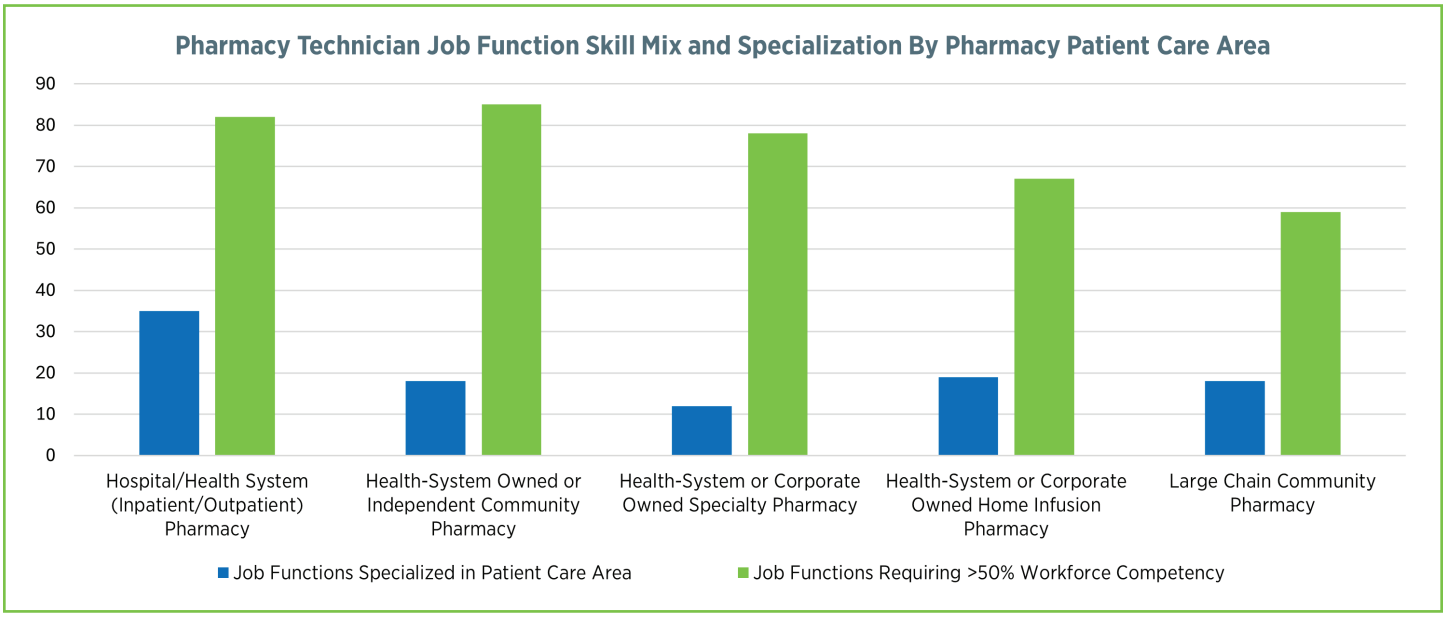
The evaluation of pharmacy technician roles was analyzed by cross-tabulating data on each of the 166 job functions and associated levels of complexity (Table 3).

TABLE 3: PHARMACY TECHNICIAN JOB FUNCTION COMPLEXITY BY PHARMACY PATIENT CARE AREAS

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Job Functions of High Complexity (n=63)	60	46	38	36	28
Job Functions of Medium Complexity (n=55)	51	46	31	30	32
Job Functions of Low Complexity (n=48)	41	44	35	32	37
Job Functions Not Routinely Performed in Patient Care Area	14	30	62	68	69

Ensuring the necessary skill mix of all hospital and health-system professional and technical roles is essential for patient safety and optimal operations (Table 4). This highlights the importance of recruiting, retaining and continuously training hospital and health-system pharmacy technicians, as well as the need to evaluate the wages and wage grade comparison to other patient care delivery technical roles in hospitals and health systems.

TABLE 4: PHARMACY TECHNICIAN JOB FUNCTION SPECIALIZATION AND SKILL MIX BY PHARMACY SECTORS



REFERENCES

1. Hospital and Health-System Pharmacy Technicians: ASHP Assessment of Critical Roles Supporting Patient Care (Full Report)

Analysis of Hospital and Health-System

PHARMACY TECHNICIANS

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Analysis of Hospital and Health-System Pharmacy Technicians

ASHP ASSESSMENT OF CRITICAL ROLES SUPPORTING PATIENT CARE

ASHP recognizes that well-educated and highly skilled pharmacy technicians have important roles and responsibilities in the pharmacy profession. Hospital and health-system pharmacy technicians support patient care in many settings including acute care, outpatient clinics, community pharmacy, specialty pharmacy, and home infusion. A safe and effective medication-use process depends significantly on the skills, knowledge, and competence of those pharmacy technicians. To properly fill these roles, pharmacy technicians require standardized education, training, and assessment of competency. ASHP advocates that states encourage this education, training, and assessment through the development and adoption of uniform state laws and regulations requiring licensure of pharmacy technicians. (Ref. ASHP Statement on the Roles of Pharmacy Technicians).

In 2021 ASHP conducted national surveys in response to the national hospital and health-system pharmacy technician shortages. One survey was sent to hospital and health-system pharmacy executives and the second survey was sent to pharmacy technicians. The results from the surveys conducted by ASHP found that pharmacy technicians report strong job satisfaction; however, this is not reflected in current workforce trends. The pharmacy profession is currently experiencing a shortage of pharmacy technicians, exceptionally high turnover rates, and challenges in securing wages commensurate with the complexity of work conducted by hospital and health-system pharmacy technicians.

Pharmacy technicians reported a variety of reasons for leaving the profession, including heavy workloads, inadequate staffing, and inadequate compensation. The impact of this shortage is substantial with nearly all health-system pharmacy administrators reporting increased use of overtime to fill shifts as well as the use of pharmacists to fill pharmacy technician shifts or perform pharmacy technician activities.

Numerous strategies were reported to increase pharmacy technician recruitment and retention, including increased financial and professional development incentives. Professional development incentives included offering career ladders or lattices, paying for professional development benefits such as membership and continuing education, as well as implementing internal formal technician training programs or paying fees for external training programs.

The shortages of hospital and health-system pharmacy technicians was further confirmed in the "ASHP National Survey of Pharmacy Practice in Hospital Settings: Workforce — 2022" which found 74% of respondents experiencing shortages of entry level technicians, 91% experiencing shortages in experienced technicians, and 93% experiencing shortages with sterile compounding-competent pharmacy technicians.

In 2022, the ASHP Pharmacy Executive Leadership Alliance (PELA) Advisory Panel discussed challenges regarding recruitment and retention of hospital and health-system pharmacy technicians, wage disparities between similar roles in hospital non-pharmacy departments, and issues surrounding advocacy for pharmacy technician advancement at the state and national levels. The use of national salary surveys that report on average wage of pharmacy technicians across all settings by human resource executives is a barrier to increasing the salaries of hospital and health-system pharmacy technicians. Moreover, significant disparities in wages exist between hospital and health-system pharmacy technicians and non-pharmacy technicians, who are often paid higher wages for work similar in complexity. Pursuant to the advisory panel's discussion the request was made to review the roles and responsibilities of hospital and health-system pharmacy technicians as compared to other non-pharmacy hospital and health-system technicians and other non-hospital or health-system pharmacy technicians.

The 2017 Pharmacy Technician Stakeholder Consensus Conference (PTSCC) provided a set of critical recommendations for pharmacy and health care leaders to consider to support the standardization and advancement of pharmacy technicians. Outcomes defined distinctions between pharmacy supportive personnel, entry-level pharmacy technicians, and advanced level pharmacy technicians. Many of the recommendations remain unrealized across the pharmacy industry and have expressed frustration with achieving necessary education and training for job/role fulfillment versus competitive wages situation, unsure of which intervention should come first. The PELA Advisory Panel felt on average that hospitals and health systems had implemented, or were striving to implement, many of these recommendations. The panel decided to conduct an analysis to review hospital and health-system pharmacy technicians, comparing their roles to both non-pharmacy hospital

and health-system technicians and pharmacy technicians across sectors of pharmacy. ASHP staff utilized the Board of Pharmacy Specialties (BPS) "Petitioner's Guide for Recognition of a Pharmacy Practice Specialty" as a model for the analysis. The BPS model provides guidance for structure of rigor and organization of materials to evaluate and describe the uniqueness of specific practice expertise and the associated characteristics, evidence, education, and training.

SUMMARY OF GOALS OF ANALYSIS:

1. Document and verify the value of hospital and health-system pharmacy technicians to patient safety and the medication use process
2. Perform an analysis of job function complexity and competencies required of pharmacy technicians in hospital and health systems and other selected pharmacy patient care areas
3. Provide data on standards and education for advanced pharmacy technicians that would support improved wages commensurate with the job tasks
4. Provide data on hospital and health-system pharmacy technicians' job functions, competencies, complexity, and skill mix to support the advancement of these roles and support improved wages commensurate with the job tasks and improve recruitment and retention

HOSPITAL AND HEALTH-SYSTEM PHARMACY TECHNICIAN ROLE IN PATIENT SAFETY AND MEDICATION USE PROCESSES

Hospital and health-system pharmacy technicians are needed to fulfill the responsibilities of the profession of pharmacy by supporting patient safety and medication use processes.

There is currently a shortage of pharmacy technicians. This shortage is especially pronounced in hospital and health-system care settings where pharmacy technicians perform specialized tasks. Hospital and health-system tasks require additional training, beyond what is conducted in other pharmacy settings. Tasks performed include compounding of sterile intravenous (IV) preparations, management of automation and technology, hazardous drug compounding, medication reconciliation, bedside medication delivery, pharmacy purchasing, and administration and management roles.

Pharmacy technicians play a large role in ensuring medication safety. Hospital and health-system pharmacy technicians are integral parts of the medication delivery system. Pharmacy technicians are required to be familiar with a wider array of medications, including their storage and safe compounding processes. Pharmacy technicians must be skilled with aseptic techniques required to compound IV products, although frequency and skill mix varies by pharmacy sectors. For example, IV therapies, epidurals and hazardous chemotherapy are required more frequently in hospitals, specialty, and home infusion patient care settings. Trained pharmacy technicians work with pharmacists to prevent potentially dangerous medication errors. Evidence has shown that pharmacy technicians in hospitals and health systems increase efficiency, leading to decreased costs to the payers and allowing pharmacists to spend more time on direct patient care.

A thorough job function analysis was conducted utilizing information from ASHP/ACPE accreditation standards for pharmacy technician training and education, ASHP statements and guidelines, certification requirements, peer reviewed literature, and subject matter experts. This analysis resulted in 166 identified job functions that were categorized into 15 pharmacy practice domains (Appendix A and B). These job functions were assessed across five pharmacy patient care areas:

- Hospital/Health System (Inpatient/Outpatient) Pharmacy
- Health-System Owned or Independent Community Pharmacy
- Health-System or Corporate Owned Specialty Pharmacy
- Health-System or Corporate Owned Home Infusion Pharmacy
- Large Chain Community Pharmacy

The results of this analysis highlight the unique job functions within each pharmacy patient care area, as well as specific skills required in certain patient care areas that are not commonly observed across all areas of pharmacy (Table 1). To perform the analysis certain assumptions were made to describe the pharmacy sectors noted in Appendix C. Hospital and health-system (inpatient/outpatient) pharmacy required the highest level of skill mix based on the number of pharmacy technicians needed for particular job functions and had the largest percentage of high-level complexity job functions.

TABLE 1: JOB FUNCTION SKILL MIX PERCENTILES OF PHARMACY TECHNICIAN WORKFORCE, NUMBER OF JOB FUNCTIONS SPECIALIZED TO PHARMACY PATIENT CARE AREAS, AND NUMBER OF JOB FUNCTIONS NOT GENERALLY PRESENT IN A PHARMACY PATIENT CARE AREAS

Percentage of workforce requiring competency in Job Function Elements	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Job functions requiring >90% workforce competency	37	46	37	48	40
Job functions requiring >70% workforce competency	11	11	13	9	12
Job functions requiring >50% workforce competency	34	28	28	10	7
Job functions requiring >30% workforce competency	17	9	4	3	5
Job Functions requiring >10% workforce competency	18	24	10	9	15
Job functions that are specialized positions	35	18	12	19	18
Job functions that are not generally found in this patient care area	14	30	62	68	69

(Ref – Appendix B - Categorized Roles and Job Functions of Pharmacy Technicians by Competency and Patient Care Areas)

The literature review identified numerous descriptions of the unique and complex job functions performed by hospital and health-system pharmacy technicians supporting patient safety and the medication use processes. Examples of this literature include:

- **ASHP Statement on the Roles of Pharmacy Technicians:** Advanced pharmacy technician roles involve but are not limited to: 1. Advanced medication systems, including "tech-check-tech" programs 2. Purchasing or fiscal management 3. Management or supervision of other pharmacy technicians 4. Medication history assistance 5. Medication therapy management assistance 6. Quality improvement 7. Immunization assistance 8. Hazardous drug handling 9. Patient assistance programs 10. Pharmacy technician education and training 11. Community outreach 12. Drug utilization evaluation and/or adverse-drug-event monitoring 13. Industry 14. Informatics
- **Weber E, Hepfinger C, Koontz R, et al. Pharmacy technicians supporting clinical functions. *AJHP*. 2005; 62:2466–72:** Pharmacy technicians have effectively assumed some operational roles formerly assigned to clinical pharmacists and allowed the latter to devote more attention to pharmaceutical care
- **Julie B. Cooper, Pharm.D., BCPS, Michelle Lilliston, Pharm.D., BCPS, DeAnne Brooks, Pharm.D., Bruce Swords, M.D., Ph.D., Experience with a pharmacy technician medication history program, *AJHP*, Volume 71, Issue 18, 15 September 2014, Pages 1567–1574**: Implementation of a pharmacy technician led medication history team improved hospital work flows, were more accurate than medication histories performed by nursing staff, and provided members of the interdisciplinary team more time for patient directed care.

Additional peer reviewed literature and resources demonstrating the unique roles hospital and health-system pharmacy technicians provide to support patient safety and medication use processes are noted in Appendix D and E.

REFERENCES:

1. Appendix A: Complexity of Pharmacy Technician Job Functions by Domains
2. Appendix B: Categorized Job Functions of Pharmacy Technicians by Competency and Patient Care Areas
3. Appendix C: Assumptions Table for Pharmacy Patient Care Areas
4. Appendix D: Annotated Literature Review
5. ASHP National Survey of Pharmacy Practice in Hospital Settings: Workforce- 2022
6. ASHP Statement on the Roles of Pharmacy Technicians
7. ASHP Statement on the Pharmacy Technician's Role in Pharmacy Informatics

HOSPITAL AND HEALTH-SYSTEM PHARMACY TECHNICIAN WORKFORCE SUPPLY AND DEMAND

Hospital and health-system pharmacy practice is experiencing a significant demand for pharmacy technicians to provide the necessary patient care support and technical functions to ensure community, state, and national patient care is sustainable, efficient, and safe.

According to the Bureau of Labor statistics, there are approximately 460,000 pharmacy technicians currently employed in the US. Approximately 71,600 technicians are employed in general medical and surgical hospitals, and approximately 6,800 technicians are employed in outpatient care centers. The Pharmacy Technician Certification Board (PTCB) conducted a workforce survey to further analyze current practices of pharmacy technicians. Per their findings, 84% of respondents are certified pharmacy technicians (a designation that requires additional testing and credentialing), 81% have pursued some form of higher education, and 55% report working in hospitals or health systems.

In 2021 ASHP conducted national surveys in response to the national hospital and health system pharmacy technician shortages. One survey was sent to hospital and health-system pharmacy executives and the second survey sent to pharmacy technicians. The results from the surveys conducted by ASHP found pharmacy technicians report strong job satisfaction, however, this is not reflected in current workforce trends. The profession of pharmacy is currently experiencing a shortage of pharmacy technicians, exceptionally high turnover rates, and challenges in securing wages commensurate with the complexity of work conducted by many levels of hospital and health-system pharmacy technicians. The survey results showed an average vacancy rate for inpatient FTE technician positions is 22.2%. The average vacancy rate for ambulatory FTE technician positions is 20.8%. The 2021 ASHP National Survey of Pharmacy Practice in Hospital Settings also reported shortages of pharmacy technicians in the hospital and health-system setting are an acute issue, with 73% of respondents reporting a shortage of entry-level pharmacy tecnicians and 85% reporting a shortage of experienced pharmacy technicians. Additionally, 91.6% of respondents reported a shortage of technicians trained in sterile compounding. This figure contrasts with the findings from the 2008 survey, where only 25% of respondents reported shortages of entry-level technicians. The results of these shortages are detrimental to pharmacy operations and increasingly affect the level of service that pharmacists are able to provide. Respondents report increased use of overtime to fill staff shifts, in addition to the use of pharmacists to fill technician shifts, representing inappropriate use of resources.

Pharmacy technicians reported a variety of reasons for leaving the profession, including heavy workloads, inadequate staffing, and inadequate compensation. The impact of this shortage is substantial with nearly all health-system pharmacy administrators reporting increased use of overtime to fill shifts as well as the use of pharmacists to fill pharmacy technician shifts or perform pharmacy technician activities. Numerous strategies were reported to increase pharmacy technician recruitment and retention, including increased financial incentives, but also offering professional development as an incentive strategy. Professional development incentives included offering career ladders or lattices, paying for professional development benefits such as membership and continuing education, as well as implementing internal formal pharmacy technician training programs or paying fees for external training programs.

The shortages of hospital and health-system pharmacy technicians was further confirmed in the ASHP National Survey of Pharmacy Practice in Hospital Settings: Workforce — 2022, which found 74% of respondents experiencing shortages of entry level technicians, 91% experiencing shortages in experienced level technicians, and 93% experiencing shortages in experienced pharmacy technicians with sterile compounding experience (Table 2).

TABLE 2: PHARMACY DIRECTOR PERCEPTIONS OF AVAILABILITY OF QUALIFIED PHARMACY TECHNICIAN STAFF

(Table 2 is an excerpt from ASHP National Survey of Pharmacy Practice in Hospital Settings: Workforce — 2022)

STAFFED BEDS	<50	50-99	100-199	200-299	300-399	400-599	≥600
NO. OF RESPONDENTS	**81**	**50**	**51**	**52**	**41**	**48**	**26**
POSITION	**%**	**%**	**%**	**%**	**%**	**%**	**%**
ENTRY-LEVEL PHARMACY TECHNICIAN							
Shortage	62.8	78.0	76.5	78.8	90.2	77.1	96.2
Balanced	33.3	14.0	9.8	11.5	4.9	18.8	3.8
Excess	3.8	8.0	13.7	9.6	4.9	4.2	0.0
EXPERIENCED PHARMACY TECHNICIAN							
Shortage	86.3	88.0	96.1	94.0	100	97.9	100
Balanced	12.5	12.0	0.0	4.0	0.0	2.1	0.0
Excess	1.3	0.0	3.9	2.0	0.0	0.0	0.0
EXPERIENCED PHARMACY TECHNICIAN WITH STERILE COMPOUNDING EXPERIENCE							
Shortage	90.0	86.0	98.0	94.2	100	100	100
Balanced	8.8	12.0	0.0	3.8	0.0	0.0	0.0
Excess	1.3	2.0	2.0	1.9	0.0	0.0	0.0

REFERENCES:

1. ASHP Pharmacy Technician Shortage Survey Findings Executive Summary 2021
2. ASHP Survey: Hospitals Get Creative in Managing Technician Shortages
3. ASHP National Survey of Pharmacy Practice in Hospital Settings: Clinical services and workforce—2021
4. ASHP National Survey of Pharmacy Practice in Hospital Settings: Workforce- 2022

HOSPITAL AND HEALTH-SYSTEM PHARMACY TECHNICIAN JOB FUNCTION COMPLEXITY AND COMPETENCY SKILL MIX

Pharmacy technicians across all patient care areas of pharmacy analyzed require specialized skills to perform their patient care functions (Table 3). Through the analysis 166 job functions were identified and were reviewed through two perspectives. The first perspective was the complexity of the job function regardless of the pharmacy patient care area. The second was an assessment of the percentage of the workforce in an average/typical pharmacy within the pharmacy patient care area that would need to be competent in a particular job function to ensure safe, continuous operations and patient care (i.e. percentage of pharmacy technician workforce with a necessary skill set). The purpose of this analysis was to study the differences between the five selected pharmacy patient care areas and to demonstrate how diverse and complex the role of pharmacy technicians' job functions were in comparison to other non-pharmacy hospital technical positions (i.e. radiology technician and medical technicians).

Sourcing and compiling the 166 job functions of pharmacy technicians utilized peer review literature, ASHP/ACPE Accreditation Standards for Pharmacy Technician Education and Training Programs, ASHP policy statements, PTCB information, and subject matter expertise. Subject matter experts evaluated the job functions on complexity and percentages of workforce required in the five evaluated pharmacy patient care areas. The assessment utilized an 80% threshold for whether a job function was routinely performed in a particular pharmacy patient care area (Appendix A and B).

TABLE 3: NUMBER OF JOB FUNCTIONS PER PHARMACY TECHNICIAN PRACTICE DOMAIN

Domains of Pharmacy Technician Job Functions	Job Function Elements in Domain
Processing Medication Orders	21
Compounding, Sterile	20
Supply Chain and Inventory Management	18
Purchasing and Contracting	14
Quality Assurance and Reporting	14
Clinical Pharmacy Support	12
Compounding, Nonsterile	12
Automation and Technology	11
Billing and Reimbursement	7
Customer Service	7
Regulatory Compliance	7
Transport and Distribution of Medications	7
Hazardous Drugs Handling	6
Pharmacy Operations Management	6
Immunization management	4

The evaluation of the 166 job functions found that each pharmacy patient care area has unique competencies. A thorough job function analysis was conducted utilizing information from ASHP/ACPE accreditation standards for pharmacy technician training and education, ASHP statements and guidelines, certification requirements, peer reviewed literature, and subject matter experts. This analysis resulted in 166 identified job functions that were categorized into 15 pharmacy practice domains (Appendix A and B).

The composite of competencies and skill mix is similar and at the higher end of complexities matches or exceeds other technical positions in hospitals and health systems.

TABLE 4: PHARMACY TECHNICIAN JOB FUNCTION COMPLEXITY BY PHARMACY SECTORS

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Job Functions of High Complexity (n=63)	60	46	38	36	28
Job Functions of Medium Complexity (n=55)	51	46	31	30	32
Job Functions of Low Complexity (n=48)	41	44	35	32	37
Job Functions Not Routinely Performed in Patient Care Areas	14	30	62	68	69

As noted above, the approach taken for this analysis was to assess identified job functions' complexity, competencies, and resulting skill mix (Table 4 and Appendix C). This approach was taken to assess pharmacy technicians across the selected patient care areas and also demonstrate the similarities and complexities of job functions when compared to other hospital and health-system non-pharmacy technical positions. Across the fifteen domains of job functions identified there was a total of:

- 63 high complexity job functions
- 55 medium complexity job functions
- 48 low complexity job functions

Additionally, an assessment was determined as to what percent of the workforce in the average pharmacy within the patient care areas would be required to be competent in a particular job function in order to operate the pharmacy at optimal service levels. Categories were developed using the following delineation:

- Job functions requiring greater than 90% of workforce to have competency
- Job functions requiring greater than 70% of workforce to have competency
- Job functions requiring greater than 50% of workforce to have competency
- Job functions requiring greater than 30% of workforce to have competency
- Job functions requiring greater than 10% of workforce to have competency
- Job functions that are specialized positions
- Job functions that are not generally performed in patient care areas

The relevance of this analysis is the resulting skill mix, which is an additional indication of the challenges there can be to recruit qualified staff, the resources necessary to train an provide continued professional development, and the differential in wages commensurate with the skill mix necessary to the pharmacy patient care areas. The additional relevance of analyzing the 166 job functions in this manner is it demonstrates diverse and complex patient care services and work executed by hospital and health-system pharmacy technicians that is similar or more complex to other hospital and health-system technical positions.

REFERENCES:

1. Appendix A: Complexity of Pharmacy Technician Job Functions by Domains
2. Appendix B: Categorized Job Functions of Pharmacy Technicians by Competency and Patient Care Areas
3. Appendix E: ASHP / ACPE Accreditation Standards For Pharmacy Technician Education and Training Program
4. Pharmacy Technician Certification Board (PTCB) https://www.ptcb.org/
5. Implementation of a pharmacy technician career ladder; Ashlee N Mattingly, PharmD, BCPS, Ryan Mills, PharmD, MBA, MHA, BCPS, CSP, Molly Billstein Leber, PharmD, BCPS, FASHP, Mariel C Pereda, PharmD, BCPS; *American Journal of Health-System Pharmacy*, Volume 77, Issue 9, 1 May 2020, Pages 709–712, https://doi.org/10.1093/ajhp/zxaa037

HOSPITAL AND HEALTH-SYSTEM PHARMACY TECHNICIAN EDUCATION AND TRAINING

Hospital and health-system pharmacy technicians are trained and educated through various methods. There are certification organizations and accredited training programs that ensure the proper level of knowledge and training is evaluated and/or achieved. Hospitals and health systems are also accredited by organizations (e.g. TJC and DNV) that require validation of competency of employees for the job functions and patient populations performed in patient care. There are similar organizational level accreditation standards in specialty pharmacy and home infusion.

Training, education, and competency requirements for hospital and health-system pharmacy technicians share similarities with non-pharmacy technical positions (Appendix F and G).

HOW PHARMACY TECHNICIANS ARE TRAINED

Pharmacy technicians undergo comprehensive training to prepare them with the necessary knowledge and skills to support pharmacists in diverse healthcare environments. Training typically involves a combination of didactic education and experiential experience. Many aspiring pharmacy technicians enroll in ASHP/ACPE-accredited training programs offered by community colleges, vocational school, and employer-based programs. These programs include experiential experiences in pharmacies where students learn to dispense medications, manage inventory, and interact with patients. An alternative way to obtain education and training is through on-the-job training (ranging from 3 to 12 months) and online courses. Additionally, pharmacy technicians may pursue certification through organizations like the PTCB, which requires passing an exam demonstrating proficiency in pharmacy technician practice. Although most pharmacy technicians receive informal on-the-job training, when available, pharmacy employers favor those who have completed a formal, standardized training program and have received national certification.

TECHNICIAN LADDERS AND LATTICES

Pharmacy technician ladders and lattices refer to career advancement pathways that allow pharmacy technicians to progress in their careers. A pharmacy technician ladder typically involves a hierarchical progression pathway, where technicians advance through different levels of responsibility, expertise, and compensation based on factors such as experience, education, and certifications. On the other hand, pharmacy technician lattices provide a more flexible approach allowing pharmacy technicians to explore specialization in areas such as sterile compounding, inventory management, or informatics. Pharmacy technician ladders and lattices provide opportunities for pharmacy technicians to continually develop their knowledge and skills, pursue additional education or certifications, and take on more responsibility thus enhancing their professional growth and satisfaction within the pharmacy profession.

ASHP/ACPE PHARMACY TECHNICIAN PROGRAM ACCREDITATION

Accreditation by the ASHP and the Accreditation Council for Pharmacy Education (ACPE) is a hallmark of quality assurance for pharmacy technician training programs in the United States (Appendix E). ASHP/ACPE accreditation signifies that a pharmacy technician training program meets rigorous standards of excellence in education, curriculum, faculty qualifications, and student outcomes. Programs that achieve ASHP/ACPE accreditation provide comprehensive instruction covering essential topics such as pharmacy law, pharmaceutical calculations, medication dispensing, inventory management, and patient communication. Graduates of accredited programs are well-prepared to excel in their roles as pharmacy technicians and contribute effectively to the healthcare team.

PHARMACY TECHNICIAN CERTIFICATION BOARD (PTCB)

PTCB is a national credentialing organization for pharmacy technician certification in the United States. PTCB was established in 1995 as a collaboration by leading pharmacy associations and societies. The Pharmacy Technician Certification Exam (PTCE), administered by PTCB, evaluates the knowledge and expertise necessary for pharmacy technicians to efficiently support pharmacists across diverse healthcare environments. The exam covers topics such as pharmacology, pharmacy laws and regulations, medication safety, and medication order entry and fill processes. Passing the PTCE and achieving PTCB certification demonstrates a pharmacy technician's commitment to excellence and professionalism in their field.

PHARMACY TECHNICIAN CONTINUING EDUCATION

Continuing education is essential for pharmacy technicians to stay abreast of advancements in pharmacy practice. PTCB-certified pharmacy technicians are required to recertify every two years to maintain their credentials. Each recertification period requires the completion of a minimum of 20 hours of continuing education, of which 15 hours must be technician-specific (T-specific), one-hour must be on pharmacy law (03 topic designation) and one-hour must be on patient safety (05 topic designation). A maximum of five-hours of pharmacist-specific (P-specific) hours are permitted. If a certified technician holds advanced credentials, such as the advanced certified pharmacy technician (CPhT-Adv) or the certified compounded sterile preparation technician (CSPT), then additional continuing education is required (Table 5). States have varying requirements for pharmacy technician continuing education which may specify other topic designations, such as HIV/AIDS therapy (02 topic designation) or pain management/opioids (08 topic designation). States may also require education on topics such as sexual harassment prevention, implicit bias, or cultural competency. By engaging in continuing education, pharmacy technicians enhance their knowledge and skills, remain current in their field, and contribute to improving patient outcomes and safety in the pharmacy setting.

TABLE 5: CONTINUING EDUCATION REQUIREMENTS FOR PTCB CERTIFICATION RENEWAL

	CPhT	CPhT-Adv	CSPT	CPhT, CSPT**	CPhT-Adv, CSPT**
Total Required CE	20 hrs.	25 hrs.	Annual Attestation Form	20 hrs.	25 hrs.
T-specific	Min 15 hrs.	Min 15 hrs.		Min 10 hrs.	Min 10 hrs.
P-specific	Max 5 hrs.	Max 10 hrs.		Max 10 hrs.	Max 15 hrs.
Pharmacy Law*	1 hr.	1 hr.		1 hr.	1 hr.
Patient Safety	1 hr.	1 hr.		1 hr.	1 hr.
Compounding				10 hrs.	10 hrs.

** Two (2) hours of pharmacy law required for reinstatement*

*** Annual attestation form required*

PTCB Renewal Requirements. https://www.ptcb.org/renew-credentials/renewal-requirements (accessed 2024 May 7).

REFERENCES:

1. 2017 Pharmacy Technician Stakeholder Consensus Conference
2. Vest TA and Kelm MJ. Success of an expedited health system–based pharmacy technician training program to address the workforce needs of an institution. Am J Health-Syst Pharm. 2024; 81(22): 1179-1186 (https://doi.org/10.1093/ajhp/zxae120)
3. Arya A, Trueba S, Ricchiuti A, and Yu K. Development of a pharmacy technician training program and advanced pharmacy technician roles: A health system's journey amidst an evolving national practice landscape. Am J Health-Syst Pharm. 2025; 82(3): e108-e112 (https://doi.org/10.1093/ajhp/zxae291)
4. Appendix G: Pharmacy Technician Education and Certification

HOSPITAL AND HEALTH-SYSTEM PHARMACY TECHNICIAN TRANSMISSION OF KNOWLEDGE

Hospital and health-system pharmacy technicians have strong and established methods for the transmission of specialized knowledge through peer-reviewed literature, continuing education and certificate programs, professional association conferences, and professional associations.

ASHP/ACPE ACCREDITATION STANDARDS FOR PHARMACY TECHNICIAN EDUCATION AND TRAINING PROGRAMS

ASHP/ACPE accreditation signifies that a pharmacy technician training program meets rigorous standards of excellence in education, curriculum, faculty qualifications, and student outcomes. The accreditation standards established by ASHP/ACPE were crafted collaboratively, incorporating insights from various stakeholders invested in or impacted by pharmacy technician education and training. These standards emphasize the expected competencies for pharmacy technicians who undergo training programs and how these competencies are evaluated within the programs. Additionally, they encompass the structural and procedural aspects of training programs needed to integrate evidence-based outcome measures, effectively demonstrating compliance with the standards.

PHARMACY TECHNICIAN CERTIFICATION

Pharmacy technician certification serves as a professional credential, affirming an individual's proficiency and expertise in efficiently assisting pharmacists within various healthcare settings. Obtaining certification demonstrates a thorough understanding of pharmacy practice, regulations, and patient care standards. To obtain certification an individual must pass a standardized exam administered by a recognized certification board, such as PTCB.

PHARMACY TECHNICIAN CONTINUING EDUCATION AND COMPETENCY DEVELOPMENT

Pharmacy technicians engage in continuing education to enhance their knowledge and skills, remain current in their field, and contribute to improving patient outcomes and safety in the pharmacy setting. Pharmacy technician continuing education and competency development, therefore, are crucial to maintaining high standards within the pharmacy profession. Continuing education ensures that pharmacy technicians stay updated with the latest advancements in pharmaceuticals, regulations, and technology while also providing opportunities to expand knowledge and refine skills. Competency development focuses on refining practical skills, such as effective communication with patients and healthcare professionals. By investing in continuing education and competency development, pharmacy technicians contribute to the delivery of safe, efficient, and high-quality pharmacy services, ultimately benefiting patients and the healthcare system as a whole.

PHARMACY TECHNICIAN PROFESSIONAL CERTIFICATES

Pharmacy technician certificates serve as tangible evidence of successfully completing a designated educational or training program, aligning closely with the attainment of specific learning objectives. Unlike certifications, certificates are devoid of expiration dates, eliminating the need for ongoing maintenance or renewal processes. Additionally, they do not bestow individuals with credentials. Instead, pharmacy technician certificates stand as concrete evidence of acquired knowledge and skills. Certificates are available across various specialized domains, some of which include sterile compounding, billing and reimbursement, controlled substance diversion, medication-history taking, point-of-care testing, and data analytics.

PHARMACY ASSOCIATIONS AND CONFERENCES

Engagement in professional associations and conferences are vital channels for the transmission of knowledge within the profession, while also fostering growth and innovation. These platforms offer a dynamic space where all members of the pharmacy profession can converge to share insights, best practices, and the latest advancements in pharmacy practice and patient care. Conferences provide continuing education, interactive workshops, and networking opportunities where attendees gain access to a wealth of information and a nurturing culture of continuous learning and skill development. Pharmacy associations and conferences play a pivotal role in propelling the profession forward, equipping pharmacy technicians with the tools and knowledge needed to deliver optimal health outcomes.

PEER-REVIEWED JOURNALS WITH PHARMACY TECHNICIAN CONTENT

Peer-reviewed journals with pharmacy technician content serve as invaluable resources, offering a platform for the dissemination of research, best practices, and advancements related to pharmacy technicians. Prominent publications such as the *American Journal of Health-System Pharmacy (AJHP)*, the *Journal of the American Pharmacists Association (JAPhA)*, *Research in Social and Administrative Pharmacy*, the *International Journal of Pharmacy Practice*, and *Pharmacy Purchasing and Products Magazine* play a pivotal role in fostering professional development, enhancing patient care, and promoting evidence-based practices. These journal submissions are subject to a rigorous peer review process to ensure the reliability and validity of published information. A diverse range of articles are available, including original research, case studies, and reviews. These journals contribute significantly to ongoing education and training of pharmacy technicians.

REFERENCES:

1. The American Journal of Health-Systems Pharmacy (AJHP)
2. The Journal of the American Pharmacist Associations (JAPhA)
3. Research in Social and Administrative Pharmacy
4. The International Journal of Pharmacy Practice
5. Pharmacy Purchasing and Products Magazine
6. Appendix D: Annotated Literature Review
7. Appendix E: ASHP / ACPE Accreditation Standards For Pharmacy Technician Education and Training Program
8. Appendix G: Pharmacy Technician Education and Certification

HOSPITAL AND HEALTH-SYSTEM PHARMACY TECHNICIAN REGISTRATION AND LICENSURE

Pharmacy technicians are required to be registered and/or licensed in 46 states in the United States.

Pharmacy technician registration and licensure requirements ensure the quality and safety of pharmacy provided care. Requirements for registration and licensure vary by state but generally include completion of a high school diploma or GED equivalent, completion of a formal education and training program, and sometimes undergoing a criminal background check. Once licensed, pharmacy technicians are often required to renew their licenses annually or biannually, which involves completion of continuing education to stay updated on advancements in pharmacy regulations and practice. This rigorous process not only maintains standards within the profession but also instills confidence in patients regarding the competence and reliability of pharmacy technicians in their roles within healthcare settings.

In review of the PTCB State Regulations and Map, there are three main characteristics for registration and licensure of pharmacy technicians that result in a matrix.

- 16 states plus Puerto Rico require national certification and require registration or licensure
- 30 states plus Washington D.C. and Guam require registration or licensure
- 3 states do not require either registration or licensure
- 1 state requires registration or licensure for hospital pharmacy technicians

REFERENCE

1. Pharmacy Technician Certification Board (PTCB); State Regulations and Map; *Accessed 01/03/2024*); https://www.ptcb.org/resources/state-regulations-and-map

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APPENDICIES

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APPENDICIES

APPENDIX A: COMPLEXITY OF PHARMACY TECHNICIAN JOB FUNCTIONS BY DOMAINS

AUTOMATION AND TECHNOLOGY	COMPLEXITY
Automation and Technology - Automated controlled substances storage vault management	High
Automation and Technology - Automation interface management	High
Automation and Technology - Build/code/manage the informatics software elements	High
Automation and Technology - Data analysis and report management	High
Automation and Technology - Determine configuration and par levels of automated dispensing technologies	High
Automation and Technology - Operate and troubleshoot bulk technologies (e.g., carousels, baker cells)	Medium
Automation and Technology - Operate and troubleshoot patient care based technologies (e.g., automated dispensing machines)	Medium
Automation and Technology - Optimize contents of various technologies utilizing analytics	High
Automation and Technology - User management and support	Medium
Automation and Technology - Utilization of bar code technology to dispense medications	Low
Automation and Technology - Manage computerized record keeping systems (e.g., controlled substances)	Medium
BILLING AND REIMBURSEMENT	**COMPLEXITY**
Billing and Reimbursement - Assist patient/patients representative in determining financial responsibility for acquiring medication and clinical services	High
Billing and Reimbursement - Claims and data management	High
Billing and Reimbursement - Denials management	Medium
Billing and Reimbursement - Interpret and explain to patient/patient's representative insurance and third-party coverage	High
Billing and Reimbursement - Manage patient assistance program orders and distributions	High
Billing and Reimbursement - Obtain prior authorization for prescriptions	Medium
Billing and Reimbursement - Payments collected	Low
CLINICAL PHARMACY SUPPORT	**COMPLEXITY**
Clinical Pharmacy Support - Manage discharge medication dispensing (i.e., meds to beds program)	Medium
Clinical Pharmacy Support - Medication reconciliation related tasks	High
Clinical Pharmacy Support - Collect and communicate patient-specific data (e.g., lab values, blood pressure and glucose logs) to the pharmacist to assist in monitoring patient outcomes	High
Clinical Pharmacy Support - Communicate patient adherence services (e.g., calls for refill reminders, adherence reminders, MTM)	Medium
Clinical Pharmacy Support - Compile or summarize data collected for evaluation of root cause analyses or medication errors	High
Clinical Pharmacy Support - Educate patient/patient's representative on use and function of durable medical equipment	High
Clinical Pharmacy Support - Identify patients eligible for MTM services using data/algorithms from adherence platforms	Medium

Clinical Pharmacy Support - Receive and document data related to investigational drug distribution programs	Medium
Clinical Pharmacy Support - Compare patient records upon discharge to inpatient profile to identify areas for pharmacist intervention	High
Clinical Pharmacy Support - Critical care intravenous rate monitoring	High
Clinical Pharmacy Support - Obtaining medication history/current drug list	High
Clinical Pharmacy Support - Point of care testing	Medium
COMPOUNDING, NONSTERILE	**COMPLEXITY**
Compounding, Nonsterile - Calibrate and operate devices and equipment	Medium
Compounding, Nonsterile - Compounding batch preparations	Low
Compounding, Nonsterile - Compounding bulk preparations	Low
Compounding, Nonsterile - Compounding chemotherapeutic medications	High
Compounding, Nonsterile - Compounding non-chemotherapy hazardous drugs (e.g., hormones)	Medium
Compounding, Nonsterile - Compounding patient specific preparations	Medium
Compounding, Nonsterile - Compounding pediatric/neonatal dilutions	High
Compounding, Nonsterile - Compounding using controlled substances	Medium
Compounding, Nonsterile - Perform calculations required for preparation of compounds	Medium
Compounding, Nonsterile - Perform end product and quality assurance tests on non-sterile compounded preparations	High
Compounding, Nonsterile - Prepare area for compounding	Low
Compounding, Nonsterile - Weigh and measure components for compounding	Medium
COMPOUNDING, STERILE	**COMPLEXITY**
Compounding, Sterile - Batch preparations	Medium
Compounding, Sterile - Calculate number of finished dosage forms for dispensing based on infusion administration rate	Medium
Compounding, Sterile - Calibrate and operate devices and equipment	Medium
Compounding, Sterile - Complete compounding record for each preparation or batch	Low
Compounding, Sterile - Complex preparations (e.g., total parenteral nutrition)	high
Compounding, Sterile - Compounding bulk preparations	Medium
Compounding, Sterile - Compounding chemotherapeutic medications	High
Compounding, Sterile - Compounding non-chemotherapy hazardous drugs (e.g., hormones)	High
Compounding, Sterile - Compounding pediatric/neonatal dilutions	High
Compounding, Sterile - Compounding standard patient-specific preparations	Medium
Compounding, Sterile - Compounding using controlled substances (e.g., intrathecal, epidural)	High
Compounding, Sterile - Demonstrate ability to effectively clean and disinfect a cleanroom suite	Medium
Compounding, Sterile - Patient specific preparations	Medium
Compounding, Sterile - Perform calculations required to prepare compounds	High
Compounding, Sterile - Perform compounding using aseptic technique	Medium
Compounding, Sterile - Perform end product and quality assurance tests on non-sterile compounded preparations, or those with extended BUDs	High
Compounding, Sterile - Perform garbing and gowning required	Low
Compounding, Sterile - Photograph or live stream steps taken to prepare medication for final check via remote verification	Medium
Compounding, Sterile - Select and include equipment when necessary (e.g., IV and special tubing, narcotic pump cassettes, light sensitive bags)	Medium
Compounding, Sterile - Sterilizing non-sterile to sterile compounds	High
CUSTOMER SERVICE	**COMPLEXITY**

Customer Service - Community Outreach (e.g., narcan outreach events, tabling at events)	Medium
Customer Service - Patients/patient's representative	Low
Customer Service - Medical students/resident interactions	Low
Customer Service - Nurse interactions	Low
Customer Service - Other healthcare professional student interactions	Low
Customer Service - Over the counter medications and products	High
Customer Service - Physicians/APP interactions	Medium
HAZARDOUS DRUGS HANDLING	**COMPLEXITY**
Hazardous Drugs Handling - Dispose or destroy HD products and or supplies	Medium
Hazardous Drugs Handling - Repackaging of chemotherapy HDs	Medium
Hazardous Drugs Handling - Repackaging of non-chemotherapy HDs	Medium
Hazardous Drugs Handling - Storage of chemotherapy HDs in manufacturer packaging	Low
Hazardous Drugs Handling - Storage of HDs after compounding/manipulation	Low
Hazardous Drugs Handling - Storage of non-chemotherapy HDs in manufacturer packaging/commercially available	Low
IMMUNIZATION MANAGEMENT	**COMPLEXITY**
Immunization management - Immunize patient, in states where this is allowed by law	High
Immunization management - Review patient information for determination if patient is a candidate for vaccination (e.g., review allergies)	High
Immunization management - Document patient's immunization record for pharmacist review	Medium
Immunization management - Provide vaccine information statements and consent forms for immunizations	Low
PHARMACY OPERATIONS MANAGEMENT	**COMPLEXITY**
Pharmacy Operations Management - Patient scheduling	Low
Pharmacy Operations Management - Pharmacy staff scheduling	Medium
Pharmacy Operations Management - Route phone calls, faxes, etc.	Low
Pharmacy Operations Management - Training of other pharmacy technicians	High
Pharmacy Operations Management - Training of pharmacists	High
Pharmacy Operations Management - Training of student pharmacists	High
PROCESSING MEDICATION ORDERS	**COMPLEXITY**
Processing Medication Orders - Assemble patient information materials	Low
Processing Medication Orders - Calculate quantity and days' supply of finished dosage forms for dispensing	Medium
Processing Medication Orders - Check for accuracy during processing of prescription/medication orders	Low
Processing Medication Orders - Contact source other than patient (e.g., physician, family member, query databases) to obtain patient medication history	Medium
Processing Medication Orders - Enter prescription/medication order information into patient profiles	Low
Processing Medication Orders - Identify and resolve problems with rejected claims (e.g., incorrect days' supply, incorrect ID number)	Medium
Processing Medication Orders - Inform patient/patient's representative of options if unable to fill a medication/ prescription order (e.g., home delivery, medication transfers, partial fill)	Low
Processing Medication Orders - Label dispensed medications	Low
Processing Medication Orders - Locate and select products from inventory	Low
Processing Medication Orders - Measure or count quantity of finished dosage forms manually or using robotic/ automated dispenser	Low
Processing Medication Orders - Notify pharmacist of any clinical alerts	Low
Processing Medication Orders - Obtain and update patient medical history from patient or patient form	Low
Processing Medication Orders - Obtain and update patient personal/demographic information (e.g., address, insurance)	Low

Processing Medication Orders - Preform final check of medications/prescriptions prepared by other technicians as allowed by state law (i.e., Tech-check-tech)	High
Processing Medication Orders - Receive and document data related to restricted drug distribution programs (i.e., risk evaluation mitigation strategies [REMS])	Medium
Processing Medication Orders - Receive new written, faxed, or electronic prescription/medication orders	Low
Processing Medication Orders - Receive transfer of prescription/medication orders	High
Processing Medication Orders - Reconstituting oral liquids	Medium
Processing Medication Orders - Review prescriptions/medication orders for completeness, accuracy, authenticity, legality, and reimbursement eligibility	Low
Processing Medication Orders - Select the appropriate container for final dispensing	Low
Processing Medication Orders - Stage prescription orders for final check by the pharmacist or by other technicians as allowed by law	Low
PURCHASING AND CONTRACTING	**COMPLEXITY**
Purchasing and Contracting - Communicate changes in product availability (e.g., shortages, recalls)	Medium
Purchasing and Contracting - Cost containment strategies	High
Purchasing and Contracting - Determine if medications are saleable to return for reimbursement purposes	Medium
Purchasing and Contracting - Drug shortages management	High
Purchasing and Contracting - Follow special processes to order controlled substances	High
Purchasing and Contracting - Forecasting to anticipate demands/availability	High
Purchasing and Contracting - Management of > $10 million annually	High
Purchasing and Contracting- Management of > $50 million annually	High
Purchasing and Contracting - Place priority or special orders for medication and supplies	High
Purchasing and Contracting - Place routine orders for medication and supplies	Medium
Purchasing and Contracting - Purchase utilizing 340B drug pricing opportunities	High
Purchasing and Contracting - Purchase utilizing specialty pharmacy channels	High
Purchasing and Contracting - Purchasing directly from manufacturers	High
Purchasing and Contracting - Purchasing directly from wholesaler	Medium
QUALITY ASSURANCE AND REPORTING	**COMPLEXITY**
Quality Assurance and Reporting - Adverse drug event monitoring support and reports (e.g., ADRs and medication errors)	High
Quality Assurance and Reporting - Assess other staff for competency in sterile compounding (e.g., media fill testing, gloved-fingertip testing)	High
Quality Assurance and Reporting - Conduct and trend environmental monitoring in non-sterile compounding areas	High
Quality Assurance and Reporting - Conduct and trend environmental monitoring in sterile compounding areas	High
Quality Assurance and Reporting - Controlled substances and other drug diversion surveillance	High
Quality Assurance and Reporting - Drug utilization	High
Quality Assurance and Reporting - Fill times/number of prescriptions filled	Medium
Quality Assurance and Reporting - Implement and monitor infection control policies and procedures	Medium
Quality Assurance and Reporting - Monitor and document equipment outside of the pharmacy (e.g., refrigerator/freezer temperature checks)	Low
Quality Assurance and Reporting - Monitor and document equipment within the pharmacy (e.g., refrigerator/freezer temperature checks)	Low
Quality Assurance and Reporting - Perform and record preventative maintenance on equipment used in general dispensing (e.g., automated dispensing equipment, balances)	Medium
Quality Assurance and Reporting - Perform and record preventative maintenance on equipment used in sterile compounding (e.g., TPN compounder, repeater pumps)	High
Quality Assurance and Reporting - Prepare non-sterile preparations to undergo end product testing	High

Quality Assurance and Reporting - Prepare sterile preparations to undergo end product testing	High
REGULATORY COMPLIANCE	**COMPLEXITY**
Regulatory Compliance - CMS/Insurance Provider compliance auditing/reporting	High
Regulatory Compliance - DEA compliance auditing/reporting	High
Regulatory Compliance - Effectively coordinate disposal of hazardous waste	High
Regulatory Compliance - Effectively coordinate disposal of non-hazardous pharmaceutical waste	Medium
Regulatory Compliance - Medication area inspections	Low
Regulatory Compliance - Participate in developing policies and procedures	High
Regulatory Compliance - Patient care areas inspections	Medium
SUPPLY CHAIN AND INVENTORY MANAGEMENT	**COMPLEXITY**
Supply Chain and Inventory Management - Controlled substances inventory management	High
Supply Chain and Inventory Management - Emergency kit inventory and replenishment - code carts/intubation kits	Medium
Supply Chain and Inventory Management - Emergency kit inventory and replenishment - EMS or city/region-wide ambulance kits	Medium
Supply Chain and Inventory Management - Identify and quarantine expired, discontinued, and recalled medications and supplies	Medium
Supply Chain and Inventory Management - Implement storage strategies for high risk or look-alike/sound-alike medications	High
Supply Chain and Inventory Management - Manage specialty pharmacy supply chain	High
Supply Chain and Inventory Management - Package or repackage finished dosage forms into unit of use packaging (e.g., blister packs, oral syringes)	Medium
Supply Chain and Inventory Management - Performance of physical inventories	Medium
Supply Chain and Inventory Management - Place medications and supplies into inventory	Low
Supply Chain and Inventory Management - Process patient credits/returns to inventory	Low
Supply Chain and Inventory Management - Stock centralized automated storage systems (e.g., robots, carousels, baker cells)	Low
Supply Chain and Inventory Management - Stock decentralized storage systems (e.g., automated dispensing cabinets)	Low
Supply Chain and Inventory Management - Storage and management of room temperature non-controlled medications	Low
Supply Chain and Inventory Management - Storage of frozen medications	Low
Supply Chain and Inventory Management - Storage of high cost and biologic medications	Medium
Supply Chain and Inventory Management - Storage of refrigerated medications	Low
Supply Chain and Inventory Management - Verify medications and supplies received against purchase orders	Low
Supply Chain and Inventory Management- Durable medical equipment	Low
TRANSPORT AND DISTRIBUTION OF MEDICATIONS	**COMPLEXITY**
Transport and Distribution of Medications - Deliver medications and supplies to site of patient care	Low
Transport and Distribution of Medications - Deploy robotic technology to deliver medications to patient care areas	High
Transport and Distribution of Medications - Hand off medications and supplies to patient/patient's representative	Low
Transport and Distribution of Medications - Package medications for shipment using postal service	Low
Transport and Distribution of Medications - Package refrigerated medications for local courier	Medium
Transport and Distribution of Medications - Package room temperature medications for local courier	Low
Transport and Distribution of Medications - Select delivery systems for distributing medications (i.e., robotics, pneumatic tube)	Low

APPENDIX B: CATEGORIZED JOB FUNCTIONS OF PHARMACY TECHNICIANS BY COMPETENCY AND PATIENT CARE AREAS

The following assessment describes what percentage of pharmacy technician staff would need to be competent in the job function in order to have the necessary skill mix to provide patient care. It also assesses job functions that are specialized or not routinely performed in a pharmacy patient care area.

KEY

- ● >90% Technicians Competent
- ● >70% Technicians Competent
- ● >50% Technicians Competent
- ● >30% Technicians Competent
- ● >10% Technicians Competent
- ● Specialized Position
- ○ Not generally found in patient care areas

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
AUTOMATION AND TECHNOLOGY					
Automation and Technology - Automated controlled substances storage vault management	●	○	●	●	○
Automation and Technology - Automation interface management	●	●	●	●	●
Automation and Technology - Build/ code/manage the informatics software elements	●	○	○	●	○
Automation and Technology - Data analysis and report management	●	●	●	●	●
Automation and Technology - Determine configuration and par levels of automated dispensing technologies	●	○	○	○	●
Automation and Technology - Operate and troubleshoot bulk technologies (e.g., carousels, baker cells)	●	○	○	○	●
Automation and Technology - Operate and troubleshoot patient care based technologies (e.g., automated dispensing machines)	●	○	○	○	○
Automation and Technology - Optimize contents of various technologies utilizing analytics	●	○	●	○	●
Automation and Technology - User management and support	●	○	○	○	●
Automation and Technology - Utilization of bar code technology to dispense medications	●	●	●	●	●

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Automation and Technology- Manage computerized record keeping systems (e.g., controlled substances)	●	●	●	●	●
BILLING AND REIMBURSEMENT					
Billing and Reimbursement - Assist patient/patients representative in determining financial responsibility for acquiring medication and clinical services	●	●	●	●	●
Billing and Reimbursement - Claims and data management	●	●	●	●	●
Billing and Reimbursement - Denials management	○	●	●	●	●
Billing and Reimbursement - Interpret and explain to patient/ patient's representative insurance and third-party coverage	●	●	●	●	●
Billing and Reimbursement - Manage patient assistance program orders and distributions	●	●	●	○	○
Billing and Reimbursement - Obtain prior authorization for prescriptions	○	●	●	○	●
Billing and Reimbursement - Payments collected	○	●	●	●	●
CLINCIAL PHARMACY SUPPORT					
Clincial Pharmacy Support - Manage discharge medication dispensing (i.e., meds to beds program)	●	○	●	●	○
Clincial Pharmacy Support - Medication reconciliation related tasks	●	●	●	●	○
Clinical Pharmacy Support - Collect and communicate patient-specific data (e.g., lab values, blood pressure and glucose logs) to the pharmacist to assist in monitoring patient outcomes	●	●	●	●	○
Clinical Pharmacy Support - Communicate patient adherence services (e.g., calls for refill reminders, adherence reminders, MTM)	●	●	●	○	●
Clinical Pharmacy Support - Compile or summarize data collected for evaluation of root cause analyses or medication errors	●	○	●	○	○
Clinical Pharmacy Support - Educate patient/patient's representative on use and function of durable medical equipment	○	●	○	○	●

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Clinical Pharmacy Support - Identify patients eligible for MTM services using data/algorithms from adherence platforms	○	●	○	○	●
Clinical Pharmacy Support - Receive and document data related to investigational drug distribution programs	●	○	○	○	○
Clinical Pharmacy Support - Compare patient records upon discharge to inpatient profile to identify areas for pharmacist intervention	●	○	○	○	○
Clinical Pharmacy Support - Critical care intravenous rate monitoring	●	○	○	○	○
Clinical Pharmacy Support - Obtaining medication history/current drug list	●	●	●	●	●
Clinical Pharmacy Support - Point of care testing	○	●	○	○	●
COMPOUNDING, NONSTERILE					
Compounding, Nonsterile - Calibrate and operate devices and equipment	●	●	○	○	●
Compounding, Nonsterile - Compounding batch preparations	●	●	○	○	○
Compounding, Nonsterile - Compounding bulk preparations	●	●	○	○	○
Compounding, Nonsterile - Compounding chemotherapeutic medications	●	●	○	○	○
Compounding, Nonsterile - Compounding non-chemotherapy hazardous drugs (e.g., hormones)	●	●	○	○	○
Compounding, Nonsterile - Compounding patient specific preparations	●	●	○	○	●
Compounding, Nonsterile - Compounding pediatric/neonatal dilutions	●	●	○	○	○
Compounding, Nonsterile - Compounding using controlled substances	●	●	○	○	○
Compounding, Nonsterile - Perform calculations required for preparation of compounds	●	●	○	○	○
Compounding, Nonsterile - Perform end product and quality assurance tests on non-sterile compounded preparations	●	●	○	○	○
Compounding, Nonsterile - Prepare area for compounding	●	●	○	○	○

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Compounding, Nonsterile - Weigh and measure components for compounding	●	●	○	○	○
Compounding, Sterile - Batch preparations	●	●	○	○	○
Compounding, Sterile - Calculate number of finished dosage forms for dispensing based on infusion administration rate	●	○	●	○	○
Compounding, Sterile - Calibrate and operate devices and equipment	●	●	●	●	○
Compounding, Sterile - Complete compounding record for each preparation or batch	●	●	●	●	○
Compounding, Sterile - Complex preparations (e.g., total parenteral nutrition)	●	●	●	●	○
Compounding, Sterile - Compounding bulk preparations	●	●	○	●	○
Compounding, Sterile - Compounding chemotherapeutic medications	●	●	●	●	○
Compounding, Sterile - Compounding non-chemotherapy hazardous drugs (e.g., hormones)	●	●	●	●	○
Compounding, Sterile - Compounding pediatric/neonatal dilutions	●	●	●	●	○
Compounding, Sterile - Compounding standard patient-specific preparations	●	●	●	●	○
Compounding, Sterile - Compounding using controlled substances (e.g., intrathecal, epidural)	●	○	○	●	○
Compounding, Sterile - Demonstrate ability to effectively clean and disinfect a cleanroom suite	●	●	●	●	○
Compounding, Sterile - Patient specific preparations	●	●	●	●	○
Compounding, Sterile - Perform calculations requried to prepare compounds	●	●	●	●	○
Compounding, Sterile - Perform compunding using aseptic technique	●	●	●	●	○
Compounding, Sterile - Perform end product and quality assurance tests on non-sterile compounded preparations, or those with extended BUDs	●	●	○	●	○

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Compounding, Sterile - Perform garbing and gowning required	●	●	●	●	○
Compounding, Sterile - Photograph or live stream steps taken to prepare medication for final check via remote verification	●	●	●	●	○
Compounding, Sterile - Select and include equipment when necessary (e.g., IV and special tubing, narcotic pump cassettes, light sensitive bags)	●	●	●	●	○
Compounding, Sterile - Sterilizing non-sterile to sterile compounds	●	●	○	●	○
CUSTOMER SERVICE					
Customer Service - Community Outreach (e.g., narcan outreach events, tabling at events)	●	●	○	○	●
Customer Service - Patients/patient's representative	●	●	●	●	●
Customer Service - Medical students/resident interactions	●	●	●	●	●
Customer Service - Nurse interactions	●	●	●	●	●
Customer Service - Other healthcare professional student iteractions	●	●	○	○	●
Customer Service - Over the counter medications and products	●	●	●	●	●
Customer Service - Physicians/APP interactions	●	●	●	●	●
HAZARDOUS DRUGS HANDLING					
Hazardous Drugs Handling - Dispose or destroy HD products and or supplies	●	●	●	●	●
Hazardous Drugs Handling - Repackaging of chemotherapy HDs	●	●	●	●	●
Hazardous Drugs Handling - Repackaging of non-chemotherapy HDs	●	●	○	●	●
Hazardous Drugs Handling - Storage of chemotherapy HDs in manufcaturer packaging	●	●	●	●	●
Hazardous Drugs Handling - Storage of HDs after compounding/ manipulation	●	●	○	●	●
Hazardous Drugs Handling - Storage of non-chemotherapy HDs in manufacturer packaging/ commercially available	●	●	○	●	●

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
IMMUNIZATION MANAGEMENT					
Immunization management - Immunize patient, in states where this is allowed by law	○	🟡	○	○	🔴
Immunization management - Review patient information for determination if patient is a candidate for vaccination (e.g., review allergies)	🔴	🟡	○	○	🔴
Immunization management - Document patient's immunization record for pharmacist review	🔴	🟢	○	○	🟢
Immunization management - Provide vaccine information statements and consent forms for immunizations	○	○	○	○	○
PHARMACY OPERATIONS MANAGEMENT					
Pharmacy Operations Management - Patient scheduling	○	🟢	🟢	○	🔵
Pharmacy Operations Management - Pharmacy staff scheduling	🔵	🔵	🔵	🔵	🔵
Pharmacy Operations Management - Route phone calls, faxes, etc.	🟢	🟢	🟢	🟢	🟢
Pharmacy Operations Management - Training of other pharmacy technicians	🟠	🟠	🟠	🟠	🟠
Pharmacy Operations Management - Training of pharmacists	🔴	🔴	🔴	🔴	🔴
Pharmacy Operations Management - Training of student pharmacists	🟡	🟡	🟡	🟡	🟡
PROCESSING MEDICATION ORDERS					
Processing Medication Orders - Assemble patient information materials	○	🟢	🟢	🟢	🟢
Processing Medication Orders - Calculate quantity and days' supply of finished dosage forms for dispensing	🟢	🟢	🟢	🟢	🟢
Processing Medication Orders - Check for accuracy during processing of prescription/ medication orders	🟢	🟢	🟢	🟢	🟢
Processing Medication Orders - Contact source other than patient (e.g., physician, family member, query databases) to obtain patient medication history	🟡	🟡	🟢	🔵	🔴

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Processing Medication Orders - Enter prescription/medication order information into patient profiles	●	●	●	●	●
Processing Medication Orders - Identify and resolve problems with rejected claims (e.g., incorrect days' supply, incorrect ID number)	●	●	●	●	●
Processing Medication Orders - Inform patient/patient's representative of options if unable to fill a medication/prescription order (e.g., home delivery, medication transfers, partial fill)	●	●	●	●	●
Processing Medication Orders - Label dispensed medications	●	●	●	●	●
Processing Medication Orders - Locate and select products from inventory	●	●	●	●	●
Processing Medication Orders - Measure or count quantity of finished dosage forms manually or using robotic/automated dispenser	●	●	○	○	●
Processing Medication Orders - Notify pharmacist of any clinical alerts	●	●	●	●	●
Processing Medication Orders - Obtain and update patient medical history from patient or patient form	●	●	●	●	●
Processing Medication Orders - Obtain and update patient personal/ demographic information (e.g., address, insurance)	○	●	●	○	●
Processing Medication Orders - Perfom final check of medications/ prescriptions prepared by other technicians as allowed by state law (i.e., Tech-check-tech)	●	●	○	○	●
Processing Medication Orders - Receive and document data related to restricted drug distribution programs (i.e., risk evaluation mitigation strategies [REMS])	●	●	●	○	●
Processing Medication Orders - Receive new written, faxed, or electronic prescription/medication orders	●	●	●	●	●
Processing Medication Orders - Receive transfer of prescription/ medication orders	○	●	●	●	●
Processing Medication Orders - Reconstituting oral liquids	●	●	○	○	●

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Processing Medication Orders - Review prescriptions/medication orders for completeness, accuracy, authenticity, legality, and reimmbursement eligibility	●	●	●	●	●
Processing Medication Orders - Select the appropriate container for final dispensing	●	●	●	●	●
Processing Medication Orders - Stage prescription orders for final check by the pharmacist or by other technicians as allowed by law	●	●	●	●	●
PURCHASING AND CONTRACTING					
Purchasing and Contracting - Communicate changes in product availability (e.g., shortages, recalls)	●	●	●	●	●
Purchasing and Contracting - Cost containment strategies	●	●	●	●	●
Purchasing and Contracting - Determine if medications are saleable to return for reimbursement purposes	●	●	●	●	●
Purchasing and Contracting - Drug shortages management	●	●	○	●	●
Purchasing and Contracting - Follow special processes to order controlled substances	●	●	○	●	●
Purchasing and Contracting - Forecasting to anticipate demands/ availability	●	○	○	○	○
Purchasing and Contracting - Management of > $10 million annually	●	○	●	○	○
Purchasing and Contracting- Management of > $50 million annually	●	○	●	○	○
Purchasing and Contracting - Place priority or special orders for medication and supplies	●	○	●	○	○
Purchasing and Contracting - Place routine orders for medication and supplies	●	●	●	●	●
Purchasing and Contracting - Purchase utilizing 340B drug pricing opportunities	●	○	●	○	○
Purchasing and Contracting - Purchase utilizing specialty pharmacy channels	●	●	●	○	○
Purchasing and Contracting - Purchasing directly from manufacturers	●	●	●	●	●

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Purchasing and Contracting - Purchasing directly from wholesaler	●	●	●	●	●
QUALITY ASSURANCE AND REPORTING					
Quality Assurance and Reporting - Adverse drug event monitoring support and reports (e.g., ADRs and medication errors)	●	○	●	○	○
Quality Assurance and Reporting - Assess other staff for competency in sterile compouding (e.g., media fill testing, gloved-fingertip testing)	●	○	●	●	○
Quality Assurance and Reporting - Conduct and trend environmental monitoring in non-sterile compounding areas	●	●	○	○	○
Quality Assurance and Reporting - Conduct and trend environmental monitoring in sterile compounding areas	●	●	○	○	○
Quality Assurance and Reporting - Diversion surveillance	●	○	○	○	○
Quality Assurance and Reporting - Drug utilizatoin	●	●	●	○	○
Quality Assurance and Reporting - Fill times/number of prescriptions filled	●	●	●	○	●
Quality Assurance and Reporting - Implement and monitor infection control policies and procedures	●	●	○	●	○
Quality Assurance and Reporting - Monitor and document equipment outside of the pharmacy (e.g., refrigerator/freezer temperature checks)	●	○	○	○	○
Quality Assurance and Reporting - Monitor and document equipment within the pharmacy (e.g., refrigerator/freezer temperature checks)	●	●	●	●	●
Quality Assurance and Reporting - Perform and record preventative maintence on equipment used in general dispensing (e.g., automated dispensing equipment, balances)	●	●	○	○	●
Quality Assurance and Reporting - Perform and record preventative maintence on equipment used in sterile compounding (e.g., TPN compounder, repeater pumps)	●	●	○	●	○

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Quality Assurance and Reporting - Prepare non-sterile preparations to undergo end product testing	●	●	○	○	●
Quality Assurance and Reporting - Prepare sterile preparations to undergo end product testing	●	●	○	●	○
REGULATORY COMPLIANCE					
Regulatory Compliance - CMS/ Insurance Provider compliance auditing/reporting	●	●	●	●	●
Regulatory Compliance - DEA compliance auditing/reporting	●	●	○	●	●
Regulatory Compliance - Effectively coordinate disposal of hazardous waste	●	●	●	●	●
Regulatory Compliance - Effectively coordinate disposal of non-hazardous pharmaceutical waste	●	●	●	●	●
Regulatory Compliance - Medication area inspections	●	●	●	●	●
Regulatory Compliance - Participate in developing policies and procedures	●	●	●	●	●
Regulatory Compliance - Patient care areas inspections	●	○	○	○	○
SUPPLY CHAIN AND INVENTORY MANAGEMENT					
Supply Chain and Inventory Management - Controlled substances inventory management	●	●	●	●	●
Supply Chain and Inventory Management - Emergency kit inventory and replenishment - code carts/intubation kits	●	○	○	○	○
Supply Chain and Inventory Management - emergency kit inventory and replenishment - EMS or city/region-wide ambulance kits	●	○	○	○	○
Supply Chain and Inventory Management - identify and quarantine expired, discontinued, and recalled medications and supplies	●	●	●	●	●
Supply Chain and Inventory Management - Implement storage strategies for high risk or look-alike/ sound-alike medications	●	●	●	●	●
Supply Chain and Inventory Management - manage specialty pharmacy supply chain	●	●	●	○	○

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Supply Chain and Inventory Management - package or repackage finished dosage forms into unit of use packaging (e.g., blister packs, oral syringes)	●	●	○	●	○
Supply Chain and Inventory Management - performance of physical inventories	●	●	●	●	●
Supply Chain and Inventory Management - Place medications and supplies into inventory	●	●	●	●	●
Supply Chain and Inventory Management - process patient credits/returns to inventory	●	●	●	○	●
Supply Chain and Inventory Management - stock centralized automated storage systems (e.g., robots, carousels, baker cells)	●	●	○	●	●
Supply Chain and Inventory Management - stock decentralized storage systems (e.g., automated dispensing cabinets)	●	○	○	○	○
Supply Chain and Inventory Management - storage and management of room temperature non-controlled medications	●	●	●	●	●
Supply Chain and Inventory Management - storage of frozen medications	●	●	●	●	●
Supply Chain and Inventory Management - storage of high cost and biologic medications	●	●	●	●	○
Supply Chain and Inventory Management - storage of refrigerated medications	●	●	●	●	●
Supply Chain and Inventory Management - verify medications and supplies received against purchase orders	●	●	●	●	●
Supply Chain and Inventory Management- durable medical equipment	○	●	○	○	●
TRANSPORT AND DISTRIBUTION OF MEDICATIONS					
Transport and Distribution of Medications - Deliver medications and supplies to site of patient care	●	●	●	○	○
Transport and Distribution of Medications - Deploy robotic technology to deliver medications to patient care areas	●	○	○	○	○

	Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Health-System Owned or Independent Community Pharmacy	Health-System or Corporate Owned Specialty Pharmacy	Health-System or Corporate Owned Home Infusion Pharmacy	Large Chain Community Pharmacy
Transport and Distribution of Medications - Hand off medications and supplies to patient/patient's representative	●	●	●	○	●
Transport and Distribution of Medications - package medications for shipment using postal service	○	●	●	○	○
Transport and Distribution of Medications - package refrigerated medications for local courier	●	●	●	●	●
Transport and Distribution of Medications - package room temperature medications for local courier	●	●	●	●	●
Transport and Distribution of Medications - Select delivery systems for distributing medications (i.e., robotics, pneumatic tube)	●	○	○	○	○

APPENDIX C: ASSUMPTIONS TABLE FOR PHARMACY PATIENT CARE AREAS

To facilitate the process of evaluating the complexity of job functions, competencies and skill mix required for the different sectors of pharmacy practice related to the role of pharmacy techinicians basic assumptions were made.

SECTORS	ASSUMPTIONS
Hospital/Health System (Inpatient/ Outpatient) Pharmacy	Primary function in this patient care area is to dispense to inpatients and hospital outpatients (e.g. same day surgery, infusion centers, and emergency department), half of staff trained in sterile compounding and repackaging, 1/3 trained in HD compounding, nonsterile compounding
Health-System Owned or Independent Community Pharmacy	Primary function is to dispense to outpatients, most pharmacies do non-sterile compounding and immunizations, about 75% do MTM or other clinical functions, about 25% do sterile compounding. Those owned by hospitals are often in medical office buildings or clinics.
Health-System or Corporate Owned Specialty Pharmacy	Primary function is to dispense medications categorized as “specialty medications” 50% of techs patient management; 50% medication preparation/compounding, etc.
Health-System or Corporate Owned Home Infusion Pharmacy	Almost 100% compounding, with most being sterile compounding. At least 50% of compounds may be complex (e.g., TPN, chemotherapy)
Large Chain Community Pharmacy	Primary function to dispense to outpatients, most pharmacies participate in immunizations, limited non-sterile compounding or MTM, no sterile compounding

APPENDIX D: ANNOTATED LITERATURE REVIEW

HOSPITAL AND HEALTH-SYSTEM PHARMACY TECHNICIANS

American Society of Health-System Pharmacists. ASHP statement on the roles of pharmacy technicians. Am J Health-Syst Pharm. 2016; 73:928–30

SUMMARY

Pharmacy technicians practice in a variety of settings and have diverse responsibilities, ranging from those necessitating minimum requirements for education and training, to specialized roles that require additional education, training, and demonstration of competence.

Advanced pharmacy technician roles involve, but are not limited to:

1. Advanced medication systems, including "tech-check-tech" programs
2. Purchasing or fiscal management
3. Management or supervision of other pharmacy technicians
4. Medication history assistance
5. Medication therapy management assistance
6. Quality improvement
7. Immunization assistance
8. Hazardous drug handling
9. Patient assistance programs
10. Pharmacy technician education and training
11. Community outreach
12. Drug utilization evaluation and/or adverse-drug-event monitoring
13. Industry
14. Informatics

CONCLUSION

Specialized pharmacy technicians perform activities involving greater degrees of complexity and risk beyond that of an entry-level technician.

These specialized pharmacy technicians also require additional training specific to their site and roles.

Weber E, Hepfinger C, Koontz R, et al. Pharmacy technicians supporting clinical functions. Am J HealthSyst Pharm. 2005; 62:2466–72

SUMMARY

Clinical pharmacy technicians are responsible for the majority of operational activities at this VA, resulting in >$469,000 in cost savings over a 7 year period and allowing pharmacists to spend more time on direct patient care. For these clinical pharmacy technicians to be successful, additional training is needed to achieve competency. Integration of the clinical pharmacy technician allowed the clinic to provide an elevated level of pharmaceutical care for patients.

CONCLUSION

Integration of clinical pharmacy technician services allowed pharmacists to provide patients with better care and also resulted in significant costs savings. These pharmacy technicians required additional training to perform advanced roles.

Julie B. Cooper, Pharm.D., BCPS, Michelle Lilliston, Pharm.D., BCPS, DeAnne Brooks, Pharm.D., Bruce Swords, M.D., Ph.D., Experience with a pharmacy technician medication history program, American Journal of Health-System Pharmacy, Volume 71, Issue 18, 15 September 2014, Pages 1567–1574

SUMMARY

Obtaining an accurate medication history is vital in conducting a clinically effective medication reconciliation. Pharmacy technicians have been shown to effectively document the best possible education history with additional training. This article discussed implementation of a medication history program in a 5-hospital health system. With implementation of pharmacy technician led medication history program, medication history completion reached 100%, time to completion was also reduced significantly and provider compliance with medication reconciliation at discharge rose from 25% to 89%. Pharmacy technicians required specialized training and evaluation to become proficient with established workflows.

CONCLUSION

Implementation of a pharmacy technician led medication history team improved hospital work flows, were more accurate than medication histories performed by nursing staff, and provided members of the interdisciplinary team more time for patient directed care.

William A., B.S.Pharm., M.P.H., Everett B. McAllister, B.S.Pharm., M.P.A., Janet A. Silvester, Pharm.D., M.B.A., FASHP, Peter H. Vlasses, Pharm.D., D.Sc. (Hon), FCCP, Toward uniform standards for pharmacy technicians: Summary of the 2017 Pharmacy Technician Stakeholder Consensus Conference, American Journal of Health-System Pharmacy, Volume 74, Issue 17, 1 September 2017, Pages 1321–1332, https://doi.org/10.2146/ajhp170283

SUMMARY

In 2017, a conference was held to agree on what pharmacy technicians should expect. There is an overall unawareness of the full scope of the role of pharmacy technicians which lends to the lack of uniform requirements for their practice. Uniformly trained, competent technicians will allow pharmacists more flexibility and increased time on direct patient care. The lack of educational standards for pharmacy technicians is not standard when compared to other occupations. Technician roles also vary based on their practice setting. There may be a role for basic technician training vs training for advanced roles.

CONCLUSION

Pharmacists must facilitate the advancement of Pharmacy Technicians. The profession is also obligated to assure the public of the competency of pharmacy technicians and having a standardized training program/accreditation for all pharmacy technicians with minimal variances from state to state would increase trustworthiness. National standards should guide pharmacy technician education and education programs should be accredited.

(Additional literature review in following table.)

CITATION	SUMMARY	CONCLUSION
Mattingly AN, Mattingly TJ 2nd. Advancing the role of the pharmacy technician: A systematic review. J Am Pharm Assoc (2003). 2018;58(1):94-108. https://doi.org/10.1016/j.japh.2017.10.015	A systematic review to identify literature discussing advanced roles of pharmacy technicians. Technician roles included completing medication histories, managing patient appointment and pharmacy consultations, administering patient self-report tools, billing, documentation of vaccine administration, navigating insurance, patient assistance program liaisons, and collecting clinical data needed to monitor medications.	Various advanced roles for pharmacy technicians were identified. Different training methods were also identified, including on the job training, formal technician training, and test-based certification. Benefits of advancing technician roles included cost savings, increase in revenue due to expanded clinical services, improved efficacy, improved patient adherence, and improved satisfaction with pharmacy services.
Van Gorder CM, Yost SH, Negrelli JM, Anderson SH, Chew C. Effective Decentralization of a Pharmacy Technician to Facilitate Delivery of Medications Prior to Discharge in a Community Hospital. J Pharm Technol. 2017;33(4):123-127. https://doi.org/10.1177/8755122517705398	This study examined the effects of a quality improvement project utilizing a certified pharmacy technician to process information, deliver prescriptions to patients, and charge for all discharge prescriptions prior to patients leaving the hospital. As opposed to filling discharge medications at outside pharmacies, the medications were filled using the hospital's outpatient pharmacy via a meds to bed program. This increases pharmacy prescription value and revenue. Once patients received their discharge prescriptions, the certified pharmacy technician would input orders into the outpatient system. After verification, the technician would deliver medications to the patient's bedside and process payment. They would also assist in obtaining financial assistance for patients.	Utilization of a trained pharmacy technician on the cardiovascular floor doubled prescriptions filled via the meds to beds program and decreased prescription delivery time by 28 minutes. The number of patients receiving their prescriptions prior to discharge increased by 190%. Delivery of medications to patients prior to discharge also increased efficiency of medication discharge services, as issues such as prior authorizations and dose adjustments were able to be made with providers on site.
Shannon Gadd, PharmD, Conrad E Lopez, III, PharmD, Cory A Nelson, PharmD, BCACP, Trung Q Le, CPhT, Cynthia S Valle-Oseguera, PharmD, APh, BCACP, BCGP, Nicholas Cox, PharmD, BCACP, Jenni Buu, PharmD, BCACP, Kyle Turner, PharmD, BCACP, identifying key roles of the pharmacy technician in primary care settings, American Journal of Health-System Pharmacy, Volume 79, Issue 6, 15 March 2022, Pages 460–466, https://doi.org/10.1093/ajhp/zxab391	In recent years, the pharmacist role in clinical settings has expanded into primary care. As the pharmacist role increases in the primary care setting, as does the pharmacy technician role. Use of pharmacy technicians allows pharmacists to improve efficiency and optimize patient care. This article explores practices at 2 institutions with well-established technician roles. Technicians were interviewed to identify duties performed in a typical day	Pharmacy technician roles identified included community pharmacy coordination, patient care coordination, population health, prior authorization, technician clinical assessment and patient education, community to mail-order/assist with OTC orders, administrative tasks, chart review, glucometer teaching, patient assistance, patient calls, and scheduling among other tasks
Adams AJ, Bright D, Adams J. Pharmacy technician-administered immunizations: A five-year review. J Am Pharm Assoc (2003). 2022;62(2):419-423. https://doi.org/10.1016/j.japh.2021.11.011	In 2020, under guidance of the PREP act, HHS authorized pharmacy technicians to administer immunizations under the supervision of a pharmacist to patients aged 3 and older. Prior to the pandemic, Idaho piloted a program for technician immunizations, then adopted a permanent regulation that took effect in 2017. Rhode Island and Utah soon followed with policy changes to allow for technician immunization. At the time of publication, 11 immunization administration programs existed, providing 3-6 hours in training with both a self-study component and a live component. Technician immunization authority has not seemed to impede the advancement of pharmacist immunization authority.	The rapid advancement of pharmacy technician-administered immunizations over the last 5 years is likely to ▪ lead to permanent change, although it will depend on further ▪ state action in most states. Trained pharmacy technicians have the potential ▪ to increase immunization rates and reduce the ▪ occurrence of vaccine-preventable diseases. Pharmacists still utilize their ▪ clinical judgement by evaluating the appropriateness of ▪ the immunization for the patient.

CITATION	SUMMARY	CONCLUSION
Corelli RL, Merchant KR, Hilts KE, et al. Community pharmacy technicians' engagement in the delivery of brief tobacco cessation interventions: Results of a randomized trial. Res Social Adm Pharm. 2022;18(7):3158-3163. https://doi.org/10.1016/j.sapharm.2021.09.001	Research shows that the use of pharmacists in encouraging tobacco cessation is efficacious and cost-effective. Because pharmacy technicians are the first point of contact that individuals have with pharmacies, it may be useful to have them assess patient's tobacco use as well. Tobacco cessation patient counseling training was provided to pharmacy technicians and evaluated post training. Tobacco cessation patient encounters were also recorded. Of the tobacco cessation interventions noted over the 12-week period, technicians were involved in 57% of encounters. 100% of technicians who received intensive training self-rated their ability to interact with patients about smoking cessation as good, very good, or excellent. Technicians also reported a high level of self sufficiency	With intensive training and support, pharmacy technicians can assist in public health initiatives, such as smoking cessation.
Daniel P O'Neil, PharmD, MS, Jennifer M Henderson, MSIR, CCP, SPHR, CERP, SHRM-SCP, sHRBP, Hannah R Gifford, CPP, Todd A Karpinski, PharmD, MS, FACHE, FASHP, Leeann Kaminsky, MHRM, Building a pharmacy technician structure for the future: A lesson from a multihospital academic health system, American Journal of Health-System Pharmacy, 2022;, zxac338, https://doi.org/10.1093/ajhp/zxac338	In recent times there has been increased need for pharmacy technicians in addition to focus on roles for pharmacy technicians outside of traditional functions. Additional roles include collecting medication histories, providing clinical support for pharmacists, performing medication histories, performing prior authorizations, facilitating a medication safety program, and performing "tech-check-tech".	Creating a career structure for pharmacy technicians can have a significant impact on pharmacy operations. Technicians can perform a myriad of nontraditional roles, leading to increased employee engagement, increased retention and improved recruitment, competitive salaries, and expanded opportunities for growth.
Kelly C. A. Ervin, Susan Skledar, M.P.H., Mary M. Hess, Pharm.D., Michael Ryan, Pharm.D., Data analyst technician: An innovative role for the pharmacy technician, American Journal of Health-System Pharmacy, Volume 58, Issue 19, 1 October 2001, Pages 1815–1818, https://doi.org/10.1093/ajhp/58.19.1815	This article describes utilization of a data analyst pharmacy technician. The technician's activities included reviewing charts, generating drug purchase and utilization reports, and performing benchmarking surveys. The DAT was required to be certified or pursuing certification and needed to have a basic understanding of diseases and pharmacology, familiarity with patients' charts and clinical documentation systems, and an understanding of the medication-use process. Ideal technicians had leadership skills, were able to work independently, manage their time, and prioritize their work. It was found that when pharmacists worked with the data analyst technician, there was more than a 3x increase in the number of patient assessments completed	Use of this novel technician role increased pharmacy productivity. To fulfill this role technicians needed to be certified, familiar with excel and word, and have advanced skills such as pharmacology knowledge and leadership skills
Elizabeth G Schlosser, Tara Rennekamp, Elizabeth Bald, Stephanie Jean, Hanna Raber, Agathea Bato, Leandro Llambi, Ana L Hincapie, Assessment of pharmacy technician job satisfaction and duties in ambulatory care pharmacy settings: A mixed-methods analysis, American Journal of Health-System Pharmacy, Volume 80, Issue 3, 1 February 2023, Pages 137–147, https://doi.org/10.1093/ajhp/zxac297	Expansion of pharmacy services into ambulatory care has prompted the integration of pharmacy technicians into this setting. Many models exist for technician practice in ambulatory care, and job satisfaction in these settings needs evaluation. This study assessed the job satisfaction of ambulatory care pharmacy technicians, obtained a deeper understanding of their varied roles, and examined commitment to the pharmacy technician career and their employing organization.	Ambulatory care pharmacy technicians are highly satisfied with their positions and careers. Although technician roles vary within ambulatory care settings, the majority involve facilitating medication access in various ways. As these positions become more prevalent in pharmacy practice, it will be important to continue to capitalize on satisfiers and mitigate dissatisfiers to advance the profession and ultimately provide optimal patient care.

CITATION	SUMMARY	CONCLUSION
Caroline G Borden, Erin M Ashe, Pablo Buitron de la Vega, Vi Gast, Tracey Saint-Phard, Julianna Brody-Fialkin, Julia Power, Na Wang, Karen E Lasser, A novel pharmacy liaison program to address health-related social needs at an urban safety-net hospital, American Journal of Health-System Pharmacy, Volume 80, Issue 16, 15 August 2023, Pages 1071–1081, https://doi.org/10.1093/ajhp/zxad113	Patients with unmet health-related social needs (HRSNs) often experience poor health outcomes and have high levels of healthcare utilization. We describe a program where dually trained pharmacy liaison–patient navigators (PL-PNs) screen for and address HRSNs while providing medication management services to patients with high levels of acute care utilization in a Medicaid Accountable Care Organization. We are unaware of prior studies that have described this PL-PN role.	Integration of pharmacy medication adherence and patient navigation services is a promising approach to streamline the HRSN screening and referral process at an urban safety-net hospital.

APPENDIX E: ASHP / ACPE ACCREDITATION STANDARDS FOR PHARMACY TECHNICIAN EDUCATION AND TRAINING PROGRAM

ASHP / ACPE ACCREDITATION STANDARDS FOR PHARMACY TECHNICIAN EDUCATION AND TRAINING PROGRAMS

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Table of Contents

PREAMBLE

These Standards are developed to:

- protect the public by ensuring the availability of a competent workforce;
- describe pharmacy technician education and training program development at the Entry-level and Advanced-level;
- provide criteria for the evaluation of new and established education and training programs; and
- promote continuous improvement of established education and training programs.

The ASHP/ACPE Standards for Pharmacy Technician Education and Training (Standards) were developed with input from a broad range of constituents interested in or affected by pharmacy technician education and training. The intent is to establish a national standard for the preparation of the pharmacy technician workforce. The Standards focus on the competency expectations required of pharmacy technicians completing training programs and the assessment of those competencies by the program. The Standards also address the structural and process-related elements within training programs necessary to implement evidence-based outcome measures that document achievement of the Standards. ASHP/ACPE expects pharmacy technician education and training programs to be in compliance with all elements outlined in the Standards.

ASHP (American Society of Health-System Pharmacists) has been accrediting pharmacy residencies since 1963 and pharmacy technician education and training programs since 1983 (www.ashp.org). The Accreditation Council for Pharmacy Education (ACPE) was established in 1932 for the accreditation of professional degree programs in pharmacy, and in 1975, its scope was broadened to include accreditation of providers of continuing pharmacy education (www.acpe-accredit.org). In 2014, a collaboration was formed between ASHP and ACPE with the goal of working together in the accreditation of pharmacy technician education and training programs.

Pharmacy Technician Accreditation Commission (PTAC)

The Pharmacy Technician Accreditation Commission (PTAC) is a collaboration between ASHP and ACPE to promote, assure, and advance the quality of pharmacy technician education and training programs in the United States. The responsibilities of the PTAC include recommending changes to the accreditation Standards, surveying programs for accreditation, modifying the Standards and regulations, and making recommendations for accreditation of programs to the ASHP and ACPE Boards of Directors. The ASHP

and ACPE Boards of Directors ratify the recommendations made by the PTAC and have the final vote for accreditation of programs and other work performed by the PTAC.

Revision of Standards: Summary of Changes

- Entry-level and Advanced-level pharmacy technician education and training standards have replaced the previous concept of one level of pharmacy technician education and training.
- Programs can choose to offer an Entry-level, an Advanced-level, or a combination of Entry-level and Advanced-level pharmacy technician education and training programs.
- All students need to complete an Entry-level program to pursue Advanced-level education and training or can complete a program that prepares for both levels as a continuous program.
- Standards have been reorganized into three sections with the competency expectations being moved to the forefront.
- The Standards have been restructured into 15 standards with key elements of each standard that need to be met.
- For some of the Standards, the key elements are broken into Entry-level and Advanced-level.
- These Standards no longer include the words “must” and “should”. The Standards are declarative statements of expectation.
- Minimum hour requirements have been edited to reflect education and training needs for Entry-level and Advanced-level competencies.
- More emphasis on collaborative behaviors and workflow with pharmacist and health care staff.

SECTION I: COMPETENCY EXPECTATIONS

The education and training program develops the competencies that reflect current and future pharmacy technician functions and responsibilities at the Entry-level and the Advanced-level.

To educate at the Advanced-level, the education and training program will prepare students to achieve both Entry-level and Advanced-level knowledge, skills, behaviors, and abilities.

The program prepares students for practice as Entry-level pharmacy technicians in a variety of contemporary settings (e.g., community, hospital, home care, long-term care) and has students acquire knowledge, skills, behaviors, and abilities needed for such practice.

The program prepares students for practice as Advanced-level pharmacy technicians, in a broad range of advanced roles in a variety of contemporary settings (e.g., community, hospital, home care, long-term care) and has students acquire additional knowledge, skills, behaviors, and abilities beyond those of the Entry-level pharmacy technician, needed for such advanced practice.

<u>Standard 1:</u> Personal/Interpersonal Knowledge and Skills

Key Elements for Entry-level:

1.1 Demonstrate ethical conduct.

1.2 Present an image appropriate for the profession of pharmacy in appearance and behavior.

1.3 Demonstrate active and engaged listening skills.

1.4 Communicate clearly and effectively, both verbally and in writing.

1.5 Demonstrate a respectful and professional attitude when interacting with diverse patient populations, colleagues, and professionals.

1.6 Apply self-management skills, including time, stress, and change management.

1.7 Apply interpersonal skills, including negotiation skills, conflict resolution, customer service, and teamwork.

1.8 Demonstrate problem solving skills.

Additional Key Elements for Advanced-level

1.9 Demonstrate capability to manage or supervise pharmacy technicians in matters such as conflict resolution, teamwork, and customer service.

1.10 Apply critical thinking skills, creativity, and innovation.

1.11 Apply supervisory skills related to human resource policies and procedures.

1.12 Demonstrate the ability to effectively and professionally communicate with other healthcare professionals, payors and other individuals necessary to serve the needs of patients and practice.

Standard 2: Foundational Professional Knowledge and Skills

Key Elements for Entry-level

2.1 Explain the importance of maintaining competency through continuing education and continuing professional development.

2.2 Demonstrate ability to maintain confidentiality of patient information, and understand applicable state and federal laws.

2.3 Describe the pharmacy technician's role, pharmacist's role, and other occupations in the healthcare environment.

2.4 Describe wellness promotion and disease prevention concepts.

2.5 Demonstrate basic knowledge of anatomy, physiology and pharmacology, and medical terminology relevant to the pharmacy technician's role.

2.6 Perform mathematical calculations essential to the duties of pharmacy technicians in a variety of settings.

2.7 Explain the pharmacy technician's role in the medication-use process.

2.8 Practice and adhere to effective infection control procedures.

Additional Key Elements for Advanced-level

2.9 Describe investigational drug process, medications being used in off-label indications, and emerging drug therapies.

2.10 Describe further knowledge and skills required for achieving advanced competencies.

2.11 Support wellness promotion and disease prevention programs.

Standard 3: Processing and Handling of Medications and Medication Orders

Key Elements for Entry-level:

3.1 Assist pharmacists in collecting, organizing, and recording demographic and clinical information for the Pharmacist Patient Care Process.

3.2 Receive, process, and prepare prescriptions/medication orders for completeness, accuracy, and authenticity to ensure safety.

3.3 Assist pharmacists in the identification of patients who desire/require counseling to optimize the use of medications, equipment, and devices.

3.4 Prepare patient-specific medications for distribution.

3.5 Prepare non-patient-specific medications for distribution.

3.6 Assist pharmacists in preparing, storing, and distributing medication products including those requiring special handling and documentation.

3.7 Assist pharmacists in the monitoring of medication therapy.

3.8 Maintain pharmacy facilities and equipment.

3.9 Use information from Safety Data Sheets (SDS), National Institute of Occupational Safety and Health (NIOSH) Hazardous Drug List, and the United States Pharmacopeia (USP) to identify, handle, dispense, and safely dispose of hazardous medications and materials.

3.10 Describe Food and Drug Administration product tracking, tracing and handling requirements.

3.11 Apply quality assurance practices to pharmaceuticals, durable and non-durable medical equipment, devices, and supplies.

3.12 Explain procedures and communication channels to use in the event of a product recall or shortage, a medication error, or identification of another problem.

3.13 Use current technology to ensure the safety and accuracy of medication dispensing.

3.14 Collect payment for medications, pharmacy services, and devices.

3.15 Describe basic concepts related to preparation for sterile and non-sterile compounding.

3.16 Prepare simple non-sterile medications per applicable USP chapters (e.g., reconstitution, basic ointments and creams).

3.17 Assist pharmacists in preparing medications requiring compounding of non-sterile products.

3.18 Explain accepted procedures in purchasing pharmaceuticals, devices, and supplies.

3.19 Explain accepted procedures in inventory control of medications, equipment, and devices.

3.20 Explain accepted procedures utilized in identifying and disposing of expired medications.

3.21 Explain accepted procedures in delivery and documentation of immunizations.

3.22 Prepare, store, and deliver medication products requiring special handling and documentation.

Additional Key elements for Advanced-level

3.23 Prepare compounded sterile preparations per applicable, current USP Chapters.

3.24 Prepare medications requiring moderate and high level non-sterile compounding as defined by USP (e.g., suppositories, tablets, complex creams).

3.25 Prepare or simulate chemotherapy/hazardous drug preparations per applicable, current USP Chapters.

3.26 Initiate, verify, and manage the adjudication of billing for complex and/or specialized pharmacy services and goods.

3.27 Apply accepted procedures in purchasing pharmaceuticals, devices, and supplies.

3.28 Apply accepted procedures in inventory control of medications, equipment, and devices.

3.29 Process, handle, and demonstrate administration techniques and document administration of immunizations and other injectable medications.

3.30 Apply the appropriate medication use process to investigational drugs, medications being used in off-label indications, and emerging drug therapies as required.

3.31 Manage drug product inventory stored in equipment or devices used to ensure the safety and accuracy of medication dispensing.

Standard 4: Patient Care, Quality and Safety Knowledge and Skills

Key Elements for Entry-level

4.1 Explain the Pharmacists' Patient Care Process and describe the role of the pharmacy technician in the patient care process.

4.2 Apply patient- and medication-safety practices in aspects of the pharmacy technician's roles.

4.3 Explain how pharmacy technicians assist pharmacists in responding to emergent patient situations, safely and legally.

4.4 Explain basic safety and emergency preparedness procedures applicable to pharmacy services.

4.5 Assist pharmacist in the medication reconciliation process.

4.6 Explain point of care testing.

4.7 Explain pharmacist and pharmacy technician roles in medication management services.

4.8 Describe best practices regarding quality assurance measures according to leading quality organizations.

Additional Key Elements for Advanced-level

4.9 Verify measurements, preparation, and/or packaging of medications produced by other healthcare professionals.

4.10 Perform point-of-care testing to assist pharmacist in assessing patient's clinical status.

4.11 Participate in the operations of medication management services.

4.12 Participate in technical and operational activities to support the Pharmacists' Patient Care Process as assigned.

4.13 Obtain certification as a Basic Life Support Healthcare Provider.

Standard 5: Regulatory and Compliance Knowledge and Skills

Key Elements for Entry-level

5.1 Describe and apply state and federal laws pertaining to processing, handling and dispensing of medications including controlled substances.

5.2 Describe state and federal laws and regulations pertaining to pharmacy technicians.

5.3 Explain that differences exist between states regarding state regulations, pertaining to pharmacy technicians, and the processing, handling and dispensing of medications.

5.4 Describe the process and responsibilities required to obtain and maintain registration and/or licensure to work as a pharmacy technician.

5.5 Describe pharmacy compliance with professional standards and relevant legal, regulatory, formulary, contractual, and safety requirements.

5.6 Describe Occupational Safety and Health Administration (OSHA), National Institute of Occupational Safety and Health (NIOSH), and United States Pharmacopeia (USP) requirements for prevention and treatment of exposure to hazardous substances (e.g., risk assessment, personal protective equipment, eyewash, spill kit).

5.7 Describe OSHA requirements for prevention and response to blood-borne pathogen exposure (e.g., accidental needle stick, post-exposure prophylaxis).

5.8 Describe OSHA Hazard Communication Standard (i.e., "Employee Right to Know").

Additional Key Elements for Advanced-level

5.9 Participate in pharmacy compliance with professional standards and relevant legal, regulatory, formulary, contractual, and safety requirements.

5.10 Describe major trends, issues, goals, and initiatives taking place in the pharmacy profession.

SECTION II: STRUCTURE AND PROCESS TO PROMOTE ACHIEVEMENT OF COMPETENCY EXPECTATIONS

The following Standards and key elements, unless otherwise designated, apply to both Entry-level and Advanced-level programs.

Standard 6: Authority and Responsibility provided to Program Director

6.1 The program director is accountable for the overall quality of the program. He/she has considerable latitude in delegating instructors' and preceptors of records' responsibilities.

6.2 The program director:

- (a) is a licensed pharmacist or a nationally certified pharmacy technician;
- (b) has at least five years of experience as a pharmacist or pharmacy technician in pharmacy practice prior to entering the position;
- (c) adheres to the state's regulations for licensure or registration in the practice of pharmacy; and
- (d) demonstrates on-going continuing education in the field of pharmacy and/or education.

6.3. If the program director is a pharmacy technician, he/she:

- (a) has graduated from an ASHP/ACPE-accredited pharmacy technician training program; or
- (b) possesses or is actively pursuing, with a written plan for achieving, at least an Associate's Degree; or
- (c) has an appropriate state teaching credential.

6.4. To stay current with professional issues, the program director is a member of a national pharmacy or education association and a state pharmacy association. He/she ensures that memberships in pharmacy and education associations are represented among the program faculty members.

6.5. The program director ensures that there is a sufficient complement of appropriate program faculty and staff to meet the needs of the program and to enable compliance with the Standards.

6.6. In the simulated portion of the program, the program director takes necessary precautions to ensure an effective and safe level of direct supervision of students.

6.7. Maintains records required in the Standards for at least three years or the time period specified by the institution's policy.

6.8. For the experiential component of the program, the program director or a qualified pharmacy technician instructor:

(a) selects adequate and appropriate experiential sites;

(b) documents that each experiential site has proper licensing;

(c) determines that students will have the opportunity to practice a sufficiently wide range of activities in order to achieve the desired knowledge, skills, and abilities;

(d) reviews experiential training sites within the 12-month period prior to students being assigned/active in a site;

(e) ensures that affiliation agreements for all sites are completed and current; and

(f) ensures that the preceptor of record has received instruction regarding the requirements of the program and the responsibilities of the site.

6.9. The program director ensures that students' achievement of educational objectives is evaluated appropriately, to include their knowledge, skills, and abilities leading to Entry-level or Advanced-level pharmacy technician job competencies.

<u>Standard 7:</u> Strategic Plan

7.1 The program develops a strategic plan that is reviewed annually and revised every three years.

7.2 The plan:

(a) reflects the role of the program within the community;

(b) includes short-term and long-term program goals;

(c) has specific measurable objectives;

(d) has strategies for achieving the goals and objectives of the strategic plans;

(e) has a schedule for analyzing and evaluating the plan and progress on the plan; and

(f) addresses program outcomes. (See section 14.2)

<u>Standard 8:</u> Advisory Committee

An advisory committee, comprised of a broad-based group of pharmacists, faculty, pharmacy

technicians, and others as deemed appropriate, is established and meets at least twice a year. The advisory committee has specific authority for approving:

8.1 the curriculum;

8.2 experiential training sites;

8.3 criteria for admission and dismissal;

8.4 criteria for successful completion of the program; and

8.5 the training program's strategic plan.

<u>Standard 9:</u> Curricular Length

Students are required to complete the number of hours for each component to graduate.

Key Elements for Entry-level

9.1 The training schedule consists of a minimum of 400 hours total, of health-related education and training, extending over a period of at least 8 weeks.

9.2 The period of training includes the following educational modalities: Didactic; Simulated; and Experiential.

9.3 The minimum number of hours for each component is as follows: Didactic – 120 hours; Simulated – 50 hours; Experiential – 130 hours (total of 300 hours); plus 100 additional hours, to obtain the minimum of 400 hours of training total. The additional 100 hours may be allocated to the three educational modalities listed above, based on the discretion of the program director and faculty.

9.4 Programs document their method of time calculation and the attribution of hours of academic instruction within all instructional components for the program.

Key Elements for Advanced-level

9.5 The training schedule consists of a minimum of 600 hours total, of health-related education and training, extending over a period of at least 15 weeks (at least 7 additional weeks beyond Entry-level requirements).

9.6 The minimum number of hours for each component is as follows: Didactic – 160 hours (40 additional hours beyond Entry-level requirements); Simulated – 100 hours (50 additional hours beyond Entry-level requirements); and Experiential – 200 hours (70 additional hours beyond Entry-level requirements); plus 140 additional hours beyond Entry-level requirements, to equal a minimum of 600 hours training total. The

additional 140 hours may be allocated to the three educational modalities listed above, based on the discretion of the program director and faculty.

Standard 10: Curricular Composition and Delivery

10.1 The didactic component provides a foundation that prepares students for the simulated and experiential components.

10.2 The simulated component:

(a) is a hands-on practice of skills without impact, or potential for impact, on patients and occurs before the experiential component;

(b) includes sufficient equipment and supplies for each student to realistically simulate an actual work environment and achieve the program's educational competencies;

(c) while each skill may be taught in isolation, by the end of the simulated component, students will be able to perform each skill in a sequential manner the way the skill is performed in an actual pharmacy setting; and

(d) prepare students for the experiential component.

10.3.a Students in an **Entry-level program** complete at least one experiential rotation in a dispensing pharmacy setting where the student will utilize skills learned during their Entry-level curriculum.

10.3.b Students in an **Advanced-level program** complete at least one additional experiential rotation, in addition to any completed during an Entry-level program. This advanced experiential rotation takes place in a facility where the student will utilize skills learned during the Advanced-level curriculum.

10.4 Experiential training sites are recognized by an organization(s) appropriate to the practice setting (e.g., licensed by the State Board of Pharmacy).

10.5 The sequence of activities to transition from simulated to experiential is:

(a) observation (student observes expert performing task);

(b) simulation (including observation, feedback, and evaluation by an expert); and

(c) experiential performance under supervision.

10.6 The preceptor of record:

(a) is a person who works at the experiential site and coordinates or oversees students' activities;

(b) has at least two years of experience in the type of pharmacy setting for which they are training students;

(c) is a certified pharmacy technician or licensed pharmacist; and

(d) acts as a liaison between the site and the program director to ensure that the student receives the intended educational experience and is evaluated effectively.

(e) ensures that only qualified pharmacy personnel are assigned to train students.

(f) ensures that required documentation (e.g., academic and professional record, student time sheets, evaluations) is submitted to the program in a timely fashion.

The following apply to programs using distance learning

10.7 Distance learning programs comply with all Key Elements of Standard 10.

10.8 Program directors and faculty make appropriate and effective use of technology to teach specified objectives. The technology is made readily accessible by students, including, but not limited to, reasonable accommodations for unexpected technology outages.

10.9 The program verifies that a student who registered for distance education or is participating in program-related off-campus activities is the same student attending the clinical experiential portion of the program, receiving credit, and graduating.

10.10 The technology ensures engagement and assessment of skill understanding throughout the course and provides procedures for response to student questions in a timely manner.

<u>Standard 11:</u> Student Recruitment, Acceptance, Enrollment, and Representation

11.1 A policy and process is documented and provided to student recruitment personnel (staff who enroll prospective students, such as telephone marketers, enrollment advisors, and admissions representatives), that includes guidance to them as follows:

(a) prior to the application process, providing prospective applicants complete and accurate information on the total student financial obligation they will incur by participating in the program;

(b) prior to enrollment, providing students complete and accurate information about financing options and answering any questions; and

(c) prior to enrollment, informing students that illicit drug use, criminal background checks, and immunization status may prevent future employment as a pharmacy technician, and that externship sites, employers, and State Boards of Pharmacy have regulations about drug use, criminal backgrounds, and immunization status.

11.2 The organization establishes qualifications that the applicants possess to ensure that they are reasonably likely to be able to achieve the educational goals and objectives of the program.

11.3 The organization determines with reasonable certainty, prior to acceptance of the applicant, that the applicant has proper qualifications to enroll. At a minimum, the student:

(a) attends high school, possesses a high school equivalency certificate, or is a high school graduate;

(b) has demonstrated English language proficiency (including reading, writing, and speaking), except in cases where the native language of the country or territory in which the program is taking place is different (e.g., Puerto Rico);

(c) has demonstrated math proficiency sufficient to fulfill the requirements of pharmacy technician job responsibilities;

(d) meets the minimum age requirements that are based on states requirements for employment of pharmacy technicians; and

(e) obtained a certificate to illustrate that the student has obtained training in an ASHP/ACPE accredited program (for Advanced-level admissions).

11.4 The program has a documented process to assess applicants' background pertaining to any illicit drug use and criminal background. This information is used to make appropriate decisions regarding continuation in a program.

11.5 Reasonable accommodations are made for students and applicants with disabilities who request accommodation.

11.6 The organization provides applicants, prior to enrollment, with information about:

(a) qualifications to enroll;

(b) the purpose of the training program;

(c) requirements for state registration or licensure as a pharmacy technician;

(d) requirements for obtaining and maintaining national pharmacy technician certification;

(e) programmatic and institutional accreditation status;

(f) prospects for employment;

(g) realistic salary expectations or referral to local, state, or national statistics for salary expectations;

(h) total program cost;

(i) the program's dismissal policy including academic and non-academic criteria, including, but not limited to the organizations Student Code of Conduct; and

(j) graduate performance on national exams posted on public-facing materials and websites.

11.7 The program director ensures that a process for determining requirements and conditions for graduation is documented and implemented.

11.8 The following applies to distance programs:

(a) the program provides information regarding applicants' technology requirements for the program.

Standard 12: Faculty/Instructors

12.1 Faculty/instructors have demonstrated expertise with at least three years of experience, and current knowledge in the areas in which they are instructing.

12.2 Faculty members/instructors adhere to state regulations for licensure or registration to practice as a pharmacist or pharmacy technician.

12.3 Faculty/instructors that are pharmacy technicians maintain national certification.

12.4 Faculty members, including the program director, instructors, and preceptors are evaluated regularly:

(a) using a process that is defined and implemented;

(b) incorporate feedback from students and graduates; and

(c) information gained from evaluations for continuous improvement is analyzed, defined, and implemented.

Standard 13: Documentation

Records related to the following are maintained and stored for three years (if the program has been in existence for at least three years) or the time period specified in institutional policy.

13.1 Qualifications of the program director and instructors.

13.2 Training activities that delineate the scope and period of training.

13.3 Activities performed in the didactic, simulated, and experiential segments of the program.

13.4 Reviews experiential training sites within the 12-month period prior to students being assigned/active in a site, experiential training site pharmacy services, and the onsite preceptor of record.

13.5 Programs recognize only those pharmacy technicians who have successfully completed the pharmacy technician training program by awarding an appropriate certificate or diploma.

13.6 The certificate is signed by the program director and a superior of the program director of the institution.

13.7 The certificate contains the name of the organization, program name and location, student name, completion date, and confirmation that the program is ASHP/ACPE-accredited or in ASHP/ACPE candidate status, and if the program is an “Entry-level” or “Advanced-Level”.

13.8 The organization shall maintain a list of all graduates from their program (beyond the minimum of the three year period).

SECTION III: ASSESSMENTS OF STANDARDS AND KEY ELEMENTS

Standard 14: Assessment of Competency Expectations

The program's staff conducts regular, ongoing, formative, and summative assessments of student competencies and program effectiveness that are used in the continuous quality improvement process.

14.1 Student Learning Assessments:

- (a) Criteria-based assessment of students' competencies occurs in each component of the program (didactic, simulated, and experiential).
- (b) The final phase of the simulated component of the program includes observation, feedback, and evaluation by an instructor/faculty member.
- (c) The program director ensures that student evaluation is ongoing, systematic, and assesses students' progress toward meeting the requirements for graduation.
- (d) Students receive frequent criteria-based feedback on their performance that enables them to identify strengths and weaknesses and gives them direction on how to improve.
- (e) Evaluations are documented and kept on file.
- (f) Assessment data used in the continuous quality improvement process is actively maintained.

14.2 Program assessments include, but are not limited to:

- (a) program completion;
- (b) performance on national certification examinations or performance on a psychometrically valid evaluation;
- (c) program satisfaction, including student, graduate, and employer satisfaction;
- (d) job placement; and
- (e) assessment data used in the continuous quality improvement process is actively maintained.

Standard 15: Assessments of Structure and Process

15.1 The program develops resources and implements a plan to assess attainment of standards 6-13.

15.2 Documentation of use of assessment data in the continuous quality improvement process is maintained.

15.3 If permitted by the program, policies and procedures are developed and implemented for transfer credit and course waivers.

Approved by the ASHP Board of Directors on June 2, 2018 and the Accreditation Council for Pharmacy Education Board of Directors on June 23, 2018. Developed by the Pharmacy Technician Accreditation Commission. This version supersedes the ASHP/ACPE Accreditation Standards for Pharmacy Technician Education and Training Programs, approved November 7, 2015 and will be effective January 1, 2019.

APPENDIX F: HOSPITAL AND HEALTH-SYSTEM COMPARISON OF TECHNICAL ROLES EDUCATION, CERTIFICATION, REGISTRATION, AND EXPERIENCE REQUIRED FOR EMPLOYMENT

	Radiology Technicians[1]	OR Surgical Technicians[2]	Phlebotomists[3]	Laboratory Technicians[4, 5]	Anesthesia Technicians[6]	Nuclear Medicine Technologists[7]	Medical Assistants[8]	Health-System Pharmacy Technicians[9, 10]
Higher Education	Associates degree preferred	Completion of accredited surgical tech program required	Completion of an accredited training course preferred	Not required Associates or bachelor's degree preferred	Not required	Completion of a nuclear medicine program required	Completion of a medical assistant program preferred	Completion of an accredited training course option
Certification	American Registry of Radiologic Technology (ARRT) certification required	Certified Surgical Technologist (CST) Certification preferred	Phlebotomy Technician Certification (PBT-ASCP) preferred	Medical Laboratory Technician (MLT-ASCP) preferred	Anesthesia technician (Cer.A.T) was retired	Nuclear Medicine Technologist Certification (NMTCB) OR ARRT certification required	Certified Medical Assistant preferred	Certified Pharmacy Technician (CPhT) preferred Exam for the Certification of Pharmacy Technicians (ExCPT) preferred
Registration or Licensure	Radiology Technologist state license required	Varies by state. CO, ND, and WA require registration	Varies by state. LA, NV, WA require licensure. CA requires certification	Varies by state. CA, FL, HI, LA, MT, NV, NY, ND, RI, and TN require licensure	Not required	Varies by state. At least 30 states require licensure	Not required	Varies by state. Some require licensure, some require registration, some require neither
Experience	Not required	1 year experience preferred	6 months experience preferred	Not required	6 months of healthcare experience preferred	Not required	6 months experience preferred	Not required, experience preferred

REFERENCES:

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3. Which States Require Phlebotomy Certification | NPCE
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5. ascp-pdft-pp-state-lic-lab.pdf
6. Anesthesia Technician & Technologist Certification (ASATT) (medicaltechnologyschools.com)
7. How to Become a Nuclear Medicine Technologist (NMT) (medicaltechnologyschools.com)
8. Medical Assistant Certification Requirements – Medical Assistant NET

9. ASHP Statement on the Roles of Pharmacy Technicians | American Journal of Health-System Pharmacy | Oxford Academic (oup.com)
10. ASHP/ACPE Pharmacy Technician Program Accreditation

OTHER HELPFUL SOURCES:

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2. ASHP Statement on the Roles of Pharmacy Technicians | American Journal of Health-System Pharmacy | Oxford Academic (oup.com)
3. final_report_pharmacy_technician_workforce_survey.pdf (aacp.org)
4. White paper on pharmacy technicians 2002: Needed changes can no longer wait (AJHP)
5. A Vision of Pharmacy's Future Roles, Responsibilities, and Manpower Needs in the United States (wiley.com)
6. Survey of Certified Pharmacy Technicians in the United States: A Quality-of-Worklife Study - Journal of the American Pharmacists Association (japha.org)

APPENDIX G: PHARMACY TECHNICIAN EDUCATION AND CERTIFICATION

Pharmacy Technician Education and Certification Programs and Standards
PROVIDER OF PHARMACY TECHNICIAN CE
▪ The Pharmacy Technician Society® (TPTS) – PharmacyTechCE ▪ American Association of Pharmacy Technicians ▪ American Pharmacists Association ▪ Various State Pharmacist/Pharmacy Associations ▪ Various Online Continuing Education Materials (e.g., PowerPak CE)
COMPETENCY PROGRAMS
▪ ASHP Pharmacy Competency Assessment Center (PCAC)
CERTIFICATE PROGRAMS
▪ ASHP Professional Certificates℠ (e.g. ASHP Practical Training in Compounding Sterile Preparations Certificate) ▪ PTCB Certificate Programs ▪ NABP Certificate programs ▪ ASHP CE Portfolio ▪ Compounding certificates available from various schools and colleges of pharmacy (e.g., Virginia Commonwealth University)
CERTIFICATION PROGRAMS
▪ National Healthcareer Association (CPhT) ▪ PTCB Certification (CPhT) ▪ PTCB Certified Compounded Sterile Preparation Technician (CSPT) ▪ PTCB's Advanced Certified Pharmacy Technician (CPhT-Adv)
TRAINING PROGRAMS
▪ PharmTech Ready® ▪ Various Commercial and College Based Training Programs ▪ Various Department of Education High School Based Training Programs
PHARMACY TECHNICIAN ACCREDITED TRAINING PROGRAM AND STANDARDS
▪ ASHP/ACPE Accreditation Standards For Pharmacy Technician Education and Training Programs

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