Implementing Tech-Check-Tech in the Community Pharmacy Setting

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Abstract

Objective: Tech-check-tech (TCT) has been shown to be a safe practice in the inpatient pharmacy setting that allows for the redistribution of pharmacists' time to perform more patient care services. Despite the success of TCT in the inpatient setting, little research has been done on TCT in the community pharmacy setting. The objective of this project was to develop and implement community based TCT (cTCT) in two outpatient pharmacies in a large integrated healthcare system under the scope of the Pharmacy Society of Wisconsin's (PSW) pilot study. A secondary objective was to measure redistribution of pharmacists' time.

Methods: Two clinic pharmacies implemented the use of specially trained technicians to perform final product verification. Validated pharmacy technician (VPT) candidates completed both didactic and practical training prior to completing the validation process. After validation, each pharmacy implemented TCT into their workflow. While using the new workflow, data was collected on continued accuracy of VPTs and pharmacists' time allocation.

Results: After implementation of the TCT workflow, VPTs maintained 100% accuracy performing the final product verification. Through the practice of TCT, pharmacists were able to increase the time spent on direct patient care activities by 5%.

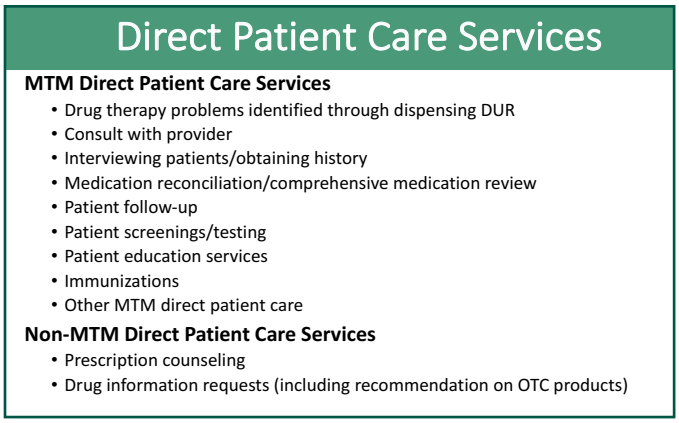
Conclusions: By using TCT in two community pharmacies, VPTs were shown to be at least as accurate as pharmacists in checking the final product of a technician filled prescription. In addition, with some pharmacy dispensing activities reassigned to VPTs, pharmacists can expand patient care services.

Over the past 15 years, studies have demonstrated that community pharmacists can have a great impact on the improvement of patient outcomes and the reduction of total health care costs through pharmacist-delivered patient care services.[1] One barrier to providing such services in the outpatient setting, however, is lack of pharmacists' time due to required clinical and technical tasks.

The allowance of performing tech-check-tech (TCT) currently varies by state as well as by pharmacy practice setting.[2] As of 2015, twelve states fully allowed for the practice of TCT in the inpatient setting, while an additional seven states allowed TCT in the inpatient setting with pharmacy board approval. In contrast to the use of TCT in the institutional setting, only five states had allowed the use of TCT in the community setting in any capacity. The Wisconsin Pharmacy Examining Board (PEB) statutes state a pharmacist must provide the final verification of a prescription being dispensed for accuracy, validity, and completeness.[3] Despite Wisconsin administrative code requiring product validation be performed by a pharmacist, studies have shown that specially trained pharmacy technicians in the inpatient setting are capable of performing the final verification of a technician filled product, tech-check-tech (TCT), with at least as much accuracy as a pharmacist.[4] The practice of TCT has afforded time for the pharmacist to step away from the traditional pharmacy workflow and instead perform direct-patient care services such as medication management and clinical drug monitoring.[5] For these reasons, the Wisconsin PEB had previously granted individual variances to institutional pharmacies who desired to participate in TCT. These variances served as a waiver of Wisconsin pharmacy rule requiring the final product verification be completed by a pharmacist. Legislation was passed in March of 2016 that revoked all previously granted variances and required any pharmacies wishing to continue practicing TCT to enroll in a PEB approved pilot program. Under these approved pilot programs, the Wisconsin PEB is able to grant a waiver from any rule that is promulgated by the board.

The Pharmacy Society of Wisconsin (PSW) realized the benefits that TCT, and more specifically community based tech-check-tech (cTCT) can afford pharmacists and their opportunity to improve patient care. Consequently, PSW developed a cTCT pilot program and corresponding study of the pilot entitled, "Advancing Community Pharmacy Quality - A Wisconsin Statewide Research Pilot Project". The aim of the study is to pilot cTCT workflow in 15 to 20 retail-chain, independent, and health-system outpatient pharmacies with the objective to "implement and assess the impact of a TCT program in community pharmacies

FIGURE 1. Direct Patient Care Services



in Wisconsin on patient safety measures" with the objective of "facilitating the provision of community pharmacist-provided services".[6] For the purposes of the PSW pilot study, the process of cTCT was defined as using eligible, trained and verified technicians who provide the final product verification of a technician-prepared medication versus requiring pharmacists to complete the product verification. This does not include the clinical or profile review. Two community pharmacies from Aurora Health Care were invited to participate in this pilot.

The objective of the project presented in this manuscript was to develop and implement cTCT in two outpatient pharmacies in a large integrated healthcare system under the scope of the Pharmacy Society of Wisconsin's (PSW) pilot study. A secondary objective was to measure redistribution of pharmacists' time.

Methods

Pilot Sites and Technician Selection

In order to be included in PSW's cTCT pilot study, community pharmacies had to meet eligibility criteria: (1) Be licensed and located in the state of Wisconsin (independent, chain, or health-system), (2) Maintain a continuous quality improvement program, (3) Participate in the research studies of cTCT approved by the PEB, and (4) Include a procedure like "show and tell" during patient consultation. In addition, PSW's pilot study has eligibility requirements of validated pharmacy technician (VPT) candidates: (1) Age of 18 years or older, (2) Employment status of greater than or equal to 0.5 full time equivalents (FTEs) at the pilot pharmacy, (3) A minimum of 2000 hours of experience as a pharmacy technician or completion of an accredited technician training program, (4) At least 6 months of employment at the pilot pharmacy, (5) Complete didactic and practical training related to TCT, and (6) Demonstrate and maintain accuracy during initial validation and quality assurance measures (greater than or equal to 99.8%).

The pilot sites selected within Aurora Health Care were two similar community pharmacies located within clinic buildings. The pharmacies had script counts of about 140 to 160 prescriptions daily. Each pharmacy was staffed with 1.8 to 2.0 pharmacist FTEs and 3.0 technician FTEs. In addition, these specific community pharmacies were selected because they had pharmacists with a strong desire to expand patient care services in their pharmacies, strong pharmacist-technician relationships,

FIGURE 2. VPT Candidate Practical Training

Required by the Pharmacy Examining Board

- VPT candidate can identify and describe the elements of a package label (i.e. drug name, dose, dosage form, control or lot number, and expiration date)
- VPT candidate can identify and describe medication and pharmacy abbreviations needed to match ordered medication with dispensed medication (e.g. mg, mEq, ER, IR, tab, cap)
- VPT candidate can recognize and describe common dispensing medication errors and concepts (i.e. wrong medication, wrong dose, wrong dosage form, look-alike sound-alike errors, high-alert medications)
- VPT candidate is familiar with organizational policies and procedures on reporting of medication errors
- VPT candidate is familiar with the organization's medication process (i.e. procurement, ordering, dispensing, administration, and monitoring)

Site-Specific TCT Training

- VPT candidate can describe the different dosage forms (e.g. unit dose tabs, caps, oral solution, injection, packet, suppository, patches, oral syringes)
- VPT candidate can demonstrate how to check prescriptions thoroughly and in a systematic manner
- VPT candidate is familiar with auxiliary labels and can appropriately identify which auxiliary labels are necessary (e.g. refrigerate, do not refrigerate, take with food)
- VPT candidate can identify an error and can resolve the error prior to distribution to the patient
- VPT candidate can articulate how to document the number of final checks complated VPT candidiate understands the importance of notifying the pharmacist in a timely manner that final checks are completed and ready for auditing

met PSW's pilot site eligibility criteria, and employed technicians that met PSW's VPT candidate eligibility criteria. At each pharmacy, a supervising pharmacist was appointed as the responsible party for implementation of the pilot, reported to the PSW study researchers as required, and reported to the Wisconsin PEB. The supervising pharmacist for each location submitted a custom program application to the PEB that granted a waiver of Wisconsin regulation requiring the pharmacist to perform the final product verification.

Pharmacy Baseline Performance

Once approval was granted from the Wisconsin PEB, the pharmacies completed data collection for pharmacist checking accuracy and baseline of pharmacist time allocation of patient care services. In accordance with the PSW pilot study, 50 final checks were performed daily for 15 consecutive business days. On each day, one pharmacist would perform the final product verification and a second pharmacist would perform a double check to audit for accuracy. Accuracy data for pharmacist verification was collected on the following criteria: right drug, right dose, right dosage form, and right quantity.

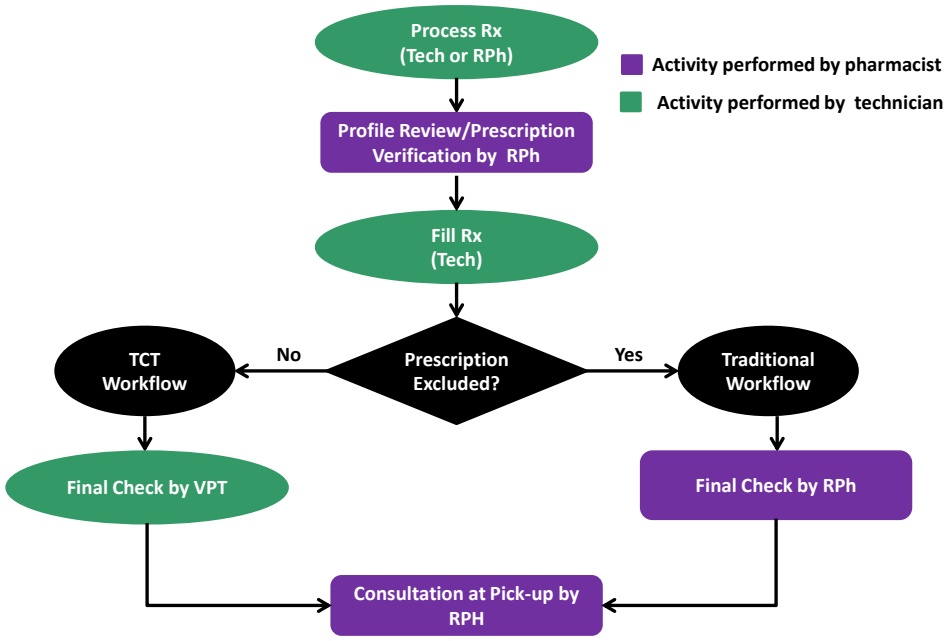
In addition to accuracy of product verification, pharmacists participating in the study also collected baseline data on their daily time allocation. Categories of time allocation include direct patient care services, management activities, and traditional pharmacy dispensing (Figure 1: Direct Patient Care Services). Patient care services were documented to the nearest quarter-hour.

Training

Training materials were developed by a steering committee at PSW for the pilot toolkit consisting of a pilot overview, requirements, policies and procedures, and implementation guidance. One of the requirements outlined in the training materials was training of VPT candidates. Community tech-check-tech VPT training was composed of both didactic and practical components. Seven online training modules were created for the didactic training. The modules included: (1) Thinking about Tech-Check-Tech? (2) Step-By-Step Guide to Implementing Community Pharmacy-Based TCT under a Pilot Program (3) Routes of Administration and Common Dosage Forms (4) Advanced Review of Common Medications (5) Pharmacy Calculations Review (6) Accuracy in the Pharmacy: Preventing, Identifying, and Classifying Medication Errors (7) Basic Steps of Product Verification. Modules 1 and 2 were completed by every pharmacy staff member participating in cTCT while VPT candidates were required to complete all seven modules with a score of at least 80% on each learning assessment. Technicians could retake each module until they passed it successfully. Each VPT candidate completed the didactic training in approximately 2.5 hours.

After completion of the didactic coursework, each VPT candidate completed practical training. The practical training consisted on hands-on training and application of concepts in the pharmacy and was completed in approximately 5 hours over a span of 5 days (Figure 2: VPT Candidate Practical Training). This practical training allowed the technician to practice the final product verification of a prescription prior to being tested for accuracy during the validation process.

FIGURE 3. Aurora Health Care cTCT Workflow



Technician Validation

Initially, 4 technicians completed the validation process, 3 technicians from pharmacy A and 1 technician from pharmacy B. For the validation process, a verified pharmacy technician candidate was required to perform the final product verification that were then double checked by a licensed pharmacist. Pharmacists were checking technician accuracy on correct drug, correct dose, correct dosage form, and correct quantity being dispensed. In order to meet validation criteria, technicians were required to perform 1000 final checks with 99.8% accuracy. All four of the VPT candidates met validation criteria.

Implement TCT Workflow

Following validation, each pharmacy implemented cTCT into their daily workflow. With the validation of the four technicians, Aurora Health Care became the first organization in the state of Wisconsin to implement and actively practice cTCT under PSW's pilot study. Each pharmacy generally practiced under a linear workflow (Figure 3). First, a prescription order is transcribed and processed. Following transcription, a pharmacist performed a prospective profile review and verification of prescription transcription accuracy. After the prescription has been verified by the pharmacist, it moved to the technician

FIGURE 4. Baseline Pharmacist Time Allocation

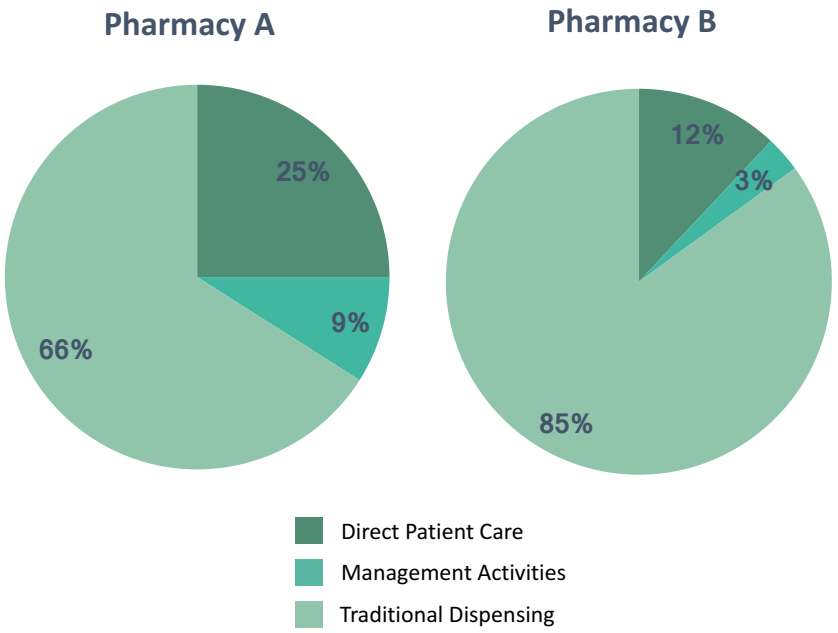


FIGURE 5. Pharmacy A Pharmacist Time Allocation at Baseline and Week 4

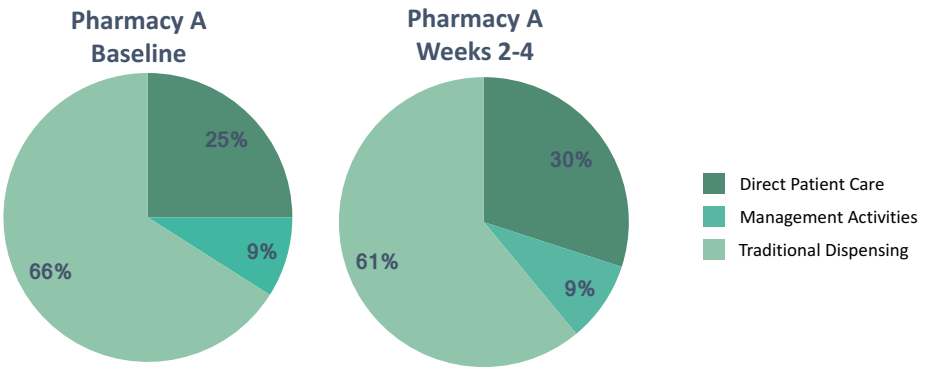
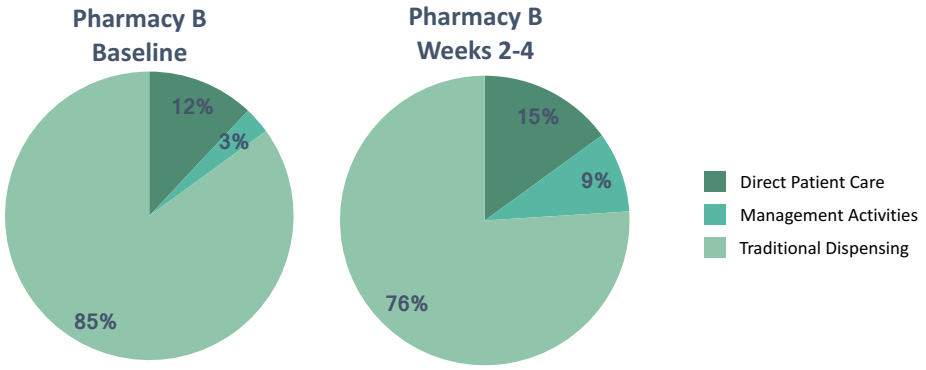


FIGURE 6. Pharmacy B Pharmacist Time Allocation at Baseline and Week 4



filling station. Once a prescription was filled, it had to be decided if the prescription can be verified by a VPT or if it required product verification by the pharmacist.

A small number of prescriptions were excluded from the cTCT workflow. These exclusions were compounded, reconstituted, delivered, and mailed prescriptions. In particular, these prescriptions were excluded because they either require a clinical eye for accuracy or do not allow for the final product verification by a pharmacist during dispensing such as consultation at prescription pick-up. Last, after final product verification, a pharmacist provided consultation for all prescriptions, new and refill, at pick-up with show-and-tell.

Data Collection

Once the cTCT workflow was implemented in the pilot sites, continued quality assurance data was collected to ensure the VPTs continued to practice accurate prescription verification. Per PSW pilot study requirements, at least 5% of all VPT checked prescriptions must be double checked by a pharmacist for accuracy on correct drug, correct dose, correct dosage form, and correct formulation. Each technician must, individually, maintain a checking accuracy of 99.8% on cTCT final checks within the previous 6 months.

Similar to baseline collection of time allocation, pharmacists were also asked to continue to record their time allocation throughout the cTCT process. Pharmacist tallied the time allocated to the activities of traditional pharmacy dispensing, management activities, and direct patient care. Data were submitted weekly for analysis.

Results

At baseline, a total of 750 prescriptions were checked at each pharmacy. Combining the data for the two pharmacies, the pharmacists were shown to be 99.9% accurate with only one error discovered out of the 1500 total prescriptions audited. In the two pharmacies, it was found that a majority of the day was allocated to traditional dispensing with activities including order transcription, prescription filling, and

patient profile review. Direct patient care activities accounted for 25% and 12% of pharmacist time allocation for pharmacy A and pharmacy B respectively (Figure 4: Baseline Pharmacist Time Allocation).

Community tech-check-tech was implemented in both outpatient pharmacies after 4 weeks of training and technician validation. After the first 4 weeks of cTCT implementation, all four of the VPTs maintained 100% accuracy on final product verification. Each pharmacy had audited more than the required 5% of the PSW pilot study. Pharmacy A, with three VPTs, had audited an average of 30% while with Pharmacy B, with one VPT, had audited 20% of the final product verifications (Table 1: Cumulative Technician Quality Assurance).

After just 4 weeks, both pharmacies saw a redistribution of pharmacist time. Pharmacy A showed a 5% increase in direct patient care services over weeks two through four when compared to the same fifteen-day measurement at baseline (Figure 5: Pharmacy A Pharmacist Time Allocation at Baseline and Week 4). Whereas Pharmacy B showed a 3% increase in direct patient care services over weeks two through four when compared to baseline (Figure 6: Pharmacy B Pharmacist Time Allocation at Baseline and Week 4). Both pharmacies experienced a decrease in pharmacist time spent in traditional pharmacy dispensing activities.

Discussion

Program Expansion

Each pharmacy will be participating in regular phone check-ins with other PSW pilot participants to discuss further growth of services including medication synchronization, antibiotic callback programs, and expansion of medication therapy management. Each pharmacy will develop an action plan and associated timeline for the development of these direct patient care services. Additionally, each pharmacy will continue to track pharmacists' time allocation in order to evaluate the redistribution of time under continued use of cTCT.

Lessons Learned

There were many players involved in the development and implementation of the PSW pilot study including PSW as the coordinator, a Wisconsin pharmacy school as the main researcher, and the PEB granting variances. While all of these groups worked together to develop the cTCT pilot, it was difficult to keep the momentum of the project moving forward due to varying points of interest. In addition, there were the players within the pharmacies themselves that were key to program implementation, the pharmacy staff. In order for cTCT to be a success, there had to buy-in from both the pharmacists and the technicians. The pharmacists had to feel comfortable relinquishing a traditionally pharmacist-only job of product verification as well as having confidence in their VPTs abilities and the VPTs had to have their own buy-in and confidence that they were fully capable of performing final product verification accurately and efficiently.

Pharmacists were surprised at how cTCT had impacted their pharmacy workflow after just a few weeks. Community tech-check-tech had allowed the pharmacists more time to perform patient care activities including the allowance of prolonged patient care consultations. With continued practice in cTCT, the pharmacies anticipate that there will be a continued increase in pharmacist time allocated to patient care services allowing for implementation of new patient care services and expansion of current services.

Conclusion

By using TCT in two community pharmacies, VPTs were shown to be at least as accurate as pharmacists in checking the final product of a technician filled prescription. In addition, with some pharmacy dispensing activities reassigned to validated pharmacy technicians, pharmacists can expand patient care services in their pharmacies.

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PR *This article has been peer-reviewed. The contribution in reviewing is greatly appreciated!*

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TABLE 1. Cumulative Technician Quality Assurance (4 Weeks Post Implementation)

	# Checked by VPT	# Audited by Pharmacist	% Audited	Percent Accuracy
VPT 1	878	133	15.1%	100%
VPT 2	341	65	19.1%	100%
VPT 3	267	119	44.6%	100%
VPT 4	193	39	20.2%	100%