2015 National Pharmacy Technician Workforce Study
Sponsored by:
Pharmacy Technician Accreditation Commission (PTAC), Pharmacy Technician Certification Board (PTCB), and Pharmacy Workforce Center (PWC)

by:

Shane P. Desselle and Erin R. Holmes
Applied Pharmacy Solutions
Touro University California College of Pharmacy
University of Mississippi School of Pharmacy

Executive Summary

As the pharmacy profession continues to evolve and become even more integrated into multidisciplinary health teams delivering value-added services in accountable care organizations or medical homes, there is a growing realization that a necessary component in doing so is the elevation of pharmacy technician practice. Research on pharmacy technicians began more in earnest approximately a decade ago, with initial studies of pharmacists examining their willingness to delegate various tasks to technicians and other support personnel. The authors of the current report began a stream of research related to pharmacy technicians, which included job-related quality of life issues; technician self-ascribed needs for further training, education, and specialty certification; the putative benefits of technician certification; their preferred modes of instruction; and factors leading to medication preparation errors by technicians. Other research of late has begun to examine technicians' roles in quality assurance and systems re-engineering processes. Still, much is not known about technicians' work environment and the link between environment, responsibilities, training, and commitment.

The purpose of this study was to examine the distribution of U.S. certified pharmacy technicians (CPhTs) by setting; determine primary methods of training for work as a CPhT and the emphasis placed on those activities by technicians and as perceived by their employers; identify CPhTs' current thinking about ensuing career moves; identify levels of stress and job satisfaction; and determine the contribution of various sources of those quality of work life variables.

The investigators conducted a questionnaire survey built upon a foundation established by the study sponsors. The survey was guided by in-depth, semi-structured interviews of technicians carried out within an organizational culture lens. A second convenience sample piloted the survey. Calculations of needed sample size provided evidence that the piloted survey be distributed to a sample of 5,000 certified pharmacy technicians (CPhTs) acquired from PTCB. A previously recommended approach was used to maximize survey participation. Of 702 responses, 516 were currently employed as a technician and thus utilized in the survey analysis.

The qualitative interviews produced their own set of results. Themes uncovered were career impetus, job responsibilities, quality of work life, and equitable partnership. Career impetus revolved around CPhTs' inclination toward their profession, with many being drawn by a desire to help people and a number of them being recruited by persons in their social or professional network. Within the job responsibilities theme, technicians emphasized their roles as the "public face" of pharmacy, even while assuming the brunt of paperwork and management of subsystems. The quality of work life issues theme saw technicians expressing frustration with "unnecessary hurdles" in conducting their jobs as well as being short-staffed and some peers not carrying their weight. The theme of equitable partnership clearly defined extrinsic and intrinsic motivators, with rate of pay serving a "dual role". CPhTs relayed satisfaction with much of their job, but felt that some employers view them as being highly replaceable.

The 516 respondents from whom results were tallied were mostly practicing full-time, female, with a mean age of just over 40 years and just over 11 years of work experience as a pharmacy technician. The most common factors for entering the profession included general interest in a health career and a desire to help people, although personal recommendations were also important. Most commonly cited methods of training were on the job training (OJT) and self-guided training, while most helpful was previous work as a technician and formal training at a vocational program. Community pharmacy CPhTs were most involved in filling prescriptions, collecting patient information, and receiving prescriptions. Hospital CPhTs were primarily involved in restocking medications, compounding sterile products, and replenishing unit-dose carts.

CPhTs reported rather high job satisfaction, with greatest content from pharmacist-coworkers and work schedule, and least from pay and opportunity for advancement. They reported mild to moderate stress, with highest stressors of having to work while being short-staffed and other employees not doing their share of work. They reported modest to strong levels of career commitment, with most planning to stay at least 10 years in the profession. Employer commitment was still strong though not as strong as career commitment, with plans to remain, yet leaving room unforeseen opportunities.

Practice setting was associated with various measures of quality of work life, with generally higher levels of stress seen at large chain and at nongovernment health systems. Employer commitment was correlated with job satisfaction and inversely correlated with stress. Females reported higher employer and career commitment, as did those working more hours per week. Those who became a technician through a recommendation or those seeking a fulfilling career reported higher levels of career commitment. Those who reported that their training was helpful reported high levels of job satisfaction.

Respondents from the West exhibited stronger employer commitment, which might be due to their being involved in more aspects of practice. In community pharmacy, there was a correlation between patient counseling involvement and stress, and those highly involved in receiving prescriptions were less likely to report career commitment. Among hospital CPhTs, there was significant association between stress and preparing chemotherapeutic agents, and there were positive correlations between career commitment and involvement with managing various subsystems, further evidencing technicians' desires for inclusion in emerging, or higher-order activities.

<u>Background</u>

Recent years have seen heightened appreciation for the roles played by pharmacy support staff in the delivery of pharmacy care. The profession has been for the better parts of 3 decades or longer discussing a transition, or at least an evolution in care afforded to patients by pharmacists. Carrying different names such as drug use control, clinical pharmacy, pharmaceutical care, and medication therapy management, there has been progress in this evolution, albeit probably not as quickly or as ubiquitously embraced as first hoped or hypothesized.

Considerable literature has been afforded to proffering mechanisms to promote pharmacists' roles in delivering medication therapy management and eventually shift the practice paradigm even further. These have involved a range of topics, from pharmacists' readiness;[1] need for leadership, entrepreneurship, and innovation;[2] organizational culture issues in identifying social contexts that facilitate or inhibit practice change;[3-5] pharmacists' cultural competency and recognition of patient health illiteracy and health care disparities;[6-12] role congruence and expectations between pharmacists and patients;[13] logistics issues, such as need for privacy space and reconfiguration of dispensing areas to foster the likelihood of pharmacist-patient communication;[14] financial considerations involving the lack of economic incentive for pharmacists to dedicate much time and energy to delivering cognitive services;[15] and scope of practice regulations at Federal and State levels that constrain or encourage advanced practice.[16] Some strides have been made in each of these areas, most notably State legislation enhancing pharmacists' scope of services, in addition to bills at the Federal level that would incent even further practice change particularly in light of physician shortages.[17] Progress also has been made on other fronts, with recent redesign of workflow areas by leading pharmacy chains and health systems, as well as advances in information technology and robotics that obviate some of the more mundane, perfunctory tasks in the medication distribution process.[18-19]

The realization of the need for active roles taken by pharmacy support staff has dawned. Pharmacist practice is more likely to evolve when they can delegate current tasks to pharmacy technicians with greater confidence. Even for those responsibilities already delegated to and handled by support personnel, there is growing recognition that it takes the proper mix of high-level attitudes, skills, and behaviors for optimal performance.[20] Pharmacy support personnel have for quite some time been the persons with whom patients in the community setting interact most frequently, and thus might form their satisfaction, attitudes, loyalty decisions, and even medication adherence intentions based upon interactions with these support personnel.[21] In acute care settings, support personnel, particularly technicians, handle compounding of sterile and non-sterile products, inventory management, floor stock maintenance, and other tasks important to hospital function and effective patient care delivery. Yet, the roles of support staff, their effectiveness, attitudes, job commitment, stress, motivation, and other important factors largely have not been examined.

It has been acknowledged in various reports, white papers, position statements, and results from committee work at state and national levels that: the quality of pharmacy technician education and training is highly variable, that States should be more involved in registering and licensing technicians, and that more should be done to distinguish technicians from other pharmacy support staff.[22-25] These same statements and reports also suggest that greater resources be devoted to advancing pharmacy technician practice and

developing technician talent, along with concurrently standardizing their skills and knowledge preparation to assume more advanced roles.

Technicians have taken a number of strides in professionalization during the past few years. One authority on the professionalization of occupations suggested the following stages, or steps in professionalization, including: banning together for political agitation, protection of its own members and the clients it serves through formation of professional organizations, codes of ethics, community sanction for practice, altruism, and control over the social object (e.g., medications).[26] The past decade has seen at least some, or varying amount of movement on each of these fronts.

The authors of this paper have undertaken several studies of pharmacy technicians over the past decade. Past projects have indicated that pharmacy technicians exhibit a modest level of stress, relatively low job satisfaction, yet still relatively high (or at least modestly high) levels of professional commitment, with perhaps somewhat less organizational commitment.[27] Technicians often intend to stay put, but the allure of jobs seeming to be a bit easier and/or with higher pay come along, sometimes unexpectedly, and then technicians leave the employer and profession, altogether. Certification through the U.S. Pharmacy Technician Certification Board (PTCB) has shown to bolster professionalization and thus professional commitment among technicians.[28] Pharmacists reported greater confidence in delegating tasks to technicians who were certified, but argued that the requirement to sit for the Pharmacy Technician Certification Exam (PTCE) should be more stringent.[29-30] The authors of the current report also identified levels of pay that induce job-seeking, ambivalence, and job-staying intentions.[31] We have identified future uncertainty as a problem plaguing technicians, and that this uncertainty can be mollified to some degree by effective supervision/leadership from pharmacists,[31] and also identified sources of self-reported technician errors, including short staffing and interruptions.[32] Prior to this work, it was observed that pharmacy technicians would prefer to be formally evaluated more frequently and likewise receive more consistent informal, formative feedback.[33]

Recent research from other countries share similar goals. New Zealand research evaluated pharmacists' views of safety and clinical outcomes from the introduction of an advanced role for technicians somewhat similar to the UK's Accuracy Checking Technician (ACT). The researchers acquired pharmacists' awareness of the checking technician (CT) role, previous experience working with technicians having such designation, examples of possible scenarios that could utilize a CT, and level of agreement that technicians could be competent in various areas after advanced training.[34]

The Centre for Workforce Studies in the U.K. at the University of Manchester examined issues related to technicians in recent years. Their initial studies identified putative advanced roles for pharmacists and the various barriers that must be overcome to arrive at these roles, including the Accuracy Checking Technician (ACT) designation.[35] These were likewise based upon the concept of "revalidation", a rendition of the continuous professional development concept. The Centre also examined the possibility of restructuring supervisional authority and reconfiguration of skill mix in pharmacy toward improving processes and patient care.[36]

Other recent work has examined pharmacists' managerial strategies as it related to pharmacy support personnel and the standing of technicians in systems re-engineering for pharmacy, in addition to emergent

responsibilities in the face of evolving technology, such as bar-coding and advanced telecommunications. [37,38] There even has been an impetus for technicians' putative enhanced involvement in medication incident reporting and monitoring[39] in addition to greater involvement in identification of and care for patients with low health literacy.[40] In light of these emergent roles and yet still unanswered questions about pharmacy technicians, the investigators were asked by staff of the Pharmacy Technician Accreditation Commission (PTAC), Pharmacy Technician Certification Board (PTCB) and the Pharmacy Workforce Center (PWC) to examine certified pharmacy technician workforce issues in the United States.

STUDY PURPOSE AND OBJECTIVES

The objectives gleaned as per the initial survey provided by the workforce consortium (PWC, PTAC, PTCB) included to: determine the distribution, or diaspora of certified pharmacy technicians (CPhTs) by setting; identify levels of experience by CPhTs in various practice settings; determine primary methods of training for work as a CPhT; determine the amount of emphasis placed on the job by CPhTs in various practice settings; determine the level of satisfaction with various intrinsic and extrinsic components of CPhTs' jobs; and identify CPhTs' ensuing career moves. From this, the researchers of the current study modified these slightly but also added several new objectives: Determine congruence between CPhTs' rate of involvement in various activities (role functions) versus perceptions of the importance of those activities and perceptions that employers place on their activities; identify groups of persons/sources contributing most to their level of job satisfaction; identify sources of stress for CPhTs; identify levels of employer and professional commitment; and determine the contribution of various factors toward turnover intentions.

METHODS

Initial Draft Survey from Sponsors and Literature Review

The researchers were provided with a draft questionnaire survey of initial items proffered by the sponsors. The survey sought data on primary place of employment, experience as a pharmacy technician, various demographic data, career commitment, training, work activities, and satisfaction with a request that it be further refined. The researchers employed a multi-stage process in doing so, including additional literature review, which led to the contextualization of the project using an organizational culture lens, followed by in-depth, semi-structured, interviews, survey piloting, and dissemination.

Qualitative Approach

The researchers undertook a qualitative approach prior to further refinement of the survey; that is, they interviewed technicians, themselves, to assist with or supplement the literature review by having those technicians provide rich information from a quality of work life and organizational cultural perspective. Structured interviews were employed rather than focus groups due to difficulty in recruiting subjects to a central location at a designated time and with the premise that individual interviews are not subject to biases of groupthink or domineering members. A copy of the semi-structured interview guide is provided in Appendix 1.

The semi-structured interview was composed of questions dealing with the subject's initial inclination to become a pharmacy technician, reflecting back on their level of preparation for the job, the importance of various facets of their job, sources of satisfaction and stress on the job, their future plans, their employing organization's use of career planning and development, and factors enhancing or detracting from their commitment to the profession. Follow-up probes were included to anticipate responses; however, the interview remained semi-structured in that respondents were allowed to contextualize their own lived experiences and potentially deviate to an extent from the principal topic. The number of participants was determined using grounded theory, wherein saturation is said to occur after 2-3 consecutive interviews produce no new data. This occurred at approximately 18 interviews, and thus 21 were conducted.

Survey Development and Piloting

Based on the interviews, the survey was again revised, with a desire to keep the survey as brief as possible, to reduce response burden, yet still acquire the information desired. The interviews revealed an occasional disconnect between what technicians frequently do versus their perception of the importance what they do. Other issues arose regarding training, staffing, and stress. These were added, and the scales on certain questions were amended so that most "neutral" responses were deleted, given recent evidence of their lack of utility.[31] A draft of the survey was circulated to key members of the sponsoring organizations, who then provided feedback to the authors. Based upon this exchange, a few minor adjustments were made to the survey used for the pilot.

The survey was built using Qualtrics technology. Once built, a URL was generated. The survey was piloted by 13 technicians from various practice settings and varying demographic characteristics also using a convenience sampling approach. Eighteen participants had agreed to participate; however, only 13 began the survey and 12 completed it. Still, participants seemed to have no difficulty in completing the survey upon attempting to do so, and when confirmed in personal conversation, no additional substantive changes were made to the survey upon its full implementation (see Appendix 2).

Survey Implementation

Institutional Research Board (IRB) approval was gained from the University of Mississippi and Touro University California in conducting various phases of the study. A sample size calculation was undertaken to determine the number of subjects to whom the survey was to be mailed. Sample size was determined using the formula:

$$N_s = (N_p)(p)(1 - p)/((N_p - 1)(B/C)^2 + (p)(1 - p))$$

Where N_s is the sample size needed for the size of the survey population and N_p is the number of units in the survey population from which the sample is to be drawn which has been estimated to be 300,000 CPhTs (per PTCB). The term (p)(1-p) is a measure of the expected variation in answers to the question of interest (i.e., set at 50% which is the most conservative value possible for the population). The term B represents the margin of error, which is 0.05. Finally, C is the corresponding Z score associated with the amount of statistical confidence one desires to have in the estimate (commonly set at 95% and thus 1.96 would be the corresponding Z score). The estimated sample size was determined to be 384 respondents when the population variance is 0.5, the margin for sampling error is set at 5%, and a 95% confidence interval is used.

Assuming a response rate of approximately 10%, the researchers sought contact information from 5,000 subjects (CPhTs) from PTCB to whom the questionnaire survey would be disseminated. The survey automatically terminated for respondents under 19 years of age, retired, not working as a technician, or who was a full-time student in a PharmD program. A copy of the final questionnaire survey draft distributed to technicians is provided in Appendix 2 as a pdf made available through Qualtrics.

As per an approach recommended by Dillman and Smyth,[41] the researchers sent the respondents a notice via email about the impending questionnaire during the first weeks of October 2015. A URL with a copy of a cover letter informing participants of their rights and the survey were sent to the 5,000 participants during the 2nd week of October. Reminder emails were sent approximately 1, 2, and 3 weeks after the initial URL emailing. As such, the survey was closed on November 9, 2015.

Data Analysis

The data were prepared for analysis on SPSS following export from Qualtrics. Frequency distributions were tabulated for all relevant questions. Means and standard deviations were calculated, as appropriate. Summated scales such as for satisfaction and stress were subjected to a principal components analysis with Varimax rotation, item analysis, and internal consistency reliability analysis. Correlation analysis was undertaken to determine relationships between 2 or more variables believed to be associated with one another. Similarly, depending upon the nature of the variable data, chi-square statistics were calculated, and analyses of variance procedures were undertaken primarily on summated scale variables.

RESULTS

Interviews (Qualitative Data)

Data were gathered as previously described from in-depth, semi-structured interviews of 21 technicians, the majority of whom were certified. A paper has been published detailing the results and implications from this component of the project.[42] There were 19 participants from community pharmacy and 2 from hospital pharmacy. All but two of the interviewees were female and ranged in age from 26 to 59. The data yielded four primary themes: *career impetus, job responsibilities*, *quality of work life*, and *equitable partnership*. Major issues within each of these themes are summarized in Table 1.

In regard to *career impetus*, a number of the interviewees happened upon their technician career somewhat serendipitously, although quite a few of them were working elsewhere in a pharmacy organization and eventually learned of a potential career as a technician. Several mentioned having been expressly recruited or having enjoyed interactions with a pharmacist. As such, this informed the creation of a couple questions in the subsequent quantitative survey. Many suggested that it was a career that allowed them to help people, which suited a generally gregarious personality. A number of them were also attracted to the flexibility in work scheduling.

With respect to *job responsibilities*, many suggested that they are in essence the "public face" of pharmacy, particularly in the community setting. They are the persons most often with whom patients develop more intimate relationships and thusly might assist in determining levels of patient loyalty. At the same time, interviewees expressed so much investment into patient relationships that so-called "difficult" patients often

serve as a long-lasting stressor. Interviewees shared that they were taking on considerable paperwork, in areas varying from inventory management and control, to third-party insurance matters.

Quality of work life issues were intertwined throughout the data. Those interviewees expressed frustration with deemed "unnecessary hurdles" that impinge upon the satisfaction of pharmacy customers and patients. They expressed a desire for "standardization" of formats by third-party payers, a strong hope that administrative barriers to patients receiving their needed medications be mitigated, and that they really enjoy contributing to an effective medication use process. They repeatedly expressed having arrived toward or making progress toward maximizing their self-worth. At the same time, they were unhappy with consistently being short-staffed, a lack of empathy when that occurs, and with patients' expectations that they "drop whatever they are doing" by their (patient's) mere presentation to the pharmacy.

This segues into the fourth theme of *equitable partnership.* The issue of wage, or rate of pay arose throughout the interviews. The interviewees stated that rate of pay motivates them [extrinsically] through better ability to "pay the bills" and [intrinsically] through the value connoted to them by the employer. A number of interviewees harbored some resentment toward employers who failed to differentiate between technicians who were "carrying their weight" versus those who were not. They also expressed concern about future uncertainty, with even some feeling threatened by technological advances. The interviewees repeatedly expressed a desire for an equitable partnership. In other words, they believed that they are putting much into their jobs, appreciate those jobs, enjoy the benefits, recognize good supervision by pharmacist managers, but also believe that more is "owed" to them by employers. As such, they indicated that they could be swayed away from their current work with enticing offers elsewhere.

Quantitative Survey

Respondent Characteristics (demographic and training)

A total of 702 CPhTs completed the survey. Of those, 516 (75.2%) were currently employed as a technician, 73 (10.6%) were employed in another pharmacy- or health-related field, 39 (5.6%) were unemployed and looking for work, 20 (2.9%) were unemployed and not seeking work, and 8 (1.1%) were retired. The results detailed further in this report are from responses tallied from the respondents working currently as a pharmacy technician (full- or part-time) and not enrolled in a PharmD program (n = 516). Respondent demographic characteristics are shown in Table 2. As expected, most respondents were female. The average age and practice experience might be as expected with the general population of technicians. Responses were gathered from all parts of the country. States with only 1-2 respondents included Alaska, Rhode Island, West Virginia, and Wyoming. The states with the most number of respondents were Texas (40), California (36), Ohio (26), Michigan (23), and Florida (23). Place of employment (practice setting) information is provided in Table 3, showing a relatively expected distribution of respondents across settings.

A total of 199 (38.6%) respondents indicated that they were required by state laws to become certified, and 324 (62.8%) reported that certification was mandated by their employer. Further, where over two-thirds of hospital/health system technicians (99/144, or 68.8%) indicated that their employer mandated certification, just over one-half of community pharmacy technicians (165/286, or 57.7%) indicated the same. Table 4 provides information on the factors responsible for survey respondents to becoming a pharmacy technician. General interest in a health career and desire to help people were far and away the most commonly cited factors. It should be noted that recommendations, support, and recruitment by others played a prominent role, with nearly 40% of respondents citing a recommendation of a friend and/or recruitment by a pharmacist. Even at nearly 15%, this represents a relatively high number of respondents recruited by pharmacists. From these results, it appears as though support materials can be developed for pharmacists and for peer technicians to recruit good technician candidates. Responses across community and hospital technicians were similar, with the exception that a greater proportion of community technicians were motivated by a desire to help people. In all, approximately 1 in 6 respondents indicated they were attracted by salary. Surprisingly few chose fringe benefits. Also surprisingly low was work schedule and flexibility. Approximately 1 in 6-7 respondents indicated they were attracted to technician work as a fulfilling career.

Table 5 provides information of respondent methods of training for work as a pharmacy technician. Not surprisingly, over 75% of the respondents indicated on-the-job training (OJT) was utilized in their training, but technicians from community pharmacy reported a higher percentage. This was followed by self-guided training, where again, more technicians from community pharmacy cited this as part of their training. There was a mix of responses regarding the distribution of accredited versus non-accredited programs serving as a method of training. While approximately 1 in 5 respondents were unsure of the accreditation status of their employer's training program, nearly one-third were not aware of the accreditation status of their training program if it were a vocational school, or other similar model.

Table 6 provides mean responses to a scale measuring the helpfulness of various education and training modalities in preparing technicians for their current work responsibilities. Formal OJT with the current employer was rated most highly. Previous work experience as a technician and guidance/mentorship from supervisors were also rated very highly. Previous, non-technician work was rated lowest. PTCB certification was rated higher than formal training or education, both of which were still rated rather highly. The PTCB result is quite a positive result given the nature of certification being a self-directed study program. Between primary practice settings, across most methods of training, community CPhTs reported higher levels of helpfulness for various training methods than did hospital/health-system-based CPhTs. An exception to this trend was work at a previous employer but not as a technician, and OJT. The largest gaps (though still relatively small) between community versus hospital/health-system based CPhTs were for PTCB training and vocational training, both reportedly more helpful by community technicians.

Table 7 provides an alternative perspective to the utility of the education and training modalities. It shows the number and proportion of CPhTs who reported the modality as "4 = very helpful" on a 4-point scale. Over 2/3 of respondents indicated such for work at a previous employer and for OJT. Over 60% rated guidance from supervisor(s) and peers as very helpful, and over one-half of CPhTs rated vocational training and PTCB certification as very helpful. Fewer than one-fourth of CPhTs rated previous non-technician work as very helpful. While a slightly higher proportion of hospital/health-system CPhTs rated previous non-technician

work as very helpful compared with community CPhTs, more community than hospital/health system CPhTs rated vocational training as very helpful.

Involvement and Perceptions of Importance, by Practice Setting

Table 8 provides data from community pharmacy technicians regarding their level of involvement in various job activities. It also provides respondents' ratings of the importance they place on those activities and their perceptions of the degree of importance their employing organization places on those activities. Levels of involvement were rather similar across activities, mostly quite high. Respondents were least involved in verifying the work of other technicians and maintaining automated technology. Respondents saw greatest importance in collecting/communicating patient information, filling prescriptions, and assessing prescriptions. Perceived importance placed by the employing organization was typically a bit lower than the importance to these same activities that were self-ascribed. The biggest differences in those perceptions were for collecting patient information, filling a prescription, and communicating with insurance companies.

Table 9 provides data from hospital pharmacy technicians regarding their level of involvement in various job activities. It provides respondents' ratings of the importance they place on those activities and their perceptions of the degree of importance their employing organization places on those activities. Level of involvement in these activities was reportedly more disparate among hospital pharmacy technicians than for those activities among community pharmacy technicians. Lowest involvement was indicated for dispensing medications with remote video supervision, medication assistance program management, preparation of clinical monitoring information for pharmacist review, medication assistance program management, initiation of medication reconciliation for discharge, and criterion-based screening of medical records. Respondents reported being highly involved in maintaining floor stock and dispensing cabinets, unit inspections, and repackaging activities. The largest gaps between self-ascribed importance and perceived importance by the employing organization were found in regard to compounding non-sterile products (excluding chemotherapy), repackaging activities, supervision of other technicians, and replenishing unit dose carts.

There were 12 respondents from the home health care setting who wrote in responses pertaining to the activities in which they are most involved. Most frequently cited by far were activities related to compounding (mentioned by 11 of 12 respondents). Other activities related to transport of medications, inventory management, patient safety initiatives, and customer/patient service. As respondents were allowed to self-report these activities, they were all rated very highly in terms of their importance, as were their self-ascribed and perceived employer level of importance.

There were 11 respondents from the pharmacy benefits management setting. Most of those 11 respondents reported being highly involved in prior authorization, handling phone calls, and benefits/plan reviews. Also noted were a few respondents who indicated participation in medication adherence activities.

There were 14 respondents from the nursing home or long-term care setting. Among the most frequently reported activities from these respondents were order entry, filling/compounding, inventory management, and customer service, the latter of which were reported by several (about half) of respondents. There were 2 write-in responses related to medication reconciliation.

Finally, there were 29 respondents (approximately 6% of respondents) who indicated working in some "other" setting. As is the case with previous categories, many write-in responses dealt with data entry/inputting prescriptions, compounding/admixture, inventory management, customer service, and handling phone calls. There were several respondents who indicated responsibility for handling/managing technology, management and supervision activities/mentoring/coaching.

Quality of Work life, Satisfaction, Stress, and Commitment

Table 10 provides respondent reported levels of satisfaction with various aspects of their job. CPhTs reported highest levels of satisfaction with their pharmacist co-workers, work schedule, and opportunity to use their knowledge. As previously mentioned, pharmacists have successfully recruited technicians into their jobs. Pharmacists' ability to manage personnel can serve as a buffer to deleterious events that result in turnover.[31] The most effective methods of pharmacists doing so might be further explored. Another unique finding here that might warrant further consideration for recruitment is that technicians reported satisfaction with their ability to apply their knowledge on the job. On the other hand, respondents reported least satisfaction with level of stress, opportunity for advancement, and level of pay/wage. These areas continue to be "sore spots" for technicians, possibly behooving the need for furthering continuous professional development and career laddering, concepts proffered over two decades ago.[43] Larger gaps between community and hospital technicians were observed regarding peer co-workers, opportunity to use knowledge, opportunity for advancement, and fair treatment from management, all rated more favorably by community pharmacy technicians. On the other hand, hospital pharmacy technicians rated employee benefits more highly.

In considering job satisfaction, of primary interest are those who are very highly satisfied but perhaps even more so are those who are very highly dissatisfied. Table 11 reports the number and proportion of respondents from community and hospital/health-systems who indicating being very highly or highly dissatisfied; that is, those who responded with a "1" or a "2" on the 6-point satisfaction scale. These are persons who might be a greater threat to engender negative emotions among themselves and others on the job, quit their current job, or perhaps even consider quitting the profession, altogether. Overall, over one-fourth (nearly 30%) of CPhTs reported high levels of dissatisfaction with opportunity for advancement, level of stress, and pay/wages. A larger proportion of hospital/health system respondents than did community respondents reported high dissatisfaction across many job aspects. This was especially the case for opportunity to use one's knowledge, opportunity for advancement, and fair treatment from management. Dissatisfaction from level of stress was lower among hospital/health system technicians than for community pharmacy technicians.

Table 12 reports the strength of various sources contributing to a CPhT's job satisfaction. Again, the supervising pharmacist as well as customers/patients served were primary sources from which respondents elicit satisfaction. These sources even supersede their interactions and relationships with technician peers. Community pharmacy technicians rated peer coworkers and other pharmacist coworkers more highly as sources of satisfaction, whereas hospital pharmacy technicians rated customers/patients with whom they interact more highly than did community pharmacy technicians.

CPhTs reported their sources of stress on the job, as shown in Table 13. Sources of less stress included dealing with staff from other health care providers, disagreements with peers, and inadequate technology. The highest levels of stress reported corroborated results from the qualitative portion of the project. That is, being short-staffed, volume of work, and other employees not doing their fair share of work. CPhTs have reported how much they appreciate pharmacist supervision; however, they also report that more should be done to ensure that everyone in the organization is carrying their own weight. This was reported more

frequently among hospital pharmacy technicians, who also reported more stress from disagreement with peers and poorly designed workflow. On the other hand, community pharmacy technicians rated patients/customers more highly as sources of stress and also lack of rest breaks.

Among the more valuable aspects to consider regarding stress are those sources responsible for very high levels of such. Very high levels of stress can result in untoward behavior by the employee, potentially prone to a greater number of mistakes, lower levels of satisfaction, higher levels of burnout, and potentially job turnover. Table 14 reports the number and proportion of CPhTs who indicated a very high or tremendous level of stress across various sources. Well over one-half of respondents reported very high stress from being short-staffed. Nearly one-half reported very high stress from other employees not doing their fair share of work and from the volume of work, itself. Fewer technicians indicated high levels of stress from dealing with staff from other health care providers or from disagreements with peers. While a much greater proportion of community pharmacy technicians reported high levels of stress from patients who or rude or impatient and from lack of rest breaks, technicians from hospital/health-systems were more likely to report very high stress from poorly designed workflow, disagreements with peers, and other employees not doing their fair share of work.

The present study examined CPhT commitment in various ways. These data are reported in Table 15. More than half of respondents indicated plans to remain with their employer for at least 5, and in many cases, at least 10 years. Still, 1 in 5 respondents reported either looking to leave or planning to keep their options open. Additionally, the mode response, and thus fairly good indicator of how technicians feel, is that they reported moderate commitment and were willing to stick with their current situation unless something else comes along, thus making them potentially susceptible to "shocks" such as an alternative career with higher pay.[44] Nearly 2 in 5 respondents plan to stay with their employer for a lengthy period of time, which likely underscores their satisfaction in dealing with pharmacist supervisors, peers, and patients/customers. The fact that nearly half of them do not necessarily see themselves in the career for 10 years indicates lower levels of commitment than has been seen with other licensed professionals.[45,46] This is not surprising given that technicians have lower levels of investment financially and temporally in entering the profession and are paid lower amounts than most professionals. Many respondents who do intend or might be contemplating a career change indicated that they would like to remain in a health care field, and fewer than 10% of them indicated considering leaving for a non-health care-related field. It should be noted, however, that among the survey recipients, there were already a number of them not working as a technician, indicating that there might be a number of persons certified as a technician who already have left technician work. Across settings, there were a larger number in community pharmacy planning to remain with their employer for less than 2 years. This is interesting given that community pharmacy technicians reported being more satisfied and less stressed with several aspects of their jobs. Also, nearly 6 in 10 (57.3%) of hospital pharmacy technicians indicated planning to remain in their profession for more than 10 years.

Scale Diagnostics

Prior to further statistical analyses (inferential statistics), the researchers undertook an examination of the summated scales/indexes used to measure job satisfaction, stress, strength of contribution to satisfaction, and commitment. This began with a factor analysis of every item used in all of those scales. This analysis demonstrated the validity of each summated scale and the appropriateness of each item composing those respective measures. Cronbach's alphas measured internal consistency reliability, with the satisfaction, contributors to satisfaction, and stress scales calculated at 0.88, 0.72, and 0.79, respectively, thus demonstrating very good to excellent reliability, especially for such brief measures. The mean on the scale for work satisfaction on a potential range of scores from 10-60 was 41.02 ± 9.65; the mean on the scale for

contributors to work satisfaction on a potential range of scores from 6 to 30 was 24.32 ± 4.65; and the mean on the scale measuring stress on a potential range of scores from 9 to 45 was 25.64 ± 6.30.

Closer Examination (Inferential) of Satisfaction, Stress, and Commitment

Analyses were conducted to determine any relationship between practice setting and self-reported satisfaction and stress, overall. Respondents from ambulatory care, technician training program, pharmaceutical industry, pharmacy benefits, and "other" were excluded from analysis based upon low representation so as to minimize error of false positives. Likewise, small chain and large chain were combined into one grouping. There was no difference, statistically, among respondents from different settings in their levels of satisfaction, perceptions of contribution toward satisfaction, or stress on a global level. As it related to satisfaction, lowest levels were reported among those working in health systems, mass merchandisers, long-term care, and then slightly higher for those in community chain pharmacy, and still slightly higher in independent community pharmacy. Those reporting highest satisfaction were those in clinic-based and mail service pharmacy. Those reporting lowest contributions to satisfaction among the factors examined were respondents from hospitals/health systems and from mass merchandisers.

Regarding stress, lower stress levels were reported by respondents in mail service, independent community, and long-term care pharmacy, with higher stress levels reported among those working in non-government health systems, specialty pharmacy, and supermarket pharmacy. Greater likelihood of remaining with the current employer was reported among those in mail service, non-government hospital, and clinic-based pharmacy, with lower likelihoods reported among technicians from mass merchandiser, specialty, and chain community pharmacy settings. Similar results were seen regarding likelihood of remaining as a pharmacy technician, with the exception of those in non-government hospital reporting higher likelihood of intention to leave the profession, altogether.

Analyses also examined relationships between age and experience with other variables. Age was correlated with commitment to the profession but not with commitment to the employer. Years with the current employer was statistically correlated with commitment to the employer and commitment to the profession. Further investigation is warranted to determine if this is a cohort effect, or if greater time in work does foster commitment to the employer and to the profession.

Table 16 provides a matrix of correlations between satisfaction, commitment, stress (work life) and perceived usefulness of various education/training modalities. In the table, possible correlations range from 0 to 1. Considering all the possible confounders that might interfere in a relationship between two variables, or phenomena, a correlation (r) exceeding 0.100 (or, -0.100) is usually relatively high and statistically significant. Satisfaction was very highly correlated with employer commitment and highly, yet inversely correlated with stress (i.e., the higher the stress, the lower the satisfaction). Satisfaction was also highly correlated with commitment to the profession. It also exhibited strong relationships with perceived usefulness of supervisor mentoring, OJT, and peer mentoring. Stress levels were inversely correlated with satisfaction (as stated previously), but also with employer and profession commitment. Unlike the case with satisfaction, stress was not associated with perceived usefulness of training. This reinforces that stress (or lack, thereof) is a contributing factor to satisfaction and to commitment; however, stress is indeed its own facet of work that is unique from dissatisfaction. It also indicates that satisfaction is important, but certainly not the sole factor contributing to commitment. As such, employer commitment is related to satisfaction and inversely related to stress. There is indeed a very strong, even though somewhat independent relationship between employer commitment and profession commitment. There were a number of associations between perceived utility of training modality with satisfaction, stress, and commitment. Perceived utility of OJT, supervisor mentoring, and peer mentoring were related to work life. That is, if a technician perceived utility of any of these training

methods, then he/she would more likely be satisfied, more committed, and less stressed on the job. The perceived utility of PTCB certification was associated very strongly with higher levels of profession commitment. It was also associated with higher levels of satisfaction and employer commitment, but not related to stress.

There were few relationships between work life and actual method of training. One exception was that those who reported having completed an accredited standalone training program from a vocational school reported higher levels of stress than did other respondents. While perhaps a statistical anomaly, it is possible that such programs could assist technicians in training with stress management-related issues.

In additional analyses, there was no relationship between size of city where employed versus any of the work life variables. However, those working part-time in 20 or more hours per week and those working full-time reported higher commitment to the profession than did those working fewer than 20 hours per week. There was no correlation between any of the work life variables and whether or not certification was required by the state or by the employer. Females reported higher commitment to their employer and a very much higher commitment to the profession than did male technicians.

Also, those who indicated that a primary reason for becoming a technician was through a recommendation of a friend or colleague or because of a desire to seek a fulfilling career reported higher levels of profession commitment. It would appear as though helping current technicians provide positive word of mouth to others about the profession and emphasizing life-long and fulfilling careers would be effective for recruiting prospective technician employees.

Additional Analyses

Geographic Considerations

Respondents from 50 states and the District of Columbia were categorized as being from the West (n = 121), Southeast (n = 141), Northeast (n = 59), Midwest (n = 150), or Texas (n = 40). Texas was treated separately given that it had 40 respondents of its own, and there if often disagreement about its categorization as a southern, midwestern, or western state. There were no statistically significant trends by geographic region across quality of life variables; however, there were some trends to note. Lowest satisfaction was reported by respondents from the Northeast and Southeast, and highest satisfaction by respondents from the West and from Texas. Nearly 45% of respondents from the West indicated strong commitment to their organization, with plans to stay for the long haul. This compares with 31% and 32% from Texas and from the Northeast, respectively.

The requirement to acquire certification varied by region. Over 90% from Texas indicated it as a requirement, versus 75.2% from the West, and 59.3% and 63.8%, from the Northeast and Southeast, respectively.

A greater proportion of respondents from the Southeast became a technician as a result of a recommendation from a friend, family, or peer, as well as to help people. Primary education/training modalities also varied by region. Over 91% and 83% from the Northeast and Midwest, respectively, reported training through OJT. Those from the Southeast (23.1%) and West (22.3%) were more likely to have been trained by way of an accredited, standalone program.   In community pharmacy, a greater number of respondents from Texas and from the Northeast were involved in providing completed prescriptions to patients. Also, those from Texas and the Southeast were more involved in maintaining automated technology and verifying the work of other technicians, while those in the Northeast were least likely to have done so.

In hospital pharmacy, respondents from the West and Midwest were more likely to be involved in floor stock and in stocking automated dispensing cabinets. All 15 respondents from the Northeast indicated frequent involvement in sterile compounding, although very few from the West indicated doing the same. Those from Texas and the Southeast were much more likely to be involved in purchasing and inventory management than those from the West or the Northeast. More respondents in the West indicated involvement in supervising other technicians. Where virtually no respondents from Texas or the Midwest were involved in dispensing with remote video supervision, nearly 18% of those from the West indicated doing so. Those from the West also indicated a greater involvement in medication assistance programs.

Practice Setting

A closer examination was taken of primary responsibilities by CPhTs within practice settings. For CPhTs in community pharmacy, those more involved in patient counseling also reported being more stressed. Also, those involved in the use of technology reported higher profession commitment.

There were interesting findings among respondents in the hospital/health-system setting. Higher stress was reported for those technicians involved in compounding chemotherapeutic agents and in criteria-based screening of medication records. On the other hand, technicians involved in purchasing activities reported lower stress. Technicians who reported higher involvement in floor stock maintenance, inventory management, controlled substance management, billing activities, and repackaging reported higher levels of profession commitment. The finding that stress was associated with compounding chemotherapeutic agents is not surprising. It appears as though technicians in the hospital/health-system setting might be more committed to the profession when they have an opportunity to be involved in management of systems or components of systems.

STUDY LIMITATIONS

The results of this study should be taken within the context of various strengths and weaknesses. The low response rate limits generalizability to the entire CPhT population. Additionally, the questionnaire survey sampled only those technicians who are certified through PTCB, thus warranting further caution in regard to broad inferences. The use of email versus postal or hybrid mechanisms of survey delivery has been associated with lower response rates and could also introduce a bias that persons more favorable toward use of email and the Internet were more likely to have responded.[47] It is possible that responses came more readily from those either very favorable or very unfavorable toward their jobs as pharmacy technicians. However, the use of a randomized sampling procedure across an entire nation of CPhTs provided a foundation of representativeness in the survey responses. The proportion of respondents across practice setting, gender, age, and geographic location were commensurate with expectations. The facts that responses to the quality of work life questions aligned with expectations and that psychometric evaluation of responses demonstrated very good internal consistency reliability and construct validity evoke even greater confidence that respondents approached the survey with seriousness and without any obvious biases as a group. The results of the qualitative, semi-structured, in-depth interviews are subject to the limitations inherent to use of this approach. This approach was used to provide rich information, inform the subsequent questionnaire survey, and induce theories that could be explored for further testing. The data are not meant to be generalizable beyond the small sample of respondents.

CONCLUSION

This research undertook an examination of a national sample of certified pharmacy technicians' quality of work life, commitment, and involvement in various activities at their jobs. The results corroborated previous

findings but also contributed some new information. Respondents in this study reported being attracted to technician work for various reasons, with many doing so for a general interest in health care and a desire to help people in some way. Technicians found their jobs only modestly stressful, but with high enough stress that has a number of them on the lookout for other opportunities, even while they remain fairly to highly committed to their profession. The commitment they exhibit is likely at least in part a function of certification and their training. Pharmacy technicians in the U.S. are trained by a variety of methods, with standardization of such methods perhaps lacking. There are certain activities that carry the preponderance of technicians' time and energies; however, there are a number of technicians in this study who reported involvement in emerging roles such as quality assurance programming, patient safety initiatives, and management of systems and subsystems. Previous research has shown pharmacists have become warmer to technician involvement in these activities, and it would appear as though technician involvement in such could help to foster commitment and be a mechanism through which more formal career laddering systems might occur. Such career laddering or further personal development processes are being examined in studies in the U.S. and abroad, including formally recognized advanced status.

Technicians in this study reported fairly high levels of satisfaction, derived from performing certain activities, from their coworker peers, from pharmacists, and from patients, though the latter sometime serve as a source of stress. Technicians expressed considerable concern about being short-staffed, and while appreciative of pharmacist-managers' leadership and supervision, repeatedly expressed frustration about some members in the organization not carrying their weight. Technicians reported sometimes feeling undervalued by their employing organizations even while reporting feeling valued by their peers and by the pharmacists with whom they work. There were differences in technicians' attitudes by geographic location, with the West overall seemingly having technicians working more frequently in advanced, or emerging roles. As such, technicians working there, and those more likely working in these advanced roles, reported higher levels of satisfaction and employer commitment, even if associated with a bit more stress. The regional differences, and other differences, can be further examined to determine the best mix of managerial strategies to ensure pharmacy technician stability and effectiveness on the job.

Table 1. Major themes and issues from technician interviews.

Theme	Issue
Career Impetus	
	Many technicians began in another job in a pharmacy or health care organization then found out about a possible career as a technician.
	Pharmacists and peers were effective at recruiting technicians into this career.
	Technicians came from varied backgrounds, many with college degrees, and a a number of those had training or education in sociology, communication, and related fields.
	A number of technicians were in otherwise uninspiring careers, and the call to a profession where one could help people was a significant motivator.
Job Responsibilities	
	Technicians saw themselves often as the "face" of a pharmacy. They are often the ones with whom customers, patients, and caregivers build rapport.
	Many technicians described their job in essence of whatever it takes to help the pharmacist provide the best care possible for the patient.
	Some technicians indicated spending a considerable amount of time in paperwork and being on the phone with various stakeholders; often viewed this as distracting from their work of helping the patient.
	Technicians stressed being really busy almost all the time and that there are very few responsibilities/functions that they do not carry out.
Quality of Work life	
	It was asserted that many patients might not understand everything that technicians do for them, but that it is so tremendously satisfying when they [patients] do, or at least show appreciation for the technician trying.
	Patients were reported to be often the biggest source of stress yet also far and away the biggest source of satisfaction for technicians.
	The concept of job variety was stated on more than one occasion. A number of technicians reported that they feel each and every day is different.
	When the pharmacy is short-staffed for whatever reason, it can make for a stressful situation.
Equitable Partnership	
	Technicians reported that they would like to remain in their jobs but would like to see creative ways to incent them into higher positions and wages.
	Some technicians reported that their some peers do not carry their weight and that perhaps more can be done to ameliorate these situations.
	Many technicians see their work as a partnership between them and their employer, stating that if they [employers] treat them fairly, then in turn they will get back their [technicians'] full effort, trust, and cooperation.

Table 2. Respondent Characteristics*,**

Employment	
Full-time technician	412 (61.5%)
Part-time technician (>20 hrs/week)	67 (10.0%)
Part-time technician (<20 hrs/week)	37 (05.5%)
Employed not as a technician	84 (12.5%)
Unemployed and seeking work	39 (05.8%)
Unemployed and not seeking work	20 (03.0%)
Retired	08 (01.2%)
Actively enrolled PharmD student	03 (00.4%)
Geographic Location	
West	121 (23.7%)
Southeast	141 (27.6%)
Northeast	59 (11.5%)
Midwest	150 (29.4%)
Texas	40 (07.8%)
Rurality	
Rural	61 (11.9%)
Small city	133 (26.0%)
Suburb of larger city	150 (29.4%)
Medium-sized or large city urban core	167 (32.7%)
Age	
Average	40.17±12.60
Practice experience as a technician	
Average	11.30±9.76
Number of years at present employer	
Average	7.90±7.89
Gender	
Female	433 (85.4%)
Male	74 (14.6%)

*Percentages calculated from valid responses analyzed.
**Mean ± Standard Deviation.

Table 3. Respondent Primary Place of Employment

Setting	Number (%)
Large chain pharmacy	144 (28.0%)
Hospital/health system (inpatient)	122 (23.7%)
Mass merchandiser	46 (08.9%)
Independent community pharmacy	40 (07.8%)
Supermarket pharmacy	35 (06.8%)
Hospital/health system (outpatient)	22 (04.3%)
Nursing home/long-term care	18 (03.5%)
Clinic-based pharmacy	13 (02.5%)
Home health/infusion	12 (02.3%)
Mail order pharmacy	11 (02.1%)
Specialty pharmacy	11 (02.1%)
Small chain pharmacy	08 (01.6%)
Government/military	08 (01.6%)
Ambulatory care (not a dispensing pharmacy)	04 (00.8%)
Pharmacy technician training program (e.g., vocational school)	01 (00.2%)
Pharmaceutical industry	01 (00.2%)
Other	06 (01.2%)

Table 4. Reasons that respondents cited for becoming a pharmacy technician*

Reason	Community	Hospital	Total (%)**
General interest in pharmacy and/or health care career	188 (65.7%)	97 (67.4%)	333 (64.5%)
Recommendation of a friend, colleague, or family member	71 (24.8%)	35 (24.3%)	127 (24.6%)
Recruitment or encouragement by a pharmacist	49 (17.1%)	21 (14.6%)	77 (14.9%)
Work schedule/flexibility	40 (14.0%)	15 (10.4%)	63 (12.2%)
Salary	41 (14.3%)	19 (13.2%)	83 (16.1%)
Benefits	19 (06.6%)	22 (15.3%)	51 (09.9%)
Fulfilling career	41 (14.3%)	20 (13.9%)	75 (14.6%)
Exposure by working at a different job in a pharmacy			
organization	39 (13.6%)	25 (17.4%)	76 (14.8%)
Work at a previous employer, technician-related	17 (05.9%)	09 (06.3%)	35 (06.8%)
An opportunity to serve the public	45 (15.7%)	19 (13.2%)	72 (14.0%)
A desire to help people	121 (42.3%)	46 (31.9%)	196 (38.0%)

*Respondents were allowed to select up to three choices.
**Community, hospital, and all other.

Table 5. Methods of training for work as a pharmacy technician.*

Training method	Community	Hospital	Total (%)**
OJT from employer	233 (81.5%)	104 (72.2%)	395 (76.6%)
Self-guided training	105 (36.7%)	40 (27.8%)	168 (32.6%)
Structured training program from employer, unaccredited	46 (16.1%)	17 (11.8%)	75 (14.5%)
Structured training program from employer, accredited	26 (09.1%)	10 (06.9%)	43 (08.3%)
Structured training program from, unsure of accreditation status	19 (06.6%)	06 (04.2%)	29 (05.6%)
Standalone training program (vocational school), Unaccredited	17 (05.9%)	08 (05.6%)	29 (05.6%)
Standalone training program (vocational school), accredited	46 (16.1%)	27 (18.8%)	89 (17.2%)
Standalone training program (vocational school), unsure if accredited	24 (08.4%)	20 (13.9%)	53 (10.3%)

*Participants could select up to 3 choices
**Community, hospital, and all other

Table 6. Helpfulness of education/training modality in preparing respondents for their current work responsibilities.

Training/education modality	Community	Hospital	Total*
Formal training/education program at a college or vocational school	3.30±0.96	3.20±1.02	3.21±1.03
PTCB or similar certification	3.36±0.79	3.25±0.03	3.32±0.85
Work at a previous employer, technician-related	3.55±0.82	3.51±0.85	3.49±0.09
Work at a previous employer, not as a technician	2.48±1.12	2.54±1.17	2.46±1.14
Formal OJT from employer	3.55±0.74	3.57±0.76	3.53±0.78
Guidance and mentorship from supervisor(s)	3.52±0.76	3.43±0.89	3.44±0.85
Guidance and mentorship from peer technicians	3.49±0.80	3.46±0.83	3.45±0.84

*Mean±standard deviation on a 4-point scale from 1=Not helpful at all, to 4=Very helpful. This accounts for a N/A option which does not figure into the mean calculation.

Table 7. Respondents rating of training source as "Very helpful".*

Training method	Community	Hospital	Total (%)**
Formal training/education program at a college or vocational school	79 (59.2%)	44 (53.7%)	144 (54.1%)
PTCB or similar certification	136 (52.3%)	66 (52.4%)	243 (52.5%)
Work at a previous employer, technician-related	99 (70.7%)	68 (69.4%)	211 (69.2%)
Work at a previous employer, not as a technician	43 (23.9%)	24 (29.3%)	79 (24.7%)
Formal OJT from employer	163 (68.5%)	82 (69.5%)	286 (67.3%)
Guidance and mentorship from supervisor(s)	160 (65.6%)	76 (63.3%)	272 (62.2%)
Guidance and mentorship from peer technicians	154 (64.4%)	77 (63.6%)	268 (62.5%)

*Number and percentage who selected "4 = very helpful" on a 4-point scale. Valid percent excludes those who did not at all experience this method of training.

Table 8. Community pharmacy certified technician activity level of involvement, importance, and perceived importance to the organization.*

Activity	Involvement*	Importance**	Perceived Importance to organization**
Receive prescriptions	2.85±0.46	3.69±0.57	3.59±0.63
Collect or communicate patient information	2.87±0.29	3.78±0.48	3.58±0.61
Assess prescription for completeness, accuracy, authenticity, legality, or reimbursement eligibility	2.80±0.49	3.77±0.53	3.61±0.51
Input a prescription	2.84±0.46	3.75±0.54	3.60±0.65
Provide prescription to patient or caregiver	2.66±0.69	3.53±0.82	3.45±0.83
Direct patient to pharmacist for counseling	2.72±0.62	3.67±0.65	3.57±0.67
Identify medications and supplies to be ordered or manage inventory	2.70±0.62	3.66±0.63	3.50±0.74
Use and maintain automated technology	2.59±0.71	3.44±0.92	3.29±0.93
Communicate with insurance companies to determine coverage for prescriptions and services	2.72±0.62	3.63±0.74	3.45±0.80
Fill/label a prescription	2.89±0.40	3.77±0.53	3.58±0.66
Verify the work of other technicians	2.26±0.79	3.34±0.96	3.23±0.96

*Measure on a 3-point scale from 1=not at all involved, to 3=involved very frequently
**Measured on a 4-point scale from 1=very little to no importance, to 4=Very important

Table 9. Hospital pharmacy certified technician activity level of involvement, importance, and perceived importance to the organization.*

Activity	Involvement*	Importance**	Perceived Importance to organization**
Replenish unit dose carts	2.34±0.86	3.20±1.00	2.98±0.98
Restock floor stock and/or automated dispensing cabinets	2.80±0.55	3.59±0.70	3.24±0.88
Compound sterile preps (excluding chemo)	2.57±0.72	3.57±0.85	3.19±0.94
Compound chemo preps	1.62±0.84	3.12±1.15	3.06±1.06
Order entry activities	1.71±0.85	2.79±1.16	2.73±1.21
Purchasing/inventory management	1.98±0.85	3.19±1.04	3.03±0.97
Information technology system management	1.73±0.80	2.83±1.14	2.76±1.11
Controlled substance system management	2.12±0.79	3.38±0.98	3.19±0.95
Supervision of other technicians	1.96±0.85	3.12±1.03	2.87±1.08
Checking dispensing of other techs	1.78±0.86	2.73±1.22	2.56±1.24
Billing	1.71±0.88	2.69±1.26	2.76±1.20
Criteria-based screening of medical records to identify med-related problems	1.49±0.78	2.64±1.19	2.62±1.20
Preparation of clinical monitoring info for pharmacist review	1.39±0.71	2.57±1.25	2.49±1.18
Dispensing meds with remote video supervision	1.20±0.55	2.12±1.24	2.20±1.24
Medication assistance program management	1.28±0.62	2.32±1.24	2.34±1.22
Initiation of med reconciliation	1.43±0.74	2.62±1.20	2.51±1.17
Quality assurance activities/ unit inspections	2.48±0.72	3.32±0.90	3.14±0.93
Packaging/repackaging activities	2.43±0.72	3.29±0.95	3.03±1.00
Facilitating transitions of care	1.61±0.84	2.73±1.21	2.66±1.18

*Measured on a 3-point scale from 1=not at all involved, to 3=involved very frequently
**Measured on a 4-point scale from 1=very little to no importance, to 4=Very important

Table 10. Respondent reported levels of satisfaction with various aspects of their job.

Job aspect	Community	Hospital	Total*
Work schedule	4.60±1.23	4.64±1.37	4.68±1.26
Pharmacist co-workers	4.84±1.17	4.59±1.27	4.78±1.91
Pharmacy technician co-workers	4.62±1.16	4.18±1.30	4.51±1.20
Workload	4.17±1.38	3.90±1.42	4.15±1.37
Pay/wages	3.40±1.49	3.37±1.50	3.47±1.48
Opportunity to use your knowledge	4.79±1.11	4.35±1.35	4.61±1.23
Opportunity for advancement	3.54±1.54	3.11±1.52	3.44±1.54
Employee benefits	3.86±1.50	4.25±1.44	4.00±1.49
Level of stress	3.30±1.51	3.45±1.49	3.41±1.49
Fair treatment from management	4.10±1.44	3.65±1.49	3.99±1.48

*Measured on a six-point scale from 1=Very Dissatisfied, to 6=Very Satisfied; Mean±standard deviation;
Total represents community, hospital, and all other.

Table 11. Number and proportion of CPhTs indicating very high dissatisfaction with various aspects of their job.*

Job aspect	Community	Hospital	Total
Work schedule	14 (05.9%)	10 (09.1%)	28 (06.7%)
Pharmacist co-workers	11 (04.6%)	09 (08.2%)	23 (05.5%)
Pharmacy technician co-workers	12 (05.1%)	12 (10.9%)	26 (06.2%)
Workload	29 (12.2%)	19 (17.3%)	53 (12.7%)
Pay/wages	65 (27.4%)	33 (30.0%)	111 (26.6%)
Opportunity to use your knowledge	11 (04.6%)	14 (12.7%)	33 (07.9%)
Opportunity for advancement	63 (26.6%)	41 (37.3%)	124 (29.7%)
Employee benefits	45 (10.0%)	13 (11.8%)	74 (17.7%)
Level of stress	74 (31.2%)	27 (24.5%)	116 (27.8%)
Fair treatment from management	33 (13.9%)	25 (22.7%)	70 (16.8%)

*Number and proportion of technicians who responded with a "1" (Very highly dissatisfied) or "2" (Highly dissatisfied) on the 6-point satisfaction scale. Total represents community, hospital, and all other.

Table 12. Contributions by various sources toward job satisfaction.

Source	Community	Hospital	Total*
Peers/other technicians at my workplace	4.01±1.27	3.64±1.39	3.92±1.29
The pharmacist who primarily supervises me	4.23±1.25	4.11±1.20	4.24±1.22
Other pharmacists at my workplace	4.27±1.11	3.99±1.07	4.19±1.12
The customers/patients with whom I interact	4.14±1.15	4.29±1.20	4.24±1.17
Other health care professionals with whom I interact	3.99±1.06	3.84±1.11	4.00±1.09
The organization that employees me	3.75±1.27	3.64±1.31	3.73±1.30

*Measured on a six-point scale from 1=Significant negative effect, to 5=Significant positive effect, with a 'no interaction' option not calculated into the mean; Mean±standard deviation; Total represents community, hospital, and all other.

Table 13. Amount of stress reportedly caused, by source.

Source	Community	Hospital	Total.*
The amount or volume of work	3.40±0.96	3.29±1.14	3.37±1.02
Being short-staffed	3.73±1.06	3.65±1.07	3.63±1.09
Other employees not doing their fair share of work	3.36±1.18	3.80±1.09	3.44±1.18
Disagreements with technician peers at my job	2.24±1.14	2.77±1.17	2.38±1.15
Patients/customers/families who are rude or impatient	3.05±1.10	2.18±1.16	2.67±1.20
Dealing with staff from other health care providers	2.32±0.89	2.26±1.04	2.25±0.95
Inadequate technology, hardware, or other resources	2.59±1.20	2.66±1.25	2.63±1.22
Poorly designed workflow and division of labor	2.59±1.15	2.99±1.31	2.74±1.22
Lack of rest breaks, or time to take scheduled rest breaks	2.70±1.32	2.55±1.31	2.54±1.29

*Measured on a five-point scale from 1=Little or no stress, to 5=A tremendous amount of stress; Mean±standard deviation; Total represents community, hospital, and all other.

Table 14. Technician respondents indicating high levels of stress.*

Source	Community	Hospital	Total
The amount or volume of work	111 (47.0%)	48 (43.6%)	193 (46.4%)
Being short-staffed	140 (59.3%)	71 (64.5%)	240 (57.7%)
Other employees not doing their fair share of work	106 (44.9%)	71 (64.5%)	203 (48.8%)
Disagreements with technician peers at my job	39 (16.5%)	28 (25.5%)	73 (17.5%)
Patients/customers/families who are rude or impatient	75 (31.8%)	14 (12.7%)	98 (23.6%)
Dealing with staff from other health care providers	18 (07.6%)	11 (10.0%)	31 (07.5%)
Inadequate technology, hardware, or other resources	53 (22.5%)	31 (28.2%)	101 (24.3%)
Poorly designed workflow and division of labor	50 (21.2%)	37 (33.6%)	105 (25.2%)
Lack of rest breaks, or time to take scheduled rest breaks	68 (28.8%)	25 (22.7%)	97 (23.3%)

*Number and proportion of technicians reporting a "4" (high) or "5" (tremendous) amount of stress on a 5-point scale, emanating from various sources of stress at their job. Total represents community, hospital, and all other.

Table 15. Technician commitment information.

Question/Item	Community	Hospital	Total (%)
Plans to remain with current employer			
Less than 2 years	49 (20.8%)	15 (13.6%)	78 (18.8%)
2-5 years	75 (31.8%)	29 (26.4%)	128 (30.8%)
5-10 years	38 (16.1%)	21 (19.1%)	70 (16.8%)
More than 10 years	74 (31.4%)	45 (40.9%)	140 (33.7%)
Characterization of commitment to current employer			
Looking to leave at first opportunity	20 (08.5%)	06 (05.5%)	31 (07.5%)
I do not feel much commitment and keep my options open	31 (13.2%)	18 (16.4%)	57 (13.7%)
Do not plan to change unless something unexpected happens	100 (42.6%)	39 (35.5%)	166 (40.0%)
I feel strong commitment and plan my future with them for the long haul	84 (35.7%)	47 (42.7%)	161 (38.8%)
Plans to remain in career as a pharmacy technician			
Less than 2 years	16 (06.8%)	08 (07.3%)	28 (06.7%)
2-5 years	62 (26.3%)	17 (15.5%)	99 (23.8%)
5-10 years	46 (19.5%)	22 (20.0%)	78 (18.8%)
More than 10 years	112 (47.5%)	63 (57.3%)	211 (50.7%)
Characterization of commitment to remaining a pharmacy technician			
Looking to leave this career, altogether	21 (08.9%)	08 (07.3%)	38 (05.2%)
No plans currently, but might not take much for me to change	42 (17.9%)	16 (14.5%)	65 (15.7%)
In spite of challenges, hope to make this a career for some time	87 (37.0%)	44 (40.0%)	154 (37.1%)
Completely committed to this career for my entire work life	85 (36.2%)	42 (38.2%)	158 (38.1%)
When ending work as a technician, respondent will			
Retire	103 (43.8%)	66 (60.0%)	204 (49.2%)
Change to another type of health care position	64 (27.2%)	23 (20.9%)	101 (24.3%)
Change to a non-health care position	23 (09.8%)	05 (04.5%)	41 (09.9%)
Attend a college or university	22 (09.4%)	12 (10.9%)	37 (08.9%)
Other*	23 (09.8%)	04 (03.6%)	32 (07.7%)

*Answers ranged, with no response greater than once in frequency, other than become a pharmacist (n = 4), don't know (n = 5), and own/start a business (n = 2). Examples of other responses included volunteer more, homemaker, and utilize my degree; Frequency and percent; Total includes community, hospital, and all other.

Table 16. Correlation Matrix of Training, Commitment, Satisfaction, and Stress

	Voc	PTCB	Tech	Nontech	OJT	Smen	Pmen	ComE	ComP	Satis	Stress
Voc	----	.234**	.251**	.177**	.234**	.196**	.123**	.036	.014	.144	-.064
PTCB	.234**	----	.157**	.172**	.279**	.190**	.164**	.109*	.161**	.158**	-.058
Tech	.251**	.157**	----	.313**	.274**	.254**	.236**	-.023	-.020	.106	.034
Nontech	.177**	.172**	.313**	----	.199**	.244**	.216**	.084	.029	.115	.028
OJT	.234**	.279**	.274**	.199**	----	.474**	.396**	.132**	.061	.188**	-.111*
Smen	.196**	.190**	.254**	.244**	.474**	----	.478**	.166**	.068	.236**	-.051
Pmen	.123**	.164**	.236**	.216**	.396**	.478**	----	.093	.011	.170**	-.072
ComE	.036	.109*	-.023	.084	.132**	.166	.093	----	.414**	.532**	-.204**
ComP	.014	.161**	-.020	.029	.061	.068	.011	.414**	----	.289**	-.134**
Satis	.144**	.158**	.106*	.115*	.188**	.236**	.170**	.532**	.289**	----	-.453**
Stress	-.064	-.058	-.034	.028	-.111	-.051	-.072	-.204*	-.134**	-.453**	----

Voc = usefulness of Vocational training; PTCB = usefulness of PTCB certification; Tech = usefulness of previous work as a Technician with another employer; Nontech = usefulness of previous work in Non-technician employment; OJT = usefulness of OJT; Smen = Usefulness of Supervisor mentoring; Pmen = usefulness of Peer technician mentoring; ComE = commitment to the Employer; ComP = commitment to the Profession; Satis = total Satisfaction from job; Stress = total Stress from job.
*Significant at p < 0.05
**Significant at p , 0.01

References:

1.   Berger BA, Grimley D. Pharmacists' readiness for rendering pharmaceutical care. J Am Pharm Assoc. 1997;37(5):537-542.

2.   Jambulingam T, Doucette WR. Pharmacy entrepreneurial orientation: Antecedents and its effect on the provision of innovative pharmacy services. J Social Adm Pharm 1999;16(1):26-37.

3.   Holiday-Goodman M. Entrepreneurship, resource management, organizational culture, and other "business" factors influencing pharmacy practice change. Res Social Adm Pharm 2012;8(4)269-271.

4.   Clark BE, Mount JK. Pharmacy service orientation: A measure of organizational culture in pharmacy practice sites. Res Social Adm Pharm 2006;2(1):110-128.

5.   Rosenthal M, Tsao NW, Tsuyuki RT, Marra CA. Identifying relationships between the professional culture of pharmacy, pharmacists' personality traits, and the provision of advanced pharmacy services. Res Social Adm Pharm 2012;12(1):56-67.

6.   Mohammad A, Saini B, Chaar. Exploring cultural and linguistically diverse consumer needs in relation to medicines use and health information within the pharmacy setting. Res Social Adm Pharm 2014;11(4):545-559.

7.   Wenger LM, Rosenthal M, Sharpe JP, Waite N. Confronting inequities: A scoping review of the literature on pharmacist practice and health-related disparities. Res Social Adm Pharm 2015;12(2)175-217.

8.   Shoemaker SF, Staub-Delong L, Wasserman M, Spranca M. Factors affecting adoption and implementation of AHRQ health literacy tools in pharmacies. Res Social Adm Pharm 2013;9(5):553-563.

9.   Helmer RS, Shaunta MR, Byrd DC. Perceptions of the incorporation of health literacy in pharmacy training programs. J Am Pharm Assoc 2013;53(5):476-481.

10.   Wang J, Brown LM, Hong SH. Racial and ethnic disparities in meeting Part D MTM eligibility criteria among the non-Medicare population. J Am Pharm Assoc 2012;52(5)e87-e96.

11.   Mullins CD, Blatt L, Gbaravor CV, Yang HK, Baquet C. Health disparities: A barrier to high-quality care. Am J Health Syst Pharm 2005;62(17):1873-1882.

12.   Gatti ME, Jacobson KL, Gazmararian JA, Schmotzer B, Kripalani S. Relationships between beliefs about medications and adherence. Am J Health Syst Pharm 2009;66(8):657-664.

13.   Worley MM, Schommer JC, Brown LM, Hadsall RS, et al. Pharmacists' and patients' roles in the pharmacist-patient relationship: Are pharmacists and patients reading from the same relationship script? Res Social Adm Pharm 2007;3(1):47-69.

14.   Heck T, Gunther M, Bresee L, Mysak T, et al. Independent prescribing by hospital pharmacists: Patterns and practices in a Canadian province. Am J Health Syst Pharm 2015;72(25)2166-2175.

15.   McDonough RP, Harthan AA, McLeese KE, Doucette WR. Retrospective financial analysis of medication therapy management services from the pharmacy's perspective. J Am Pharm Assoc 2010;50(1):62-66.

16.   Burns A. Credentialing and privileging of pharmacists: A resource paper from the Council on Credentialing in Pharmacy. J Am Pharm Assoc 2014;54(6):e354-e364.

17.   Harper PC. Pharmacist provider status legislation: Projections and prospects. J Am Pharm Assoc 2015;55(2):203-207.

18.   Carnes P, Koons K. Leading the next renovation: Redesigning a pharmacy structural workplace. J Am Pharm Assoc 2010;50(3):416-418.

19.   Olufunmilola KO, Chui M. E-prescribing: A focused review and new approach to addressing safety in pharmacies and primary care. Res Social Adm Pharm 2012;9(6):996-1003.

20.   Olufunmilola KO, Schleiden LJ, Chui M. The hidden role of community pharmacy technicians in ensuring patient safety with the use of e-prescribing. Pharmacy 2015;3(4):330-343.

21.   Corelli RL, Zillich AJ, de Moor C, Giuliano MR, et al. Recruitment of community pharmacies in a randomized control trial to generate patient referrals to the tobacco quitline. Res Social Adm Pharm 2012;9(4):396-404.

22.   Anonymous. Sesquicentennial Stepping Stone Summits—Summit Two: Pharmacy Technicians. J Am Pharm Assoc 2003;43(1):83-92.

23.   Anonymous. White Paper on pharmacy technicians. Needed changes can no longer wait. J Am Pharm Assoc 2003;43(1):93-107.

24.   American College of Clinical Pharmacy. ACCP White Paper—A Vision of Pharmacy's Future Roles, Responsibilities and Manpower Needs in the United States. Pharmacotherapy 2000;20(8):991-1022.

25.   ASHP Statement on the Role of Pharmacy Technicians. American Society of Health-System Pharmacists. Sept 18, 2015. Accessed on: 9 Feb 2016.

26.   Wilensky H. The professionalization of everyone. Am J Sociol 1964;70(2):137-144.

27.   Desselle SP. Snapshot of U.S. certified pharmacy technicians: a nationwide quality of work life study. *J Am Pharm Assoc* 2005; 45(3):458-465.

28.   Desselle SP. Job turnover intentions among certified pharmacy technicians. *J Am Pharm Assoc*. 2005; 45(4):676-683.

29.   Schmitt MR, Desselle SP. Pharmacists' attitudes toward technician certification: a qualitative study. *J Pharm Technol*. 2009;25(1):79-88.

30.   Schmitt MR, Desselle SP. Pharmacists' perceptions of the value of certification. *J Pharm Technol* 2010;26(4):340-351.

31.   Desselle SP, Holmes ER. A structural model of CPhTs' job satisfaction and career commitment. *J Am Pharm Assoc.* 2007; 47:58-72.

32.   Desselle SP. CPhTs' views on medication preparation errors and their needs for additional education and training. *Am J Health Syst Pharm*. 2005; 62:1992-7.

33.   Desselle SP, Vaughan MA, Faria TF. Creating a performance appraisal template for community pharmacy technicians using the method of equal-appearing intervals. *J Am Pharm Assoc* 2002;42(5):768-779.

34.   Napier P, Norris P, Braund R. Could it be done safely? Pharmacists' views on safety and clinical outcomes from the introduction of an advanced role for technicians. Res Social Adm Pharm 2014;11(6):814-823.

35.   Schafheutle EI, Jee SD, Willis SC. Fitness for purpose of pharmacy technician education and training: The case of Great Britain. Res Social Adm Pharm 2016;In press.

36.   Bradley F, Willis SC, Noyce PR, Schafheutle EI. Restructuring supervision and reconfiguration of skill mix in community pharmacy: Classification of perceived safety and risk. Res Social Adm Pharm 2016; In press.

37.   Holden RJ, Brown RL, Scanlon MC, Karsh BT. Pharmacy workers' perceptions and acceptance of bar-coded medication technology in a pediatric hospital. Res Social Adm Pharm 2012;8(6):509-522.

38.   Chui MA, Mott DA, Maxwell L. A qualitative assessment of a community pharmacy cognitive pharmaceutical services program, using a work system approach. Res Social Adm Pharm 2012;8(3):206-216.

39.   Ho C, Hung P, Lee G, Kadija M. Community pharmacy incident reporting: A new tool for community pharmacies in Canada. Healthcare Quar 2010;13(1):16-24.

40.   O'Neal KS, Crosby KM, Miller MJ, Murray KA, Condren ME. Assessing health literacy practices in a community pharmacy environment: Experiences using the AHRQ Pharmacy Health Literacy Assessment Tool. Res Social Adm Pharm 2013;9(5):564-596.

41.   Dillman DA, Smyth JD. Internet, Phone, and Mixed-Mode Surveys: The Tailored Design Approach. Hoboken, NJ. Wiley; 2014.

42.   Desselle SP. An in-depth examination into pharmacy technician work life though an organizational behavior approach. Res Social Adm Pharm 2016;In press.

43.   Strozyk WR, Underwood DA. Development and benefits of a pharmacy technician career ladder. Am J Health Syst Pharm 1994;51(5):666-669.

44.   Lee TW, Holtom BC, McDaniel LS, Hill JW. The unfolding model of voluntary turnover: A replication and extension. Acad Manage J 1999;42:450-462.

45.   Gaither CA, Nadkarni A, Mott DA, Schommer JC, et al. Should I stay or should I go? The influence of individual and organizational factors on pharmacists' future work plans. J Am Pharm Assoc 2007;47(2):165-173.

46.   Pedersen CA, Schneider PJ, Scheckelhoff DJ. ASHP national survey of pharmacy practice in hospital settings: Dispensing and administration—2008. Am J Health Syst Pharm 2009;66(10):926-946.

47.   Hardigan PC, Popvici I, Carvajal MJ. Response rate, response time, and economic costs of survey research: A randomized trial of practicing pharmacists. Res Social Adm Pharm 2016;12(1):141-148.

Appendix 1. Semi-structured Interview Guide

<div align="center">

Center for Pharmacy Workforce Studies

Pharmacy Technician Study

"Qualitative Analysis of Certified Pharmacy Technician (CPhT) Work life"

<u>Interview Guide and Script</u>

</div>

1.   I would like you to tell me briefly where you are currently employed, how long you've been there, and what your official work title/position is.

2.   Next, I would like you to tell me what were the things that drew you to becoming a technician and what were the things that drew you to your current position at your company. Who or what things inspired you to become a CPhT?

   [Ask to expound, as necessary]

   [Follow up on issues dealing with career motivations, particular job functions, benefits offered

   by the company, dealing with the public, working in a medical profession, and so on]

3.   How prepared were you to begin work as a technician, and how prepared were you to begin work in your current position?

   [Follow up with questions about company training, certification, experience]

   [Follow up their vocational/educational training]

   [Ask how commensurate their training was with respect to their current job responsibilities]

4.   Speaking of your current job responsibilities, what things would you name as the most frequent and what things as the most important you do, in your opinion, and obviously in your own words?

   [Follow up with why they think those are most important]

   [Follow up with what they would like to change, if they could, about their responsibilities, and

   Whether these changes would be better for them personally, better for the pharmacy

   Organization, and/or better for patients]

5.   From what do you derive the most satisfaction from your job? What primarily keeps you working as a pharmacy technician?

   [Follow up on satisfiers]

   [Follow up on dissatisfiers]

6.   What are your primary sources of stress as a pharmacy technician?

7.   Do you view being a pharmacy technician as a lifelong career? Why or why not? How long do you plan on being a pharmacy technician? Why?

8.   Does your company have a mechanism for you to move up, achieve new titles, responsibilities, and pay grades? If so, what do those involve—experience, years with the company, training, positive evaluations, some sort of skill assessment? Other? Some combination of those? Having/not having such a mechanism to move up, how does that affect your desire to remain with your current company? How does it affect your desire to remain a pharmacy technician?

9.   In following that, will your next job likely be as a pharmacy technician? Why or why not? With the same company? Or remaining as a pharmacy technician, not only in a different company, but in a different setting, eg, community, versus hospital, versus home health care, versus long-term care, and so on? Why?

10.   What sorts of things other than the mechanism mentioned earlier would make you want to remain a pharmacy technician and/or remain with your current organization even more than you do now?

Appendix 2. Final Survey Disseminated Through Qualtrics

2015 National Pharmacy Technician Workforce Survey

1. Are you at least 18 years of age?
    __Yes
    __No
2. Please check the category that best matches your employment status.
    __Currently employed as a pharmacy technician
    __Employed in a health or pharmacy-related field or position, but not functioning as a pharmacy
       technician [STOP HERE. You do not need to answer additional questions. Please complete the
       online submission]
    __Retired [STOP HERE. You do not need to answer additional questions. Please complete the
       online submission]
    __Enrolled in pharmacy school, but also employed as a pharmacy technician/intern[STOP HERE.
       You do not need to answer additional questions. Please complete the online submission].
    __Unemployed (check one: __Seeking __Not seeking employment) [STOP HERE. You do not
       need to answer additional questions. Please complete the online submission]
    __Other (Please specify:_____) [STOP HERE. You do not need to answer
       additional questions. Please complete the online submission]

3. Please check the ONE item that best describes your primary place of employment.
    __Independent community pharmacy (fewer than 4 stores under the same ownership)
    __Small chain community pharmacy (4 to 10 stores under the same ownership)
    __Large chain community pharmacy (more than 10 units under the same ownership)
    __Mass merchandiser (e.g., Costco, Target, Wal-Mart)
    __Supermarket pharmacy
    __Clinic-based pharmacy (a licensed pharmacy located in or near a medical clinic)
    __Government hospital/health system (__inpatient __outpatient)
    __Non-government hospital/health system (__inpatient __outpatient)
    __Home health/Infusion
    __Pharmacy benefit administration (e.g., PBM, managed care)
    __Nursing home/Long-term care
    __Mail service pharmacy
    __Specialty pharmacy
    __Ambulatory care (e.g., medical clinic, office-based practice, not a dispensing pharmacy)
    __Pharmacy technician training program (e.g., vocational school, community college, etc.)
    __Pharmaceutical Industry
    __Other organization (Please specify: _____)

4. In which state is your primary employment? _____

5. How would you describe the area that serves as your primary employment?

    __Rural

    __Small city

    __Suburb of larger city

    __Medium-sized or large city urban core

6. Who required your PTCB Certification? ***Check all that apply.***

    __State law/regulations

    __My employer

7. How many years have you worked as a pharmacy technician ____ years

8. Number of years employed by your present employer: ____ years

9. Are you full time or part time?

    __Full time

    __Part time (20-40 hours per week)

    __Part time (<20 hours per week)

10. Are you?

    __Male

    __Female

11. How old are you? ____years

12. Which factor(s) were responsible for you becoming a pharmacy technician (check up to three)?

    __General interest in pharmacy and/or health care career

    __Recommendation of a friend, colleague, or family member

    __Recruitment or encouragement by a pharmacist

    __Work schedule/flexibility

    __Salary

    __Benefits

    __Fulfilling career

    __Exposure by working at another job in a pharmacy organization (eg, hospital, community pharmacy, chain pharmacy, mail order, etc)

    __Work at a previous employer, technician-related

    __An opportunity to serve the public

    __A desire to help people

13. Which of the following best describes your primary method of training for work as a pharmacy technician?

      __On-the-job training from my employer ONLY
      __Self-guided training using books and on line resources ONLY
      __Structured training program from my employer, unaccredited
      __Structured training program from my employer, ASHP/ACPE-accredited
      __Standalone training program (vocational school, community college, etc) unaccredited
      __Standalone training program (vocational school, community college, etc) ASHP/ACPE-accredited

14. How valuable were each of the following in preparing you for your current work responsibilities? (1=not at all helpful; 2 = slightly helpful; 3= fairly helpful; 4= very helpful)

      __Formal technician training/education program at a college or vocational school
        PTCB or similar certification
      __Work at a previous employer, technician-related
      __Work at a previous employer, not as a technician
      __Formal on-the-job training program by employer
      __Guidance and mentorship from supervisor(s)
      __Guidance and mentorship from peer technicians

15a, 15b, 15c. For a typical week, estimate your level of involvement, or frequency of this activity, your perception of the importance of this activity, and your perception of how importance this activity is to your primary employing organization. [Skip logic employed to direct respondent to correct set of questions, by setting].

For those in **community pharmacy**:

Activity	(a) Rate level of involvement or frequency (1 = Not at all involved; 2 = Involved somewhat frequency; 3 = Involved very frequently)	(b) Rate Importance of this Activity to You (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important	(c) Rate Your Perception of the Importance of this Activity to Your Organization (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important
Receive prescription/medication orders			
Collect and communicate patient specific data			
Assess prescription for completeness, accuracy, authenticity, legality, authenticity, legality, and reimbursement eligibility			
Process a prescription/medication order			
Provide prescription/medication to patient/patient's representative			
Direct patient to pharmacist for counselling			
Identify pharmaceuticals and supplies to be ordered and manage inventory			
Use and maintain automated and point-of-care dispensing technology			
Communicate with third party payers to determine coverage for products and services.			
Other:_____			
Other: _____			

For those in **hospital pharmacy**:

Activity	(a) Rate level of involvement or frequency (1 = Not at all involved; 2 = Involved somewhat frequency; 3 = Involved very frequently)	(b) Rate Importance of this Activity to You (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important	(c) Rate Your Perception of the Importance of this Activity to Your Organization (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important
Replenishing unit dose carts (if utilized)			
Restocking of floor stock and/or automated dispensing cabinets			
Compounding sterile preparations (excluding chemotherapy)			
Compounding chemotherapy preparations			
Order entry activities (for pharmacist verification)			
Purchasing / inventory management related activities			
Information technology system management			
Controlled substance system management			
Technician supervising other technicians			
Checking dispensing by other technicians (tech-check-tech)			
Billing			
Criteria-based screening of medical records to identify medication-related problems for pharmacist follow-up			
Preparation of clinical monitoring information for pharmacist review			
Dispensing medications with remote video supervision			
Medication assistance program management			
Initiation of medication reconciliation (obtaining list)			
Quality Assurance activities / unit inspections			
Packaging activities			
Facilitating transitions of care (e.g., discharge medications, prior authorization)			
Other (specify _____)			
Other (specify _____)			

For those in **home health care settings:**

Activity. Please write in up to 5 major activities in which you are involved in your primary setting of home health care.	(a) Rate level of involvement or frequency (1 = Not at all involved; 2 = Involved somewhat frequency; 3 = Involved very frequently)	(b) Rate Importance of this Activity to You (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important	(c) Rate Your Perception of the Importance of this Activity to Your Organization (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important

For those in **managed care settings**:

Activity. Please write in up to 5 major activities in which you are involved in your primary setting of home health care.	(a) Rate level of involvement or frequency (1 = Not at all involved; 2 = Involved somewhat frequency; 3 = Involved very frequently)	(b) Rate Importance of this Activity to You (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important	(c) Rate Your Perception of the Importance of this Activity to Your Organization (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important

For those in **long-term care settings**:

Activity. Please write in up to 5 major activities in which you are involved in your primary setting of home health care.	(a) Rate level of involvement or frequency (1 = Not at all involved; 2 = Involved somewhat frequency; 3 = Involved very frequently)	(b) Rate Importance of this Activity to You (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important	(c) Rate Your Perception of the Importance of this Activity to Your Organization (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important

For those in **other** settings:

Activity. Please write in up to 5 major activities in which you are involved in your primary setting of home health care.	(a) Rate level of involvement or frequency (1 = Not at all involved; 2 = Involved somewhat frequency; 3 = Involved very frequently)	(b) Rate Importance of this Activity to You (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important	(c) Rate Your Perception of the Importance of this Activity to Your Organization (1 = very little to no importance; 2= somewhat important; 3 = important; 4 = very important

16. Please rate your level of satisfaction with the following in your primary place of employment:

1- highly dissatisfied; 2- dissatisfied; 3-slightly dissatisfied; 4-slight satisfied; 5-satisfied; 6-highly satisfied

    __Your work schedule

    __Your pharmacist co-workers

    __Your pharmacy technician co-workers

    __Your level of workload

    __Your pay

    __Ability to use your knowledge

    __Opportunity for advancement

    __Your benefits

    __Your level of stress

    __Fair treatment from management

    __Opportunities for advancement/development

17. How would you assess the contributions of the following persons/groups toward your job satisfaction:
(1 = greatly detract from; 2 = slightly detract from; 3 = Neither detract from nor enhance; 4 = slightly enhance; 5 = greatly enhance; Not applicable)

__Peer/other technicians at my workplace

__The pharmacist who primarily supervises me

__Other pharmacists at my workplace

__The customers/patients with whom I interact

__Other health professionals and staff (eg, physicians, nurses, receptionists/clerks) with
     whom I interact

__The organization that employs me (eg, chain drug store, hospital or other health facility,
     independent community pharmacy, mail order corporation, etc)

18. Please rate the amount of stress each of the following places on you at your job. (1 = Basically very little, or no stress; 2 = Not that much stress; 3 = Some amount of stress; 4 = A good deal of stress; 5 = A tremendous amount of stress)

__The amount or volume of work you have to do

__Being short-staffed at my work

__Other employees not picking up their fair share of work

__Disagreements with technician peers at my job

__Patients/customers/families who are rude or impatient

__Dealing with staff from other health care providers on prescriptions or medication
     orders

__Dealing with payers (eg, insurance companies) on prescriptions or medication orders

__Inadequate technology, hardware, and other resources needed for me to be effective in
     my work

__Poorly designed workflow and division of tasks/responsibilities among workers at my
     job

__Lack of rest breaks, or time to take scheduled rest breaks

19. How long do you plan to remain with your current employer as a pharmacy technician?

__Less than 2 years

__2-5 years

__5-10 years

__More than 10 years

20. How long do you plan to remain in your career as a pharmacy technician?

    __Less than 2 years

    __5 years

    __5-10 years

    __More than 10 years

21. How would you characterize your commitment, or loyalty to your current employer? Check one, only

    __I would have left or am looking to leave at the first, real opportunity

    __I do not feel much commitment and keep my options open

    __I feel modest commitment and do not plan significant changes unless something
      unexpected happens

    __I feel strong commitment to the organization and am planning my career/work future with
      them for the long haul

22. How would you characterize your commitment, or loyalty to remaining a pharmacy technician? Check one, only

    __I am looking or plan to leave this career, altogether

    __I do not have other plans currently, but it might not take much for me to change careers

    __In spite of challenges or shortcomings, I feel good about this line of work and hope to
      make a career of it for quite some time

    __I feel completely committed and am definitely in this career for my entire worklife

23. When you stop working as a technician, will you: Check one, only

    __Retire

    __Change to another type of health care position

    __Change to another non-health care position

    __Attend a college or university

    __Other (Please specify:_____)

24. Additional comments about the survey or about your job/career as a pharmacy technician.

_____

_____

_____