Scaling Technician Product Verification (TPV): Developing an Implementation Strategy

for a Large Community Pharmacy Chain

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Introduction

The study prioritized meeting the APhA Foundation Incentive Grant initiative priorities regarding patient care workflow and pharmacist-patient communication.

Technician product verification (TPV) (a.k.a. tech-check-tech) has been proven to be safe in multiple geographical community pharmacy settings, including Tennessee.[1-3] In a changing marketplace, including increased cost to fill a prescription and declining product reimbursement, providing patient access to community pharmacist-delivered clinical pharmacy services is challenging. TPV represents one way to maximize existing workflow processes in place by shifting non-judgement-based skills to technicians.[1-5] At its core, TPV programs are intended to enable pharmacists to spend more time on clinical services and patient-centered activities and current evidence to date supports this aim.[1,2] Furthermore, TPV is financially viable in community pharmacies which include services like medication therapy management (MTM) and vaccine services.[6] Finally, certified pharmacy technicians themselves are ready and willing to take on advanced pharmacy roles like TPV.[7-9]

Although TPV's utility as a means for safely increasing access to clinical pharmacy services has been established in the literature, this alone is not enough to scale this innovation nationwide. Studies show that it takes 17 years for an evidence-based practice to take hold in a clinical setting.[10,11] Literature relating to TPV and its scalability has centered mostly on the institutional setting, leading to questions on how to best implement and scale TPV in a community setting.[12,13] Furthermore, although perceptions of TPV by both pharmacists and technicians are positive regarding its acceptability, appropriateness, and feasibility, several barriers to its implementation and scalability within pharmacy workflow have been uncovered.[5]

Given the current era of a rapidly evolving health care sector and volatile reimbursement models which threaten patient access to pharmacy services, community pharmacy cannot wait 17 years for the promise of new and expanded clinical service offerings that TPV may bring. Studying key factors related to successful implementation of TPV would result in a more rapid and standardized scaling across community pharmacies in states where it is permitted.

Methods

Study Design

Currently there are 12 Kroger Pharmacies in Tennessee piloting TPV under a Tennessee Board of Pharmacy approved pilot project which began in November 2017.[1] Six of these pharmacies are in the Nashville area of Kroger Health. These community pharmacies were selected by corporate management based on several factors. Those pharmacies and their staff served as study subjects for the mixed-methods analysis.

Data collection took place between February 2020 and April 2020. The research was approved by the University of Tennessee Health Science Center (UTHSC) Institutional Review Board.

This mixed-methods study set out to ascertain facilitators and barriers related to implementation of TPV using the principles of implementation science.

1. Web-based surveys

   Made available to pharmacists participating in or having participated in TPV pilot program at a previously identified community pharmacy. Survey utilized a validated instrument[14 to assess pharmacist-perceived facilitators and barriers of TPV implementation]. The survey assessed implementation outcomes of "Acceptability", "Appropriateness", and "Feasibility".[15] All items were assessed using a 5-point Likert scale, ranging from strongly disagree to strongly agree. The survey was distributed to 13 pharmacists in the community pharmacy chain and remained open for answers for 4 weeks. A modified Dillman approach was used, ensuring a survey response rate of approximately 80% by announcing, publishing, and republishing the survey reminder to pharmacists.

2. Semi-structured interviews

   Based on selected constructs of the Consolidated Framework for Implementation Research (CFIR)[16,17] to explore pharmacists' thoughts, feelings, and perceptions related to implementation of TPV. Interviews were conducted with 8 pharmacists and ranged from 20 to 55 minutes in length, using semi-structured interview technique until a point of saturation (when no new information could be gathered). The researcher conducting the interviews was trained, specifically on how to avoid introducing bias during interviews. The interview guide was based on selected constructs of the CFIR identified by key stakeholders through a survey. Interviews were recorded with the use of a digital audio recorder and were conducted via phone or in-person following participants' consent. Consent was obtained either orally on a separate recording or written via a signed consent form. Once the interview was performed, the recordings were placed within a secure folder within the UTHSC vault where only those with password protected access were allowed to listen to the recordings. Semi-structured interviews were conducted by research assistant HL. The transcripts underwent deductive thematic analysis using the CFIR codebook by researchers trained in qualitative research methods (KH and KF). The established coding protocol involved the 2-coder team having accomplished initial, separate coding and subsequent consensus on coding methodology to function as one coding system.

3. Non-disguised direct observation

Observed pharmacists and technicians while TPV was being conducted in a natural setting to evaluate workflow impact of TPV implementation. Site observations also included community pharmacy demographics (hours, number of technicians working, number of certified technicians, etc.). A standardized observation form, with dedicated space to take additional field notes, was utilized. Field notes were considered during analysis of overall themes. Once the observation was performed, the documents were placed on a secure folder within the UTHSC vault, where only those with password protected access could view the documents. Non-disguised direct observations were conducted by JS.

Results

Participant characteristics

A total of 10 pharmacists participated in the web-based survey regarding implementation (76.9%). Table 1 summarizes participants' characteristics. Most responders were white (75%) and female (75%). All participants (100%) were full time pharmacists (> 30 hours per week). Table 2 shows complete survey results. The results revealed that pharmacists agree the implementation of TPV with efforts to increase time to provide clinical activities appeals to them (70%), seemed relevant to the practice of pharmacy (60%), and implementation of TPV seemed doable (70%). When surveyed on the implementation process of TPV, pharmacists could not agree that implementation of TPV seemed easy (30%) and if TPV would be a good match for their community pharmacy (40%).

A total of 8 pharmacists participating in the TPV pilot program were interviewed. Interviewed pharmacists were primarily white (75%) and female (75%). Complete interviewee characteristics are shown in Table 3.

Theme 1: TPV is a highly complex intervention with numerous barriers for pharmacy implementation

A frequently cited sentiment from pharmacists centered around the difficulty of implementation at the individual community pharmacy level. Specifically, pharmacists called out adaptability of the implementation as something they wished to be addressed. Some of this was to be expected, as this study was conducted alongside a pilot study that dictated implementation terms.

Pharmacists lamented the certified pharmacy technician requirements that were delegated. Per the pilot terms, for a prescription to eligible for technician verification the prescription required dispensing from a certified technician. This was a common barrier to implement in community pharmacies, as most of the observed sites had issues having two certified technicians present at the same time.

"I think we still have hiccups with it 'cause we only have one tech that can verify officially. I think it would work better if we had more techs that could do it. When you just have the one, it- you're constantly trying to figure out, okay, who truly counted it, can he count it?" (Pharmacist 7)

"Having more certified- I mean, obviously, if I could have a whole pharmacy with just certified technicians, that would be great. But, with the way that the job market is going, I mean, we're hiring new people all the time, it's just not- But, you know, the people that we do have, if we could get them

certified, that would be fantastic. Um, yeah, definitely. More certified technicians would be better. The biggest thing is hours. I mean, I can't stress that enough. We just need more hours, which I understand is not within your power, necessarily, that's just a retail pharmacy situation that we're just going to have to work within our boundaries at that point." (Pharmacist 2)

Citing lack of an implementation guide, pharmacists oftentimes did not know what the next step to implementation was. Being in a pilot program, many pharmacies struggled with the complexity of the requirements related to implementation. The pilot program mandated that technicians focus solely on verification in order to promote patient safety. This oftentimes created a bottleneck in workflow, as having a certified technician step out of regular workflow was nott in the norm.

The design quality pertaining to TPV emerged a characteristic of the innovation with many community pharmacies struggling to implement the service. Commonly cited by individual pharmacists was the lack of direction related to workflow. While these six community pharmacies were selected by leadership, no changes were made in workflow to accommodate this new service. The standard workflow chart designed to accommodate normal workflow stations was still filled out daily, causing community pharmacies to fit the service in whenever they had time or remembered. Interviewed pharmacists stated that if there was a designated time to perform TPV, they would utilize the service more frequently.

Theme 2: Implementation of TPV depends greatly on individual community pharmacy leadership and perceived role

Inner settings of individual community pharmacies played a major role in success of implementation. Culture of the community pharmacies involved in the pilot varied greatly. Pharmacists supportive of TPV had more buy-in from the remaining staff, as expected. In community pharmacies that saw TPV as a tool to increase time in the provision of clinical services, implementation of the service appeared to be more successful.

 "Yeah they are [open minded]. And they definitely have it in their mind that they have that as an option. That they don't always wait for me to check something, if it's one they can check. They'll get it and check it and give it out. So yeah. That's definitely normal." (Pharmacist 4)

"…we have to be able to get the idea in their head on how to implement it throughout the day, and not just in special circumstances. And it's a two-part process. It's gonna be staffing, and then it's gonna be perspective change." (Pharmacist 2)

Vantage points from both pharmacists and technicians mattered greatly. This was apparent in community pharmacies that had buy-in from one staff pharmacist, but not others. This was observed in a community pharmacy that had been identified as an early adopter of the service. When directly observed, they did not utilize TPV. When quizzed why, the lead technician referred to the pharmacist on duty as not being a fan of the service. This demonstrates that even with buy-in from the pharmacy, culture created from the pharmacist on duty is crucial for success. This correlates with findings from

Friesner, et al. who stated that the practice setting was the most pervasive determinant of whether technicians performed specific tasks.[8]

Multiple pharmacists were hesitant with placing additional requirements and training of technicians on top of their already large workload, without an increase in pay. Pharmacists were likely to say that while they were overworked, so too were the technicians. In community pharmacies that viewed TPV as intended, a service to increase time for pharmacists to provide clinical services, technicians were more likely to utilize TPV with the stated intent to help the overworked pharmacist anyway they could.

Tension for change seemed to be predicated on duration of time employed. Pharmacists that adopted the service often cited previous technician program rollouts as being successful, with the assumption TPV would be no different.

 "I'll be honest. At first, I was a little hesitant … as hesitant as I was when I first moved to Tennessee and technicians were allowed to take new scrips over the phone, you know? So it's just a change, um, and a shifting of responsibilities that, as a pharmacist, I thought, 'Well, that's what I'm licensed to be ... verify. I don't know that I want to share that responsibility with a technician,' but the young ladies that we identified to participate are fully capable, very knowledgeable and, uh, very careful about what they're doing, and they take it very seriously. We're evolving as a profession and as a company and as clinicians and nothing stays the same and we just have to be accepting and know that. And as a company… I know that they wouldn't ask us to do anything that wasn't the best thing for our practice and for the customer as well, so that being said, you know, if you've got somebody that doesn't want to do it, have them talk to a pharmacist that's done it and tell them to get over themselves." (Pharmacist 1)

Newly licensed pharmacists were more likely to question the liability and minutia of the service, while seasoned pharmacists were more likely to assume corporate leadership had already formulated a plan to deal with the smaller issues. The trend of more seasoned pharmacists adopting the service could be contributed to several factors that could be further explored: experience with program rollouts; newly licensed pharmacists sought to retain all the traditional pharmacist duties; newly licensed pharmacists did not yet experience the burnout that seasoned pharmacists could have; newly licensed pharmacists lacked confidence in technicians to delegate duties.

Theme 3: Implementation of TPV depends upon perceptions and attitudes of the intervention by technicians and pharmacists

Implementing any new intervention requires coordination and cooperation among team members. In the context of TPV, the implementation incorporated into workflow easier at some community pharmacies over others. Factors appearing to contribute to these differing opinions have been a level of understanding of the intervention in general, presence of preconceived notions regarding TPV, and differing team dynamics.

A range of attitudes among the eight pharmacists interviewed emerged. Referencing the diffusion of innovation Gaussian curve[18], pharmacists' attitudes towards TPV were categorized into four separate categories – early adopters, early majority, late majority, and laggards. An early adopter is characterized by an individual who can adapt to new innovations quickly, accepting them faster than their peers. On the opposite end of the range are laggards. They are the last to adopt new innovations and often more hesitant to accept new ideas. Early majority and late majority fall in the middle with early majority

categorized individuals accepting new innovations faster than their late majority peers. Of the eight pharmacists interviewed, one fell into the early adopter category, four in early majority, one in late majority, and two were classified as laggards.

These attitudes toward change and innovations affected their attitudes toward implementing TPV at their locations. Time having conducted the service was not as prominent in TPV acceptance as the pharmacy's attitude toward TPV. Among the pharmacists, the early adopter pharmacist had only interacted with TPV for a few weeks but whole-heartedly accepts TPV and thinks it is a great program. Conversely, one of the laggards worked with TPV for roughly the same amount of time at their respective community pharmacy; however, they did not view TPV as useful as the early adopter. While all interviewed pharmacists were confident they could implement TPV well, those who accepted TPV had better experiences implementing at their locations while those who did not accept TPV as quickly (or at all) had more difficulty implementing the intervention into their workflow.

A more comprehensive understanding of TPV's potential in aiding the pharmacists' ability to focus on more clinical responsibilities may have influenced the interviewed pharmacists' stage of change. Pharmacists possessing more open-minded reactions accepted TPV and were able to utilize the intervention more than those with more closed-minded reactions.

 "We're a very busy store, so [the technicians] bought into it pretty quickly because they saw that this is something else that'll help move things along and help kind of smooth workflow out for us." (Pharmacist 1)

 "I think now that [the technician has] seen how three of the techs have been doing it then they see what's involved, I think they're more willing [to be involved with TPV]." (Pharmacist 7)

TPV implementation relies on both pharmacists and technicians. Pharmacists rely heavily on their technicians to complete daily tasks and adding the ability to verify prescriptions has caused concerns from both pharmacists and technicians. Team cohesion plays a major part in running a pharmacy effectively. TPV interrupts an established perception of workflow in the minds of both pharmacists and technicians.

From the interviews, certain characteristics emerged as being ideal for a technician involved in TPV in the eyes of a pharmacist.

 "It definitely requires a technician who can hold a larger workload. So, usually that is our certified technicians or a Lead Tech. And certainly, I think if you have to be certified to do things like taking transfers and things like that in the State of Tennessee, I think you have to be certified to be able to do TPV. I think that just only makes sense but definitely someone who can hold a larger workload, but also who can make decisions for themselves. You know, it's not a technician that I have to constantly direct. It's a technician who understands, 'Oh, I need this verified... I can do it. I don't have to ask the pharmacist.' Or, they can kind of gauge a situation and look in my queue and see if I'm getting overwhelmed themselves. That's the kind of technician that I need...one that can make judgment calls." (Pharmacist 2)

As the profession of pharmacy continues to evolve and progress, transitioning towards more clinical duties, technician responsibilities and expectations will also change. Some technicians and pharmacists are hesitant due to the multiple responsibilities pharmacy technicians already handle. TPV works well

when the technicians and pharmacists want the intervention to succeed and see its utility. For those who have difficulty handling all day-to-day activities, TPV may not be as useful, according to some pharmacists and technicians.

Technician hesitancy emerged as a common refrain during the study. Most interviewed pharmacists agreed that their technicians could perform TPV accurately, but saw hesitancy from their technicians. In order to combat this hesitancy, encouragement from pharmacists is key to changing the technician mindset.

"Some of our technicians don't want the added responsibility; I don't feel like that's a good enough reason. And in that case, it's my job, as their manager, to divvy up responsibilities. So, if they're feeling overwhelmed, then that's a problem and I need to fix that problem. If it's because they're scared, then I don't know that that's a good enough reason, either. It's hard for me to think of a reason that's good enough for them to say 'no,' and yeah, I would definitely try to educate them, but I would never try to force them. I mean I would definitely... I don't wanna say 'putting pressure' is the right word, but I would definitely address their fears and tell them why their fears are not that big of an issue." (Pharmacist 2)

As for the pharmacists who appeared to have less confidence in their technicians' abilities, TPV was seen more as a hindrance to the pharmacists. These pharmacists are less likely to implement TPV at their community pharmacy as they do not see the benefit or think their location's team dynamics will let it work well.

"I think the biggest barrier is not being able to take the time, 'cause my personality is one where I need coaxing and as a technician, I needed comforting and I needed the extra support. And if my pharmacist is very busy, or she looks overwhelmed, I'm not gonna ask." (Pharmacist 2)

During the interviews, level of TPV utilization at a community pharmacy was observed to correlate with the pharmacists' opinion of TPV. An overarching theme aligned with increasingly positive opinions and higher utilization of TPV at their locations while more negative opinions of TPV had less utilization at their locations.

Theme 4: TPV champions at the pharmacy-level served as a key facilitator of successful implementation

Barriers to implementation could be overcome with a proper champion of the service. All community pharmacies that had successfully implemented the service had a champion, or a "TPV Tech". While not an official title, in those successful community pharmacies there was a technician that took ownership of the service. Many community pharmacies saw workflow as a barrier to implementation, stating that if there was a designated time to complete TPV then they would more frequently utilize the service. Champions overcame this barrier under multiple direct observations by verifying prescriptions when there was a bottleneck at dispensing or while performing TPV while the pharmacist was occupied. Champions also promoted a healthy culture. Multiple technician champions of the service were seasoned technicians and utilized the service to assist the pharmacist. TPV champions were more likely to delegate traditional technician tasks to peers so that they could conduct TPV, fostering growth among technicians.

When identifying a champion, pharmacists commonly cited someone that took initiative as the primary option.

"If they're comfortable doing it, and if it's the type of technician that, you know, likes to lead and is a self-starter and wants to do more, wants more responsibility, then by all means, but it's not for everybody." (Pharmacist 1)

During the study TPV was not built into workflow, so when TPV was being conducted it was always through verbal request of the pharmacist or through initiative of the TPV technician. Pharmacists tended to grow tired of asking for the service to be completed, so if a champion was not present to take initiative then TPV often went unutilized.

A champion was most likely to appear organically, but community pharmacies could expedite growth by expressing confidence in the technician. Pharmacists stated that a champion needed to be someone possessing self-efficacy developed early on during implementation. Self-efficacy could also be promoted by the community pharmacies' culture. If pharmacists did not place trust in the technician, they were less likely to conduct TPV. Similarly, pharmacists were more likely to develop trust in the technician with more frequent exposure to the service. As dictated by the pilot program, pharmacists were required to audit a set number of prescriptions conducted via TPV monthly. Pharmacists frequently stated that the more correct prescriptions encountered in the auditing phase of the program, the more confident they became in the service.

While having a champion to promote the service is a facilitator to implementation, this leads to a barrier when the champion is absent. While completing direct observations when the champion was not present it was twice stated, in some form, that, "I'm not the TPV tech. But I'll try it so you can see the process." Many services in the pharmacy depend on a scheduled workflow. Champions take ownership of a service not included in workflow. While this is a crucial way to facilitate growth of the service, an opportunity for sustained TPV implementation is having peer-teaching, where a champion can conduct peer-to-peer training. That would allow the community pharmacy to perform TPV when the champion is absent.

Conclusion

TPV is intended to allow the pharmacist to delegate a non-clinical skill to a technician, freeing them to provide clinical services. Under observation while TPV was being conducted, it was more likely the pharmacist would step into typing prescriptions coming up due. Only 2 of the 5 observed community pharmacies used TPV utilization to attempt clinical opportunities (calls for immunizations, counseling for services at patient pick up). Those that possessed hesitancy about the service were more likely to watch the computer-defined workload closely and step back into verification at the first sign of distress.

Future community pharmacies wishing to implement TPV should consider the pharmacist in charge. The community pharmacies that have best implemented TPV are those that embraced the service for its intended use. If a pharmacist is hesitant towards TPV, implementation cannot be successful. Technicians consistently echoed the feelings of the pharmacist regarding TPV implementation. Pharmacists that wanted to use the service had technicians that were more likely to jump in and expand their role. Pharmacists that expressed hesitancy were more likely to have technicians express concerns about "doing more without additional pay". Like any other service, leadership and culture directly impacted utilization and implementation success.

Community pharmacies with seemingly more successful implementation had technology or majority certified technicians. When scouting community pharmacies for future implementation, technician experience, quantity of certified technicians, and technology should all be considered.

As to be expected with any pilot study, this service saw a desire from community pharmacies to have additional guidance on implementation. The lack of evidence strength and quality of TPV in a community setting may have made this guidance impossible. As a pilot program, these identified community pharmacies were responsible for providing the guidance. Post study, we can say that management would benefit from identifying community pharmacies with early adopter culture in the pharmacy manager and seasoned technicians or appropriate technology. Perhaps just as important is providing community pharmacies more assurance and instruction on including TPV in regular workflow.

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