**Pharmacy Technician Involvement in Adherence Conversations for Star Ratings Medications in a Large Community Pharmacy Chain**

Brandon McCrea, PharmD; Joseph Wedig, PharmD, BCACP; Ashley Johnson, PharmD, BCACP; Michael Pleiman, PharmD, CDE; Katelyn Johnson, PharmD, MS

**Abstract**

*Objective*

The purpose of this study was to develop, implement, and assess the feasibility of a pharmacy technician driven medication adherence program. The program aimed to determine 1) if pharmacy technicians can effectively assist with adherence engagements in a community pharmacy and 2) the impact the program has on the completion and success of Star Ratings adherence interventions for hypertension (RASA), cholesterol (statin), and diabetes (non-insulin) medications.

*Background*

Approximately 50% of patients take their medication as prescribed by a healthcare professional. Consequently, more than 30% of medication related hospital admissions are attributed to medication nonadherence resulting in $100-$300 billion in avoidable healthcare costs. Previous studies emphasize the role of a pharmacist and the positive impact a pharmacist can have on medication adherence and the cost to the healthcare system, but no studies have looked directly at the feasibility of a pharmacy technician driven medication adherence program.

*Methods*

Pharmacy technicians with advanced clinical training underwent resident-led program specific training to identify and conduct medication adherence interventions with study participants. Potential study participants were identified utilizing interventions for patients corporately loaded into the electronic dispensing system as non-adherent to a Star Ratings medication and these interventions were displayed in workflow as part of an existing adherence program. Nonadherence is defined as having a proportion of days covered (PDC) <80%. Once the pharmacy technician interacted the patient for the medication adherence intervention, the technician utilized the HIPAA compliant REDCap software preloaded with questions to help guide the adherence encounter based on patient responses. Through REDCap, a logicbased workflow was utilized to help initiate and assist with adherence interventions. The pharmacy technician utilized REDCap to record patient responses, identify potential barriers of medication non-adherence, and document recommendations of enablers of adherence, such as 90 day conversions, automatic refill services, and medication synchronization enrollment. During adherence conversations, technicians consulted the pharmacist as appropriate as part of a collaborative effort for patient encounters that require counseling, such as adverse effect management and complicated dosing regimens. Pharmacy technicians submitted the interventions for documentation purposes in the electronic dispensing system patient clinical profile. Descriptive statistics were used to analyze the primary outcome of the feasibility of pharmacy technicians assisting in the completion of Star Ratings medication adherence interventions by assessing the number of interventions completed in the electronic dispensing system and an assessment of corresponding resolution codes to determine the outcome of an intervention. The primary outcome was assessed for the duration of the study period compared to the same time period the year prior.

*Results*

The primary objective, the feasibility of pharmacy technicians assisting in the completion of adherence conversations was demonstrated with pharmacy technicians completing 31 adherence interventions with 30 being successful compared to same time period last year which displayed 28 interventions completed and 23 successful. When conducting adherence conversations, patients did agree to participate in the adherence conversation making the intervention successful, (30, 97%), or refused, (1, 3%). Understanding/Motivations/Beliefs was the primary reasons identified as adherence barriers at (10, 30%), followed by forgetfullness at (9, 27%). Pharmacist counseled was the primary adherence solution implemented at (16, 39%) followed by recommending medication synchronization, (7, 17%).

*Conclusions*

A pharmacy technician led adherence program is feasible. Pharmacy technicians are able to interact with patients, identify barriers to nonadherence and recommended solutions to non-adherence such as automatic refill, reminder tools, and medication synchronization.

**Background**

A substantial problem that faces the healthcare system is medication adherence. The World Health Organization defines medication adherence as the degree to which the person’s behavior corresponds with the agreed recommendations from a healthcare provider.1 Medication nonadherence is a multifactorial problem which includes suboptimal health literacy, a lack of patient involvement in the treatment decision-making process, complex therapeutic regimens, communication barriers, polypharmacy, and limited access to care.2 Previous literature indicates only about 50% of patients take their medication correctly as prescribed.3 Consequently, more than 30% of medicine-related hospital admissions are due to medication nonadherence, resulting in $100-$300 billion of avoidable healthcare costs.3,4 Refill trends reported by health plans and pharmacies are an industry accepted measure to evaluate medication adherence.1 PDC is the proportion of days in the measurement period “covered” by prescription claims for the same medication or medications in its therapeutic category that is reflective of refill trends.6 The Centers of Medicare and Medicaid Services(CMS) utilize a threshold of a PDC of 80% or higher to indicate a patient is adherent.7 CMS utilizes PDC for hypertension (renin-angiotensin system antagonists), cholesterol (statin), and diabetes (non-insulin) medications.7

 CMS implemented Star Ratings to rate and compare Medicare prescription drug plans (Medicare Advantage Prescription Drug Plan and Prescription Drug Plans) on various measures with three measures exclusively related to medication adherence: adherence for hypertension (RASA) medications, adherence for cholesterol (statin) medications, adherence for diabetes (non-insulin) medications, and completion of comprehensive medication reviews (CMRs) in eligible patients.8,9 Plans are then awarded stars from CMS utilizing the Five-Star Quality Rating System and adherence measure are weighted higher (three times) compared to other medication management measures.8,9 Health plans that achieve high Star Ratings can qualify for incentives such as the ability to market their plan year-round to consumers and receiving federal bonus payments.8 Health plans can indirectly allow Star Ratings to impact pharmacies by analyzing how pharmacies within their network help them achieve the medication adherence measure thresholds enacted by CMS by prescription claims and adherence data.8 Health plans can incorporate these quality measures into contracts with community pharmacies that dictate prescription reimbursement in the form of direct and indirect remuneration (DIR) fees and rebates.8 Health plans can adjust or restrict their preferred networks to solely include pharmacies with high adherence rates who will help to improve their Star Ratings and achieve incentives.8 These adherence measures provide pharmacies the opportunity to demonstrate pharmacists’ ability to improve adherence The more a health plan views that a pharmacy can potentially positively impact their Star Ratings, the pharmacy will experience more revenue, through DIR fees and rebates, and may provide care to the patients covered by the health plan.8

Many community pharmacies have implemented strategies to help improve medication adherence with their patients, such as medication synchronization programs, automatic refill programs, reminder phone calls and mobile notifications. Through improving medication adherence, research has demonstrated that pharmacists can improve patient health outcomes to lower unnecessary health care resource utilization and healthcare related costs while decreasing the risk of hospitalization.10,11,12

Community pharmacists are distinctively positioned to address medication adherence issues commonly experienced by their patients. A community pharmacy is easily accessible as many patients visit their pharmacy approximately 35 times per year while only visiting their primary care physician around four times per year and other specialist healthcare providers around nine times per year.13 13 Pharmacy technicians can also play an important role in medication adherence in a community pharmacy due to a high level of interactions and the relationships they can establish with patients.

The role of the pharmacy technician is expanding and evolving. Pharmacy technicians typically have the first encounter with patients at the pharmacy and have the opportunity to build strong relationships. The ability for a pharmacy technician to be the first point of contact for a patient and establish relationships allows the opportunity for a pharmacy technician to interact with the patient and initiate the conversation positively impacting medication adherence. Pharmacy technicians can support pharmacists to motivate and aid patients in taking their medications effectively. Technicians can also allow the pharmacist to have more time in the direct patient care role by helping perform medication history assessments, make initial appointment calls, conduct reminder phone calls, and promote medication adherence programs (medication synchronization) utilizing their established relationships with patients.5 Many studies have emphasized the role of a pharmacist and the positive impact a pharmacist can have on medication adherence to decrease mortality and also decrease the cost on the healthcare system, but no studies have looked directly at the feasibility of a pharmacy technician driven medication adherence program.

**Objectives**

The purpose of this study is to develop, implement, and assess the feasibility of a pharmacy technician driven medication adherence program. The program aims to determine the following primary objective: 1) if pharmacy technicians can assist with medication adherence interventions in a community pharmacy and the secondary objective: 2) impact a pharmacy technician led medication adherence program has on the completion and success of Star Ratings adherence interventions for hypertension, cholesterol, and diabetes medications.6

**Practice Description**

 This study was implemented at two community pharmacy locations within a large community pharmacy chain located within the Cincinnati-Dayton region. This region consists of 103 pharmacies in and around Cincinnati, Dayton, and Northern Kentucky. These pharmacies offer a wide variety of direct patient care services such as biometric healthcare screenings, medication therapy management services, and immunization services. In addition, many of these pharmacy locations offer advanced clinical services such as diabetes coaching and heart healthy coaching, diabetes self-management education, fitness, nutrition, and weight management, and smoking cessation.15

**Practice Innovation**

*Training*

At the designated pharmacy locations, all pharmacy personnel including pharmacy technicians with advanced training, pharmacy interns, and pharmacists underwent resident-led training to identify and conduct the medication adherence intervention on potential study participants during out-bound telephonic encounters. Pharmacy technicians were selected based on the completion of clinical and operational competency and will have additional clinical service training on medication therapy management, including Star Ratings and adherence quality measures. The staff was also be trained on the use of REDCap software to document the results from the medication adherence interventions. REDCap is a secure data collection tool that meets HIPAA compliance standards and is supported by the National Institutes of Health.14 The staff was then be trained on the appropriate steps of how to use the preloaded questions in REDCap and how to complete an adherence intervention following logic-based questions. Pharmacy technicians performed resident-led role playing activities before interacting with patients to provide education and coaching as needed. Furthermore, pharmacy technicians were then required to perform five successful encounters under the supervision of the resident to ensure medication adherence assessments are performed accurately and to ensure that technicians are aware of how to differentiate between assessing medication adherence and counseling. Pharmacy technicians were trained to recognize patient encounters that require counseling.

**Patient Identification**

Patients identified in the electronic dispensing system as non-adherent (PDC <80%) to a Star Ratings medication were included in the study. Patients may be taking more than one Star Ratings medication and could have a PDC > 80% for one of those medications, but were still included in the study as long as they met the inclusion criteria of having a PDC <80% on at least one Star Ratings medication.

**Patient Enrollment**

 After potential participants were identified utilizing interventions entered into the electronic dispensing system and displayed in workflow as part of an existing adherence program, pharmacists, pharmacy technicians and pharmacy interns created notes within the electronic pharmacy dispensing system indicating the patient’s eligibility. Pharmacy personnel explained the benefits of speaking with a pharmacist individually to resolve drug therapy problems and ensure they are receiving the most benefit from their medication. Technicians interacted the patient in adherence conversations following logic-based questions and consulted the pharmacist when needed in situations that involve counseling.

**Intervention**

 Once the pharmacy technician interacted with the patient for the medication adherence intervention, the pharmacy technician will utilize the HIPAA compliant REDCap software preloaded with questions to help them conduct the medication adherence encounter based on patient responses. Through REDCap, a logic-based workflow was developed to help initiate and assist with adherence interventions. The pharmacy technician utilized REDCap to track patient responses and identify potential barriers of medication non-adherence.

 While conducting the patient encounter, the pharmacy technician consulted the pharmacist or pharmacy intern if a patient requires counseling to help resolve medication adherence issues. Throughout the encounter, the pharmacy technician recommend and implemented pharmacy services that support adherence of adherence to address identified adherence barriers independently or with the assistance of a pharmacist such as 90 day conversions, automatic refill services, and medication synchronization enrollment. The pharmacy technician submitted the medication adherence claims for documentation purposes in the electronic dispensing system patient clinical profile. A successful intervention was defined as if the patient agreed to the adherence intervention.

**Practice Evaluation**

*Primary Outcome*

The primary outcome, the feasibility of pharmacy technicians assisting in the completion of Star Ratings medication adherence interventions utilizing a pharmacy technician workflow system, was determined by the number of interventions completed in the electronic dispensing system and an assessment of corresponding resolution codes. Resolution codes are documented during the patient interaction and indicate if an intervention was successful or unsuccessful. The primary outcome was assessed for the duration of the study period compared to the same time period the year prior.

*Secondary Outcome*

As a secondary outcome, the study assessed pharmacy technician comfort level utilizing this system and pharmacist perspective on how this aided in completing the medication adherence interventions. The surveys utilized a Likert scale survey created within the REDCap software allowing HIPAA compliant reporting. The surveys were administered to both groups prior to the beginning of the study period and were re-administered following the study period. Pharmacy technicians and pharmacists were be able to provide written feedback regarding what they liked about the intervention workflow and what they would like to see improve about the intervention platform.

Additionally, REDCap was utilized to assess how often pharmacy technicians recommended pharmacy services that support adherence, such as 90 day conversions, automatic refill services, and medication synchronization enrollment. At each step within the workflow system the pharmacy technician was required to document the service they offered, if any.

**Results**

 The primary objective, the feasibility of pharmacy technicians assisting in the completion of adherence conversations has so far been demonstrated. Pharmacy technicians completed 28 adherence interventions (with or without pharmacist intervention) in the same time period last year (2/1/18-6/30/18) at the same pharmacies the research study is being conducted. Of those 28 interventions, 23 were successful. In the time period for the research project, 31 total interventions were completed by pharmacy technicians and 30 were successful. This indicates that a pharmacy technician led adherence program is feasible and would potentially lead to more adherence interventions completed by pharmacy technicians.

 When conducting adherence conversations, patients did agree to participate in the adherence conversation making the intervention successful, (30, 97%), or refused, (1, 3%) (Table #1). More than half of adherence conversations required pharmacist intervention, (16, 53%) while the remaining were fully completed individually by a pharmacy technician (14, 47%).

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| **Table #1** |
| **Number of adherence interventions completed: 2/1/18-6/30/19** |
| **Pharmacy Technician Completed****28**  | **Pharmacy Technician Successful****23**  |
| **Number of surveys completed:2/1/19-6/1/2019** |
| **Pharmacy Technician Completed****31**  | **Pharmacy Technician Successful****30*** **Fully completed by technician 14 (47%)**
* **Required pharmacist action 16 (53%)**
 |

During adherence encounters, pharmacy technicians identified barriers in more than half of the patient interactions, which created a hard stop to initiate a pharmacist consultation. More than one barrier could be identified per patient. In Figure 3, Understanding/Motivations/Beliefs was the primary reasons identified as adherence barriers at (10, 30%), followed by forgetfullness at (9, 27%).

In figure 4, pharmacist counseled was the primary adherence solution implemented at (16, 39%). This was followed by recommending medication synchronization, (7, 17%), and offered pillbox, offered refill programs, and recommended reminder tools all at (4, 10%).

*Secondary Objective*

Five pharmacists and 15 pharmacy technicians completed the pre-survey. Table 2 illustrates that while almost half of pharmacy technicians (7, 46%) believed Star Ratings were very important to community pharmacies, a third of pharmacy technicians completing the pre-survey indicated that they were currently not involved in adherence conversations with patients, (5, 33.3%), and the majority of pharmacy technicians felt uncomfortable engaging in adherence conversations with patients (8, 53.3%). A third of pharmacy technicians (5, 33.3%) agreed that engaging in adherence conversations would not improve their job satisfaction at all vs. a third, 5 (33.3%) indicated that it would improve their job satisfaction.

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| **Table #2** |
| **Pre-Survey Pharmacy Technician Questions (n=15)**  |
| **How important are Star Ratings to community pharmacies?** | Not at All2 (13.3%) | Somewhat Unimportant3 (20%) | Neutral2 (13.3%) | Somewhat Important1 (6.7%) | Very Important 7 (46.7%) |
| **How involved are you currently in adherence conversations with patients?** | Not at All5 (33.3%) | Rarely (less than once per month)4 (26.7%) | Occasionally (more than once a month)1 (6.7%) | Frequently (once a week)2 (12.3%) | All the Time (daily)3 (20%) |
| **How comfortable are you with engaging in adherence conversations with patients?** | Uncomfortable8 (53.5%) | Slightly Uncomfortable0 (0%) | Neutral2 (13.3%) | Comfortable2 (13.3%) | Very Comfortable3 (20%) |
| **How much do you agree with the following statement: as a pharmacy technician, I can help improve medication adherence?** | Strongly Disagree3 (20%) | Disagree1 (6.7%) | Neither Agree or Disagree4 (25.7%) | Agree 2 (13.3%) | Strongly Agree5 (33.3%) |
| **How much do you think engaging in adherence conversations will improve your job satisfaction?** | Not at All5 (33.3%) | Very Little1 (6.7%) | Unsure0 (0%) | Somewhat4 (26.7%) | Significantly5 (33.3%) |
| **Pre-Survey Pharmacist Questions (n=5)** |
| **How involved are pharmacy technicians at your pharmacy with adherence conversations?** | Not at All2 (40%) | Rarely (less than once per month)1 (20%) | Occasionally (more than once a month)1 (20%) | Frequently (once a week)1 (20%) | All the Time (daily)0 (0%) |
| **How much do you agree with the following statement: I am comfortable involving pharmacy technicians in adherence conversations?** | Strongly Disagree1 (20%) | Disagree1 (20%) | Neither Agree or Disagree 0 (0%) | Agree3 (60%) | Strongly Agree0 (0%) |
| **How much do you agree with the following statement: pharmacy technicians can help to improve medication adherence?** | Strongly Disagree0 (0%) | Disagree1 (20%) | Neither Agree or Disagree0 (0%) | Agree3 (60%) | Strongly Agree(1, 20%) |
| **How much do you agree with the following statement: pharmacy technicians’ involvement can assist in completion of clinical services?** | Strongly Disagree1 (20%) | Disagree0 (0%) | Neither Agree or Disagree0 (0%) | Agree3 (60%) | Strongly Agree(1, 20%) |

 Two of five pharmacist (2, 40%), indicated that pharmacy technicians are not at all involved in adherence conversations. However, a majority of pharmacists, (3, 60%), agree that they are comfortable with involving pharmacy technicians in adherence conversations, agree that they can help to improve medication adherence, and that their involvement can assist in completion of clinical services.

**Discussion**

 Pharmacy technicians were able to interact with patients in telephonic adherence conversations and successfully identify reasons for non-adherence. The data from the study time period from last year indicates that pharmacy technicians successfully completed more interventions. The data from the 2018 has the potential to be falsely elevated due to an inability to have a solidified process of documentation. Although the surveyed pharmacy technicians indicated they aren’t comfortable completing adherence interventions, this study demonstrates that pharmacy technicians can assist with and complete adherence interventions.

The primary barriers to non-adherence focused around medication understanding/motivations/beliefs and forgetfullness which demonstrates patient education and health literacy are focus points in adherence. The pharmacist counseling the patient addressed the primary barier identited in the study because it allows the patient to gain a more in-depth understanding of the importance of the medication and address healthcare beliefs. This gives insight that potentially increasing pharmacist counseling and increasing the amount of patients enrolled in medication syncronization could be the significant factors that could increase medication adherence.

*Practice Implications*

 While the role of pharmacy technicians is expanding nationally, their comfort level would likely increase as they begin to perform more non-workflow tasks. Pharmacy technicians are beginning to be incorporated into administering vaccines, handling transfers and call in prescriptions from physicians, and many other non-traditional workflow tasks. Medication adherence is another area that pharmacy technicians can be implemented in as they continue to gain expanded roles.

*Limitations*

 Several limitations were encountered. Limitations identified include system limitations incorporating patient encounters into the prescription dispensing process, difficulty implementing technician training, and technician turnover. The adherence interventions documented in the previous year as the comparator group were completed in an inconsistent manner. There wasn’t a system in place to show whether the pharmacy technician or pharmacist actually completed the adherence intervention. Likewise, pharmacist put hard stops on prescriptions before they are picked up by patients to interact in adherence conversations at the counter. Although the pharmacist may have completed the adherence intervention, the documentation may have occurred under the pharmacy technician’s identifier due to the pharmacy technician typically being the individual at the point of sale. The adherence conversations are currently conducted telephonically outside of the prescription dispensing process and the transition to make pharmacy technicians engaging in adherence conversations in workflow would be difficult from a feasibility standpoint. This is due to low technician retention rates and time to train enough technicians to conduct adherence conversations in workflow in a high paced community pharmacy practice setting.

 Although 50% of the population is currently non-adherent to their medication, there were only 30successful adherence interventions. This could be due to a variety of reasons including an incorrect contact patient information for patients in the electronic dispensing system, low socioeconomic communities causing patients to lack telephone access, adherence program patient targeting threshold changes (PDC 80-85%), and being unable to reach patients when conducting telephonic calls.

**Conclusion**

 This study demonstrated that a pharmacy technician led adherence program is feasible.

This was seen by successful interventions completed by the pharmacy technicians and recommended solutions to non-adherence that pharmacy technicians are capable of recommending such as automatic refill, reminder tools, medication synchronization, etc. Despite a lack of comfortability and low or minimal involvement with medication adherence conversations identified during the pre-survey, a third of pharmacy technicians did strongly agree that they can help to improve medication adherence (5, 33.3%). These findings are significant because the feasibility of this service from pharmacy technicians was expected due to pharmacy technicians already offering medication adherence services such as automatic refill, medication synchronization, and 90 day conversions at the point of sale and speaking with patients. Pharmacy technicians can play a vital role in helping the pharmacist to identify barriers to non-adherence and also make sound recommendations when counseling is not required. Further research is needed to determine the overall impact a pharmacy technician driven medication adherence program can have on medication adherence rates and patient outcomes, such as, blood pressure, diabetes, and cholesterol control.

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