

Alliance for Patient Medication Safety

Adherence Discovery Projects

FINAL REPORT - SEPTEMBER 2011

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National Alliance of State Pharmacy Associations

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APMS DISCOVERY PROJECTS

SUMMARY

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PROJECT BACKGROUND

The Joint Commission of Pharmacy Practitioners (JCPP) vision for 2015 is that all pharmacists are accepted by patients and payers as a primary source of information about all their medications and are expected to deliver adherence focused services as the standard of practice. Further, pharmacists will be recognized as providers and will be eligible for reimbursement for medication adherence services. Patients will view the pharmacist as a resource and a partner in the management of their medications and chronic diseases. Pharmacists must be able to document results from medication adherence interventions. Several studies have looked at the value that pharmacists can bring to managing chronic diseases; few studies have looked at the value the pharmacist can bring to improving patient adherence.

The purpose of the Alliance for Patient Medication Safety (APMS) Adherence Discovery Projects was to seek to identify ways in which pharmacists can assist patients in improving adherence. This activity was intended to produce measurable, scalable, replicable and sustainable programs in pharmacy practice to improve adherence or methods to identify non-adherent patients. Six state pharmacy association proposals were selected and each received funding to complete an adherence discovery project. Of the six projects, one researched a new adherence toolkit for use by the pharmacist and patient, two used a telephone model, and three used either a health coaching or modified health coaching system. APMS received funding from Pfizer to support these projects.

The **Alliance for Patient Medication Safety (APMS)** strives to foster a culture of quality within the profession of pharmacy that promotes a continuous systems analysis to develop best practices that will reduce medication errors, improve medication use and enhance patient care. APMS is a supporting organization of NASPA. To learn more go to www.medicationsafety.org.

The **National Alliance of State Pharmacy Associations (NASPA)** promotes leadership, sharing, learning, and policy exchange among state pharmacy associations and pharmacy leaders nationwide, and provides education and advocacy to support pharmacists, patients, and communities working together to improve public health. NASPA was founded in 1927 as the National Council of State Pharmacy Association Executives (NCSPAEE). For more information, please visit www.naspa.us.

EXECUTIVE SUMMARY

Arizona Pharmacy Alliance – Adherence team

This project utilized the patient-centered medical home concept to develop an adherence team, comprised of pharmacists, behavioral health specialists and community health advisors, to improve outcomes for underserved patients in Tucson, Arizona. This project was designed to assess the impact of an interdisciplinary adherence team on medication adherence, clinical outcomes, and feasibility of collaboration.

The study utilized the Pharmacy Quality Alliance (PQA) measure of gaps in therapy. The intervention by the adherence team was a multi-step process. First, the pharmacist who provided care at the point of dispensing determined if there were any gaps in therapy. If any gaps were discovered, the pharmacist performed a brief assessment and then forwarded it to the adherence team. Patients with identified gaps in therapy were then scheduled for an interdisciplinary team visit which assessed the underlying issues affecting each patient's adherence. The pharmacist addressed these issues and in collaboration with the patient, an adherence plan was implemented.

A key trend identified was PQA measure of gaps in therapy frequently occurred for multiple drugs in the same patient. The results from the study indicate that several patients improved on all parameters. Additionally, the recently hospitalized patients that participated in the study responded quite well compared to their control group counterparts. In the future, there is potential to make the study more robust by adding an assessment of re-hospitalization to the evaluation of the team.

The evaluation of the adherence team concept from both patients and providers were overwhelmingly positive. Based on feedback, patients may not always know what type of care they prefer, but respond in healthy ways to these innovative models of care. This project shows that by utilizing an interdisciplinary team of experts and incorporating the patient in adherence plans, patients and providers feel that care has improved at the clinic.

Connecticut Pharmacists Association – Motivational Interviewing

This project was aimed at identifying medication non-adherence through pharmacist-conducted telephone motivational interviewing of patients who fail to pick up prescriptions for chronic disease states 14 days after fill. A Health Behavior Change (Motivational Interviewing) training workshop was held. Two pharmacists at a five-pharmacy chain in Hartford, CT identified a total of 268 potentially non-adherent patients from a 14-day return-to-stock (RTS) list. The pharmacists attempted to contact all identified patients, but only 59 patients could be reached by the conclusion of the project.

The pharmacists utilized motivational interviewing techniques/skills to probe and identify reasons for the patient not picking up their medications. Based on their assessment of patient responses, the pharmacists offered each patient appropriate adherence recommendations. The 3 most frequent patient-reported reasons for not picking up their medication within 14 days after fill date

were as follows: forgot to pick up, cost, and has medication leftover. At the conclusion of the project, pharmacists offered a total of 71 interventions to patients. The two most frequent recommendations were medication delivery and refill reminder calls. All 10 patients who were offered a comprehensive medication therapy review appointment with a PharmNetEx pharmacist declined for various reasons.

Two Pharmacy Quality Alliance (PQA) measures were assessed, the Proportion of Days Covered (PDC) and the Gap in Medication Therapy (GMT), based on a review of refill history for 7 medication classes. The PDC rates for each medication category increased from pre-intervention to post-intervention, with the exception of thiazolidinediones, which was not on any of the RTS lists. There were statistically significant differences for total prescriptions (<0.001), and for the statin (0.020) and calcium channel blocker (0.033) medication categories. There were no statistically significant differences in the pre- and post-intervention GMT rates.

Patients appeared to be more likely to refill their medications after speaking on the telephone with a pharmacist who employed motivational interviewing skills. However, the short timeline of the project was a major limitation in accurately evaluating both PQA measures of PDC and GMT. The 6 month timeline allowed for completion limited PDC and GMT calculations to only 3 months pre- and post-intervention for each patient. Future adherence projects should employ a longer duration, e.g. 12 to 18 months, to allow for more accurate PDC and GMT calculations and more importantly, for time for behavioral change to take effect.

Iowa Pharmacy Association – Health Coaching

The objective of the project was to demonstrate improvements in medication adherence through a health coach intervention by a pharmacist. A secondary objective of the study was to enhance pharmacist's skills and abilities as a health coach through education. Nine pharmacists participated as health coaches after completing two training sessions. These pharmacists identified non-adherent patients in their daily practice. 71 patients were identified to coach to better adherence. From the data submitted by pharmacists, 36 patients were included in the analysis of the study. Criteria for inclusion of patient data was as follows; have at least two previous fills at the pharmacy, have a Proportion of Days Covered (PDC) of $\leq 80\%$ at the start of the intervention, taking a Pharmacy Quality Alliance (PQA) intervention medication, and have at least two subsequent fills at the pharmacy following the health coaching encounter by the pharmacist.

PQA adherence measures significantly improved over the course of the project. Prior to the health coach intervention, the average PDC was 62.2%. Following the intervention the average PDC improved to 80.1% ($p<0.001$). There was a significant improvement in the number of patients ($n=20$, 56%) with a PDC $>80\%$ at the completion of the intervention ($p<0.001$). The average GAP decreased from 21.4 days at the start of the study to 10.4 days ($p<0.001$). Prior to the intervention nearly half ($n=16$, 44.4%) had a GAP > 30 days. This improved significantly to only six patients (16.7%) with the use of pharmacist health coaches to improve adherence ($p=0.0075$).

Looking at PDC improvements on an individual level, more than half of the patients achieved the goal of $> 80\%$ PDC. Nearly half of the patients in the study had a GAP of more than 30 days at the beginning of the study and this was also significantly impacted by the interactions from pharmacist health coaches.

In summary, the project fulfilled the goals that were outlined in its proposal. The small sample size of patients and short, six-month timeline, limited the number of patients and the length of the impact on medication adherence. If more funding and time were given to future projects, there might be a potentially greater impact on medication adherence by patients.

Massachusetts Pharmacists Association – Electronic Adherence Closure

The goal of this project was to demonstrate how a community pharmacy can impact medication adherence by providing counseling session to patients on the importance of medication adherence and as well as providing an adherence service consisting of an electronic adherence closure, the Pill Timer™ (RxCAP). The patients were also counseled on the use of this device. The project came close to achieving its goal of recruiting nearly 100 patients. A survey was also developed for patients to provide feedback on the adherence services.

The project utilized the Pharmacy Quality Alliance (PQA) measure of Proportion of Days Covered (PDC) to gauge medication adherence. The high adherence rate in the patients enrolled in this study, at baseline, limited its ability to evaluate the impact of the community pharmacy adherence services. However, there was a statistically significant increase ($t = -3.84, p < 0.01$) in the adherence rate when the data is analyzed with subgroup of patients with a baseline adherence rate of less than 90%.

Surveys were mailed to each patient who received adherence services to gather feedback. Survey results demonstrate that patients' viewed the adherence counseling between them and the pharmacist very positively. The survey items about the RxCAP had results that skewed either slightly positive or slightly negative. In summary, patients felt positive about the design, functionality, and benefit of RxCAP. However, only seventeen of the 48 surveys (35.4%) were completed and received.

In summary, the project fulfilled the goals that were outlined in its proposal.

Virginia Pharmacists Association – Collaborative Practice

The purpose of the project was to allow for establishment of a collaborative arrangement with a community primary care physician office practice with a focus on cardiovascular disease. The premise is that the addition of a pharmacist to the provider team one day per week would, among other benefits, improve patient adherence to therapy. The project focused specifically on statin therapy because despite having relatively few side effects and convenient dosing patterns, its adherence to is low.

Of the 81 surveys sent out, 50 (62%) were returned completed by patients and one had insufficient address. This included 35 patients who were seen individually and 15 seen as part of group sessions. The satisfaction survey yielded overwhelmingly positive results. In addition, patient comments offered valuable feedback about the service.

It is important to note that this project differs from the original proposed project due to difficulties in obtaining Medical College of Virginia Institutional Review Board (IRB) approval. They would have required informed consent from each control and intervention group to request historical refill data. The collection of signed consent from each individual in the control group was not feasible since there had been no relationship with the pharmacist. In the intervention group, consent would have skewed the results by informing the patients their fill data was being measured.

Revision of the protocol and resubmission of the IRB would have taken the project far beyond the deadline date, so different method had to be devised to measure the outcome of the project. Instead, a patient satisfaction survey was developed to assess the impact of the interventions by the pharmacist. The survey served as a way to collect and analyze patient reported measure of adherence.

Pharmacy Society of Wisconsin (PSW) – Adherence Tool Kit

The purpose of this project was to develop, distribute, assess, and revise a unique set of materials and resources for pharmacists to use to assist patients with medication adherence. The primary resources include a pocket-sized adherence tool card and the “My Medication Plan” tear-off form. There were a total of ten pharmacies who agreed to participate in the study. Each pharmacy was provided with all of the necessary materials for project completion. The project consisted of two main phases. Phase one included the development of tools for the pharmacist: the tool card and tear-off form, an online training presentation, and a fax template for communication with prescribers. Phase two involved revision of the tool card and tear-off form as well as obtaining ACPE-accreditation for a live presentation on adherence, which included presentation of the adherence tools. Additional pharmacists were able to comment and provide feedback on the tools when they were presented at the annual PSW Educational Conference on April 19-20, 2011.

The Medication Possession Ratio (MPR) and Gap In Therapy (GIT) at baseline show that the population selected by the pharmacies exhibited significant non-adherence. The 27 patients for whom data was submitted during all phases of the project had an average MPR at baseline of 0.56 and 0.89 at 5-6 months. At the conclusion of the project, only seven of the ten pharmacies submitted data throughout all phases of the project. Average baseline GIT for the 27 patients was 37 which fell to 6.7 at 5-6 months. The average change in MPR among the seven pharmacies over the six month time period was 0.29 and the average change in GIT was -26.6.

There were clear and impressive trends in increase of the MPR and decrease of the GIT in five of the seven pharmacies. In addition, patient level data showed positive trends within each of the pharmacies, with many of the patients attaining an MPR of close to one and a GIT of close to zero by six months.

APPENDIX A: Arizona Pharmacy Alliance Final Report

Final Report

Improving adherence through the use of an interdisciplinary team

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Purpose of the project

The patient-centered medical home concept has been proposed as an innovative method to improve healthcare. This project utilized the medical home concept to develop an adherence team, comprised of pharmacists, behavioral health specialists and community health advisors, to improve outcomes for underserved patients in Tucson, Arizona. The specific aims of the project are listed below.

Specific Aim 1: Examine the effectiveness of an interdisciplinary adherence team on improving adherence.

Specific Aim 2: Conduct an evaluation of the adherence team concept from both the provider and patient perspective.

Specific Aim 3: Examine potential for expanding collaboration to the community at large.

Design/Methods

This was a 6-month pilot study to assess the impact of an interdisciplinary adherence team on medication adherence, clinical outcomes, and feasibility of collaboration. A multi-group repeated measures design was used to measure adherence and clinical outcomes at baseline and at completion of the study. A process evaluation of the adherence team intervention was conducted concurrently.

The study sample (n = 100) consisted of fifty patients who received the intervention and an additional 50 who served as the control group receiving usual care. Patients had to be at least 18 years of age, have at least 1 chronic disease, and have a gap in therapy for one of the six chosen medication classes. For this pilot project, we chose to restrict enrollment to those patients who utilize our outpatient pharmacy services. Of those enrolled in the study, 40% were Hispanic and 53% were Caucasian. There were a small number of African-American and Asian American enrollees. This is consistent with the population served at the practice site. Additionally, 52% of the subjects were women. Each patient to receive the intervention was paired with a similar control patient with respect to age, race, gender and health parameters.

The intervention by the adherence team was a multi-step process. First, the pharmacist who provides care at the point of dispensing determines if any gaps in therapy have occurred for the six classes of medications. If gaps were discovered, the pharmacist performed a brief assessment of the reason behind the issue. This assessment will then be forwarded to the adherence team. The team met weekly to discuss patients who had been identified. Patients who have identified gaps in therapy were scheduled for an interdisciplinary visit with the team. During this visit, the behavioral health specialist, community health advisor, and pharmacist assessed the underlying issues affecting each patient's adherence. The community health advisor assessed financial factors impacting adherence, while the behavioral health consultant addressed motivational factors and environmental factors. The pharmacist addressed knowledge barriers, provided information about each medication, encouraged use of medication reminder methods, and ensured that the medication regimen was tailored for adherence. In collaboration with the patient, an adherence plan was implemented. At subsequent provider visits throughout the study period, the adherence plan was reassessed for efficacy and clinical outcomes were measured.

Results

Results were tabulated using descriptive statistics and the modified two-tailed t-test.

Data from *Specific Aim 1:* Examine the effectiveness of an interdisciplinary adherence team on improving adherence.

Hypertension

The average reduction in systolic blood pressure was 24 mmHg for the treatment group and 4 mmHg for the control group. This finding was not statistically significant (t-score: 1.11, df: 51, $p > 0.10$). The average reduction in diastolic blood pressure in the treatment group was 12 mmHg. In the control group, the average diastolic blood pressure increased 0.12 mmHg. This finding was statistically significant with a p-value < 0.0005 (t-score: 11, df: 34). The following groups of medications were assessed for gaps in therapy: beta blockers, calcium channel blockers, and the ace inhibitor/angiotensin receptor blockers.

Of the 50 participants receiving the intervention, 49 were assessed for hypertension based on their medication regimen. Fifteen subjects were taking beta-blockers at the time of admittance. At the end of the six month period, two of those subjects had an additional gap in therapy of 30 days or more compared to 4 subjects in the control group.

The ace inhibitor/angiotensin receptor blocker was the most prescribed medication class observed during the study: 47/50 participants in the treatment arm were prescribed one of these medications. Seven subjects in the treatment group compared to 19 in the control group experienced a gap in therapy during the intervention period.

Calcium channel blockers were used more frequently than beta-blockers and were often seen in combination with an ace inhibitor or angiotensin receptor blocker. Two of the patients taking calcium channel blockers in the treatment group had a gap in therapy longer than 30 days while six patients in the control group experienced the same issue.

It should be noted that one patient in the treatment group and control group had a gap in therapy for all three medications and that two patients from the treatment group and control group had a gap in therapy for their beta-blocker and ace inhibitor respectively. Additionally, the control group had two patients that had gaps in therapy occur with both their ace inhibitor and their calcium channel blocker.

Diabetes

The average reduction in A1C for the treatment group was 1.33. In the control group, the average A1C worsened by 0.2 points. This finding was statistically significant with a p-value that lies between 0.025 and 0.01 (t-score: 2.05, df:564). Three classes of medications could have impacted the A1C in our study including the biguanides, sulfonylureas, and the thiazelidediones.

Twenty-eight of the 50 subjects in the treatment group had their A1C's assessed based on their medication profile. Two of those subjects had a gap in therapy with their metformin regimen while 5 participants in the control group experienced the same issue.

In the treatment group with those patients taking sulfonylureas, the same two patients who had a gap in therapy with metformin also experienced one with glipizide (used fairly exclusively due to formulary constraints). Four patients in the control group experienced a gap in therapy with two overlapping with metformin.

Only 3 subjects in the treatment group were taking a thiazelidione at the time of enrollment. One of those patients did experience a gap in therapy greater than 30 days, but this was the same patient who experienced that gap with metformin and glipizide as well. This phenomenon also occurred in the control group for this class of medications.

Hyperlipidemia

Of the 50 patients who participated in the study, 27 were assessed for hyperlipidemia based on their medication regimen. Three of the four cholesterol parameters improved significantly in the treatment group with the exception being HDL. The average reduction in total cholesterol for the treatment group was 37 mg/dl while the control group average increased by 6 mg/dl (t-score: 2.5, df:34, $0.01 > p > 0.005$). The average reduction in triglycerides was 20 mg/dl and the average in the control group worsened by 48 mg/dl (t-score: 4.5, df:49, $p < 0.0005$). The average increase in HDL for the treatment group was 1.7 mg/dl and 3.6 mg/dl in the control group (t-score: 0.76, df:29, $p > 0.10$). The average reduction in LDL for the treatment group was 33 mg/dl while the control group average increased by 2 mg/dl.

Twenty-seven patients were taking a statin at the onset of the trial. In the treatment group, four subjects experienced a gap in therapy during the study. In the control group, 10 patients exhibited a gap in therapy greater than 30 days. Of these patients, 4 in the control group and one in the treatment group had experienced gaps in therapy with other medications as well.

Data from *Specific Aim 2*: Conduct an evaluation of the adherence team concept from both the provider and patient perspective.

Provider perspective:

Overwhelmingly positive feedback from both the family practice and internal medicine providers.

A few themes that emerged:

It makes me more efficient. Several talked about the ability to focus on the patient and discuss their medical concerns in more efficient manner.

Love the different areas of expertise collaborating. Many mentioned that they enjoyed the collaborative nature of the project having worked in previous settings where this was not the case.

My patients are getting better. As one doctor put it, “I’m not always sure what the team does, but I’ve seen the results and that is what counts with me.

As a young provider, this kind of support is invaluable. Our newer medical providers have come to rely heavily on this team and its services. “It allows me to do what I do best which is to diagnose the patient.”

In the last two quarters, the provider with the highest satisfaction scores in our clinic has utilized the team most frequently and appropriately.

Patient perspective themes:

Love the team of experts approach. “I feel like there is this whole army of people whose sole job is to make me better. Do you have any idea what that feels like? “Most people hate going to the doctor, but at least when I come here I know there are people who care about me.”

Lots of providers but they each serve a purpose. “At first the number of people who came to see me during my visit was a little overwhelming, but now that I am comfortable with what each one does; it makes it easier for me to ask questions of the right person.

In the quarter before the study began, satisfaction scores for this clinic location were among the lowest in the health system. In the past two quarters, the clinic has been ranked number 1 in patient satisfaction.

Data from *Specific Aim 3*: Examine potential for expanding collaboration to the community at large.

Numerous aspects related to expansion of this project were examined. These included information sharing including timeliness, potential partners, and limitations on pharmacy use. We have reached out to several local pharmacy chains about participation and are currently in discussions about how the collaborative process might look. We have always encouraged patients to use one pharmacy to facilitate adherence, but we are considering requiring patients to do this to enroll in this process. Lastly, we are investigating the potential information barriers including privacy protections and the timely sharing of information. Historically, our electronic medical record does not communicate well with pharmacy-based systems. Our information technology team is working with us on potential solutions.

Discussion

Key findings

It appears from the data that a team approach that addresses the multi-factorial nature of adherence has the potential to improve health outcomes. It was encouraging to see the impact of this team on important benchmarks for health such as A1C. While it was disappointing to see that systolic blood pressure and HDL cholesterol were not significantly improved, there are other factors to consider. One, while the change in systolic blood pressure was not statistically significant, an argument can be made that an average drop in blood pressure of 24 mmHg is clinically significant. Two, HDL historically is most affected by exercise and diet and is less responsive to statins which may have contributed to the findings we see.

Another key trend was the frequent gaps in therapy that occurred for multiple drugs in the same individual. Literature tells us that adherence to one medication does not necessarily predict adherence to another, but the study showed us several patients who improved on all parameters or none at all. We plan to do a secondary analysis of the patients who failed to respond in all phases to assess potential confounders or areas of improvement.

Additionally, we are hoping to apply these principles to our newly diagnosed and our recently hospitalized patients. The recently hospitalized patients that participated in the study responded quite well over their control group counterparts. In the future, we hope to add an assessment of re-hospitalization to the evaluation of the team.

It was especially rewarding to look at the feedback from both patients and providers. It builds a case for the patient-centered medical home and accountable care organizations. Based on feedback, patients may not always know that they want that type of care, but they respond in healthy ways to those models. By utilizing this team of experts and incorporating the patient in adherence plans, patients and providers feel that care has improved at the clinic.

Potential improvements/future directions

Now that the team has been in operation for over six months, the need for weekly meetings has diminished. We are now looking at a monthly meeting with quick conferences prior to seeing a patient.

Based on patient feedback, we are no longer requiring all three of us at each appointment with the patient. However, we always introduce the entire team in the beginning.

We are working diligently with our information technology department to become more efficient in how we identify patients who are experiencing gaps in therapy. Currently our software does not

allow us to search by drug class or other important parameters. We are exploring this because we feel that we may have missed some patients due to the fact that they never returned beyond their initial pickup date.

We are working as a team to identify factors that make someone high risk for gaps in therapy or groups that responded well to the initial intervention. While we will see any patients that ask for our help, we are always looking for ways to improve care for those experiencing transitions in care, are new to our clinic, or have a new diagnosis.

Increase utilization of the adherence team by all providers at our clinic. While all of the providers have patients that qualify, some have used the service much less frequently than others. While we have the ability to identify patients who are at risk, we want the medical providers to utilize us as an important part of their patient's care.

Continue to explore potential partnerships with local pharmacies to expand program to all patients who use our clinic.

Examine logistics of expanding program to each clinic within our health system. Our clinic is one of the smaller in the system with six medical providers. We are meeting with leadership from behavioral health, clinical pharmacy, and community health to determine funding options and a potential second site for the project/adherence team.

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Arizona Pharmacists Association for their assistance in managing this project.

The National Alliance for State Pharmacy Associations for serving in a leadership role to expand pharmacist roles and promote quality measures for adherence.

Pfizer for their financial support of this project.

APPENDIX B: Connecticut Pharmacists Association Final Report

Motivational Interviewing by Pharmacists to Identify and Address Non-Adherence in the Community Pharmacy

Final Report

Prepared by Atula Vachhani, Pharm.D., Project Coordinator

Background

Over the past few decades, advances in healthcare and innovations in drug development have allowed a longer life expectancy for men and women in the United States. However, longer life is accompanied by an increased prevalence of chronic conditions.¹ According to Wolff *et al*, 65% of people older than age 65 years have two or more chronic conditions, such as diabetes, hypertension, hyperlipidemia, asthma, heart failure, and kidney failure.² Management of chronic conditions with prescription medications is important to decrease disease progression and improve patients' quality of life. However, the long-term effectiveness of medications for chronic diseases depends strongly on medication adherence.

Adherence is defined as the extent to which patients take medications as prescribed by their health care providers.³ It is estimated that 30 – 60% of patients are non-adherent to prescribed medications.⁴ In 2003, the World Health Organization identified medication non-adherence as a leading cause of preventable morbidity, mortality, and health care costs.⁵ Non-adherence to chronic medication therapy correlates with worse patient outcomes, increased hospitalizations, and increased duration of hospitalization.^{6,7} In addition, the 2009 Medication Adherence Report estimates that non-adherence is linked to 125,000 U.S. deaths per year, and poor adherence costs the healthcare system approximately \$177 billion annually.⁸ Past research has shown that factors contributing to patient non-adherence include adverse drug reactions, poor medication instructions, poor memory, inability to pay for medications, disagreement about the need for treatment, multiple medications, low literacy, silent conditions (i.e. hypertension,

hyperlipidemia, osteoporosis), cultural factors, inadequate social support, and depression.^{1,9}

Pharmacists have an important role in reducing medication non-adherence. This project attempted to utilize the professional knowledge and skills of community pharmacists to identify and address patients' non-adherence to chronic medications by incorporating motivational interviewing techniques in their telephone interactions with patients to enhance communication with patients and to empower them. Using motivational interviewing to identify causes of non-adherence may allow pharmacists to more effectively encourage medication-taking behaviors, educate patients about proper use of medications, and convey positive beliefs about health to patients. We attempted to determine the effects of the initial motivational interviewing phone call on patients' adherence. The results may assist in future projects aimed at the development of interventions to improve adherence.

Project Methods

Site Description

Arrow Pharmacy # 12 is the headquarter pharmacy to a privately-owned, five-pharmacy chain within Hartford, Connecticut. The interventions in this project were conducted by two pharmacists at Arrow Pharmacy #12, but involved patients from all five Arrow Pharmacies in Hartford, CT. Arrow Pharmacy serves a diverse patient population, consisting mainly of Hispanic and African American patients from various socioeconomic backgrounds, with an emphasis on seniors. It processes about 3,000 prescriptions per week, 50% of which are through entitlement programs (Medicaid indigent funds), 40% through Medicare Part D plans, 10% through commercial payers, and less than 1% to cash customers.

Currently, the pharmacy offers patients two adherence programs: refill reminder calls and Medicine-On-Time (www.medicine-on-time.com). This is a packaging system that uses color-coded time templates and multiple drugs in one blister pack. This system enables adherence

tracking, as well as eases nursing burdens within homecare situations.

Arrow Pharmacy employs 12 pharmacists, with a typical coverage of four pharmacists, and at least a three-pharmacist overlap during peak hours. Pharmacy operations are fully integrated with the latest robotics and pharmacy systems. There is also a private counseling room that serves to provide a confidential medication therapy management (MTM) experience.

PharmNetEx, a subsidiary of the Connecticut Pharmacists Association, is a network of credentialed pharmacists who provide diverse clinical services to optimize medication use and patient outcomes. PharmNetEx pharmacists provide patient-centric care through a collaborative approach between patients and their prescribers. After initiation of the project, it was determined that the two Arrow pharmacists would join PharmNetEx and serve as MTM pharmacists since they had an established relationship with the patients already.

Pharmacists' Interventions

The two Arrow pharmacists assigned to this project were trained on motivational interviewing techniques through a two-hour Health Behavior Change and Motivational Interviewing workshop conducted by a medication adherence expert. Along with several PharmNetEx pharmacists, they discussed the steps necessary for negotiating behavior change with patients. Causes of resistance and strategies for reducing patient resistance during consultation were also reviewed. The Arrow pharmacists and PharmNetEx pharmacists also gained hands-on experience in a two-hour Medication Therapy Management training session, in which they participated in role-play activities in order to practice conducting a one-on-one MTM appointment. Proper documentation of an MTM encounter, including pharmacist-physician communication through a letter was discussed in detail.

The Arrow pharmacists utilized the principles learned during the training to conduct motivational interviews by telephone. From the lists of prescriptions to be returned to stock 14

days after fill at all five Arrow Pharmacies, the pharmacists identified patients 18 years or older taking one or medications that fall into one of the following therapeutic category: beta-blocker (BB), angiotensin-converting enzyme (ACE) inhibitor or angiotensin-receptor blocker (ARB), calcium channel Blocker (CCB), iguanid, sulfonylurea, thiazolidinedione, or statin.

Upon identification of the patient from the return-to-stock (RTS) list, the pharmacists called each patient. The pharmacists introduced themselves as Arrow pharmacists and stated the reason for the call, which was that the patient's medication was due to be returned to stock as it had not been picked up in 14 days after it was filled. The pharmacists utilized motivational interviewing techniques/skills to probe and identify reasons for the patient not picking up the medication(s). The pharmacists spent a significant amount of time asking patients probing questions to elicit detailed patient responses, and allowed patients to express any concerns they had about their medications or health. Constant communication, guidance, and follow up took place between the project coordinator and the Arrow pharmacists throughout the project to ensure that all motivational interviewing phone calls were done appropriately. The pharmacists offered each patient all appropriate recommendations based on their assessment of patient responses. It was noted if a patient declined all interventions recommended by the pharmacist. The recommendations offered include one or more of the following:

- (1) Enroll the patient to receive refill reminder calls. The pharmacist would automatically refill the prescription on the date it is due and call the patient to remind them that the prescription is ready for pick up.
- (2) Enroll the patient to have medication(s) delivered to their home. The prescription is refilled at the request of the patient. Medication delivery is a complimentary service currently offered to patients of Arrow Pharmacy, with some restrictions based on distance from the pharmacy.
- (3) Recommend that the patient subscribe to unit-dose packaging (Medicine-On-Time) for one or more of their medications.

(4) Refer to an individual, face-to-face appointment with a PharmNetEx pharmacist for comprehensive MTM evaluation if the Arrow pharmacists deem any patient on five or more chronic medications to have complex medication regimen. Patients referred to a PharmNetEx pharmacist were to have an initial comprehensive MTM appointment and one targeted follow up visit.

(5) Recommend pharmacist to follow up with the prescriber via phone call for change in therapy if patient is experiencing adverse drug events.

(6) No additional pharmacist intervention required.

Data Source and Analysis

Data of patient responses for not picking up their chronic medications (medications in any of the seven categories identified above) was obtained directly from patient or caregiver via telephone. Three-month pre- and post-intervention (motivational interviewing phone call date) medication profile/refill histories of the identified patients were obtained from Arrow Pharmacy's prescription processing system, QS1.

Data collection and entry was done by the project coordinator. All data was analyzed using Microsoft Excel 2007 and SPSS 19. Outcome measures evaluated in this project are Proportion of Days Covered (PDC) and Gap in Medication Therapy (GMT), as defined by Pharmacy Quality Alliance's criteria, 3 months before and after the motivational interviewing by phone call. A patient is considered to be adherent to their medication if the PDC \geq 80%. A GMT \geq 30 days signifies non-adherence to that medication.

The PDC and GMT were calculated based on total number of days supplied for filled prescriptions of the seven types of chronic medications mentioned above during the measurement periods. Because the grant period only allowed a total of 6 months for all

interventions, data collection, and measurement, the prescription refill data beyond 90 days was not available. Therefore, it was assumed that if a patient did not have their prescription filled at all in 90 days, the PDC = 0% and GMT \geq 90 days.

The PDC and GMT were calculated based on total number of days supplied for filled prescriptions of the seven types of chronic medications mentioned above during the measurement periods. Because the grant period only allowed a total of 6 months for all interventions, data collection, and measurement, the prescription refill data beyond 90 days was not available. Therefore, it was assumed that if a patient did not have their prescription filled at all in 90 days, the PDC = 0% and GMT \geq 90 days.

Results

From January 31, 2011 to May 2, 2011, a total of 268 patients were identified as potentially non-adherent, using the 14-day return-to-stock list. The pharmacists attempted to contact all identified patients, but only 59 patients were reached. The other 209 patients could not be reached by phone due to disconnected phones, wrong phone numbers, or no phone number on file. Ten of the 59 patients contacted were offered a one-on-one MTM appointment with a PharmNetEx pharmacist based on their eligibility as a patient prescribed 5 or more chronic medications, with two medications on the RTS list. Table 1 shows patient demographics and the various type and number of medications taken by the patients.

There were a total of 71 prescriptions for chronic medications in any of the 7 categories on the 14-day return-to-stock list (Table 2). Two of the 71 prescriptions were combination products and were counted separately by medication category, but counted once in the number of prescriptions on the RTS list. The 59 patients reported a total of 83 reasons for not picking up their medication within 14 days after fill date (Table 3). The top 3 patient-reported reasons were: forgot to pick up (21 responses), cost (16 responses), and patient has medication leftover (15 responses). Fourteen

out of 83 responses were categorized as “Other”. One patient appeared on the RTS list multiple times due to inability to afford cost of the medication.

Table 4 shows that the pharmacists offered a total of 71 interventions, however, 17 interventions were declined by the patients. The top 2 interventions were medication delivery (11) and refill reminder calls (7). Three patients who were enrolled in refill reminder calls appeared on the RTS list more than once, despite receiving a reminder phone call. All 10 patients who were offered the one-on-one appointment with the PharmNetEx pharmacist declined for various reasons, including: not available, not interested, no transportation, patient obtains all medical information from their doctor, and patient in a nursing home or on daily dialysis.

A review of patients’ medication refill histories 3 months pre- and 3 months post- pharmacist phone contact was conducted for all 59 patients contacted. The percentage of patients 18 years and older who met the PDC threshold of 80% during the measurement period of 3 months is reported as a rate for each of the seven types of medications pre- and post-intervention (Table 5). Patients who met or exceeded the PDC threshold of 80% were considered to be adherent to that medication category. PDC rates for each medication category increased from pre-intervention to post-intervention, with the exception of thiazolidinediones, which was not on any of the return-to-stock lists. A statistically significant difference in the PDC rate pre- and post-intervention was noted for total prescriptions, and for the statin and calcium channel blocker medication categories.

GMT is reported as the percentage of patients 18 years and older who were dispensed at least two prescriptions in a specific medication category, during the measurement period of 3 months pre- and 3 months post-intervention, who experienced a significant gap in medication therapy of greater than or equal to 30 days. Because the measurement period of 3-months only allowed the evaluation of one prescription for a 90-days supply, the GMT was assumed to be zero days

for those scripts. In Table 6, a separate rate of GMT \geq 30 days is reported for each of the seven types of chronic medications pre- and post-intervention. Overall, there was no statistical significant difference in the rate of GMT \geq 30 days pre- and post-intervention.

Discussion

Motivational interviewing by telephone is a reasonable means to increase adherence in patients taking chronic medications. It is widely known that community pharmacists have very little time to provide extensive counseling to their patients. This project can be realistically replicated in other community pharmacies as it was designed to minimize disruptions to the busy schedule of community pharmacists. As we noted in this project, patients appeared to be more likely to refill their medications after speaking to the pharmacist by phone (at least during the limited follow up observation period). Motivational interviewing by telephone would be a sustainable program as it can generate additional revenue by increasing the number of prescription filled. In this project, none of the ten patients signed up for an MTM appointment with the pharmacists. However, if MTM appointments are conducted, pharmacists can potentially bill third parties for MTM encounter reimbursement, which would generate additional revenue for the pharmacy.

The short timeline of this project was a major limitation in accurately evaluating the PDC and GMT. We were limited to evaluating only 3-months pre- and 3-months post-intervention refill history for each patient since the grant period allowed for a total of only 6 months for all interventions and measurement. It was a major challenge to contact all identified patients by phone in a period of time that would allow 3-months post-intervention data collection in a total of 6 months project timeline. By mid-point of this project, only 37 patients were reached. Thus, in order to contact as many patients as possible and obtain 3-month post-intervention data for these patients before final report submission date, the phone call date was extended to May 2, 2011, and the data collection timeline was extended through August 2, 2011.

Another limitation of this project was that the Arrow pharmacists were not able to reach by phone all potential patients who were identified through the return-to-stock list. Many of the patients, who would have likely benefitted from pharmacist intervention, did not have a telephone, did not have an active phone number on file with Arrow Pharmacy, or wished not to give out their phone number due to social/financial concerns. As Arrow Pharmacy serves diverse inner-city populations, these patients may be from a lower socioeconomic status, with financial and social barriers that make medication adherence an extreme challenge for them. Fifty percent of prescriptions processed by Arrow Pharmacy are billed to Connecticut Medicaid and 40% of prescriptions are through Medicare Part D. Additionally, 19 patients (11 males, 8 females) were taking antidepressants, antipsychotics, or anxiolytics. Patients with a psychiatric disorder can be more likely to be non-adherent to their medications.¹⁰

Patients' lack of interest in their own healthcare, limited health literacy, and lack of understanding of the role of pharmacists in medication therapy management also presented a challenge for Arrow Pharmacists as they strongly encouraged qualified patients to have one-on-one appointments with PharmNetEx pharmacists. The pharmacists spent a significant amount of time attempting to elicit detailed information about patients' medication taking behaviors and any potential problems they are having with their medication therapy. According to the Arrow pharmacists, most patients were initially curious as to why their pharmacist was calling. Some patients opened up and were willing to engage in a conversation with the pharmacist after the initial introduction. However, many patients were skeptical or defensive and were not willing to discuss their medications or healthcare with the pharmacists, despite every effort on the pharmacists' behalf to offer any helpful recommendations or interventions. This may be due to the fact that in usual practice, patients do not expect a phone call from their community pharmacist about how they are taking their medications, or about any problems they may be

having with their medications. Therefore, conducting MTM in community pharmacies would facilitate increased pharmacist-patient communication.

Conclusion

Poor adherence to medications has a substantial impact on patients and the health care system. Due to their accessibility, community pharmacists have a unique opportunity to identify non-adherence and effectively improve their patients' adherence to chronic medications. By utilizing essential motivational interviewing skills, pharmacists can probe into the patients' medication-taking behaviors to identify reasons for non-adherence and address these concerns through one-on-one MTM appointments with the patients. Community pharmacists are usually pressed for time so motivational interviewing via a short telephone call to the patients would be an efficient way to identify and address non-adherence, as well as optimize patients' medication therapies.

Project Timeline

Month(s)	Previously Anticipated Project Activities	Final Update
January 1, 2011 through January 31, 2011	Project planning, developing motivational interviewing training techniques, and conducting Arrow pharmacists and technicians training	- Dec. 17, 2010 - Project planning meeting - Jan. 20, 2011 - 2-hour "Health Behavior Change (Motivational Interviewing) Workshop" held. Arrow and PharmNetEx pharmacists and key personnel participated in workshop.
January 31, 2011 through May 2, 2011	Initiate pharmacist-delivered adherence interventions. Continue until 100 patients requiring an adherence intervention by the pharmacists is reached.	- Starting January 31, 2011 - non-adherent patients identified and called. 268 phone calls made, but only 59 patients were reached. - March 8, 2011 – MTM Training Session held. - May 2, 2011 – Last day of phone calls. - Continual discussion took place with Arrow pharmacist and project coordinator regarding feedback of phone calls, interactions with patients, and interventions. - Ongoing collection and analysis of 3 month pre-intervention data.
March 31, 2011	Mid-cycle report due to APMS	- Mid-cycle submitted to APMS; Prepared by project coordinator.

May 1, 2011 through August 2, 2011	Data analysis. Discussion with all project pharmacists (e.g. Arrow pharmacists, PharmNetEx pharmacists) regarding feedback of intervention methods and interactions with patients and prescribers, ongoing data analysis, report preparation.	- Ongoing collection and analysis of 3-month pre- and post-intervention data. - August 2, 2011 - Last day of 3-month post-intervention data collection. - Continual discussion with all key personnel regarding data analysis. - Final report preparation.
August 30, 2011	Final report due to APMS	Final report due to APMS

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Table 1. Patient Demographics

		All Patients (n = 59)	Males (n = 27)	Females (n = 32)
	Mean Age	62 years	58.7 years	64.8 years
# Medications in 7 categories	Total	138	60	78
	Mean	2.34	2.22	2.44
Beta Blockers		27	9	18
ACE Inhibitors/Angiotensin Receptor Blockers		24 ACEIs 7 ARBs	11 ACEIs 4 ARBs	13 ACEIs 3 ARBs
Calcium Channel Blockers		23	12	11
Metformin		15	7	8
Sulfonylureas		10	3	7
Thiazolidinediones		1	0	1
Statins		32	15	17
# of Psych Medications*	Total	42 (n = 19)	26 (n = 11)	16 (n = 8)
	Mean	2.21	2.36	2.00
# of Other Chronic Medications	Total	188	97	91
	Mean	3.19	3.59	2.84
# of All Medications	Total	326	157	169
	Mean	5.53	5.82	5.28

* Psychiatric medications include antidepressants, antipsychotics, and anxiolytics.

Table 2. Medications on the 14-Day Return-To-Stock (RTS) List

Medication Category	# Medications
Beta Blockers	8
ACEI/ARBs	19
Ca Channel Blockers	15
Metformin	8
Sulfonylureas	5
Thiazolidinediones	0
Statins	18

Total # Medications on RTS	73 (71 Prescriptions)
Other Medications on RTS	26

Table 3. Patient-Reported Reasons for Failure to Pick Up Prescription

	Total # of Patient Responses
Forgot to pick up	21
Cost	16
No transportation	12
Self-discontinued due to Adverse Drug Events	0
Discontinued by prescriber	5
Patient has medication leftover	15
Rx filled at another pharmacy	0
Other Reasons:	14
Patient in hospital or nursing home	4
Delivery returned to pharmacy twice	3
No time to pick up prescription	1
Patient unaware Rx is ready to pick up	2
Patient refuses to take meds	1
Dose changed by physician	2
Weather conditions	1
TOTAL of all patient responses	83
Average # responses per pt	1.41

Table 4. Interventions Recommended by Pharmacists

Interventions Recommended	Total # Recommendations	
Medicine-On-Time	0	
Refill Reminder Call	7	
Medication Delivery	11	
Pharmacist to contact Prescriber	1	
Refer to PharmNetEx for MTM appointment	10	
Patient declined intervention (not incl. PharmNetEx)	17	
No additional intervention required	Rx changed or D/C'd by MD	7
	Will pick up when has money	6
	Patient in hospital or nursing home	3
	Patient had medication leftover	2
	Will pick up when insurance coverage active	1
	Will pick up at convenience	1

	Total	20
Other	VN/SW will follow up	2
	Driver to call before delivery	2
	Call patient before RTS	1
	Total	5
TOTAL of all interventions		71

Table 5. Percentage of Patients with Proportion of Days Covered (PDC) \geq 80 %

Medication Category	Pre-Intervention PDC \geq 80 %	Post-Intervention PDC \geq 80 %	p Value
Beta Blockers	0 %	25 %	0.101
ACEI/ARBs	5 %	32 %	0.376
Ca Channel Blockers	7 %	33 %	0.033
Metformin	0 %	25 %	0.085
Sulfonylureas	0 %	20 %	0.271
Thiazolidinediones	N/A	N/A	N/A
Statins	17 %	61 %	0.020
Total	7 %	37 %	<0.001

p < 0.05 = statistical significance via two sample t-test

Table 6. Percentage of Patients with Gap in Medication Therapy (GMT) \geq 30 Days

Medication Category	Pre-Intervention GMT \geq 30 Days	Post-Intervention GMT \geq 30 Days	p Value	p Value (Fisher's Exact Test)
Beta Blockers	75 %	63 %	0.586	1.00
ACEI/ARBs	42 %	68 %	0.091	0.191
Ca Channel Blockers	67 %	67 %	1.00	1.00
Metformin	63 %	50 %	0.611	1.00
Sulfonylureas	80 %	40 %	0.157	0.524
Thiazolidinediones	N/A	N/A	N/A	N/A
Statins	39 %	33 %	0.728	1.00
Total	55 %	55 %	1.00	1.00

p < 0.05 = statistical

APPENDIX C: Iowa Pharmacy Association Final Report

Coaching to better adherence: The pharmacist as a health coach

Iowa Pharmacy Association

Final Report

Submitted by Jennifer Moulton and CoraLynn Trewet

Background

In 2003 the World Health Organization (WHO) published a report stating poor adherence to treatment of chronic diseases is a problem of striking magnitude, with the impact of poor adherence growing as the burden of chronic disease grows.¹ Adherence is the key driver in enabling patients to achieve their treatment goals. The problem starts as soon as a prescription is given to a patient. 83% of patients would never tell their health care provider if they didn't plan to fill the prescription they just received and up to 31% of prescriptions are not filled by patients.^{1,2} Approximately half of all patients suffering from chronic diseases eventually don't take their medications as prescribed.²

It has been said that “increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments.”³ The WHO also stated that health professionals need to be trained in adherence, and that they can significantly influence patient care by assessing risk of non-adherence and delivering interventions to optimize adherence. They went on to describe the need for practitioners to have access to specific training in adherence management addressing three topics: knowledge (information on adherence), thinking (the clinical decision-making process) and action (behavioral tools for health professionals).¹ While significant amounts of research have been dedicated to medication adherence, little research has

been done to look at the education of health care professionals in this area and the impact of that training.

Pharmacists are the best positioned health care professional to identify patient non-adherence, and are therefore well positioned to influence adherence through patient behavior change. To achieve better health outcomes, particularly related to adherence, patient behavior must change. Pharmacists are taught to “educate” patients on the use of their medications and why adherence and lifestyle modification greatly impacts their overall health outcomes and decreases their health risk profile. However, educating patients on why, and even how, they need to change their behavior is not a successful behavior change model. Rather, pharmacists should develop a patient activation model and “coach” relationship with the patient in an effort to provide self-management support. Through motivational interviewing and coaching of patients, and through a system that supports that process every day for every applicable patient, pharmacists can impact medication adherence, patient care outcomes and pharmacy performance measures.⁴

The Pharmacy Quality Alliance (PQA) works to improve the quality of medication use across health care settings through a collaborative process in which key stakeholders agree on a strategy for measuring and reporting performance information related to medications. In 2009, five demonstration projects were conducted which evaluated the implementation and uptake of the PQA measures within public and private payers, federal and state agencies, employers, health plans, and PBMs.⁵ In 2010, Phase II demonstrations are taking place to assess how pharmacists and drug plans can work collaboratively to improve medication adherence and safety, and to track this improvement with the PQA-endorsed measures.⁶ Since many of the measures are related to medication adherence, there is a need to identify processes for pharmacists to improve upon their skills related to motivational interviewing, behavior change, medication adherence and performance improvement.

Methods:

The objective of the study was to demonstrate improvements in medication adherence through a health coach intervention by a pharmacist. A secondary objective of the study was to enhance pharmacist's skills and abilities as a health coach through education.

The study was a pre- and post-test study design over a 12-month period to evaluate the effects of an educational intervention on medication adherence. The education provided to the group of pharmacists who participated in this study was developed by the Iowa Chronic Care Consortium (ICCC). The ICCC training utilized a framework which incorporates the concepts of Rollnick and Miller to assist patients with health behavior change.⁷ In addition, Flex Care™, health care communication using personality type, was taught as a way to conduct motivational interviewing and impact patient behavior change and self-management.

The Health Coach Techniques educational activity, 11 hours in length (1.1 CEU), was completed by 28 pharmacists. Eight community pharmacists volunteered to participate in the study. Each pharmacist selected ten patients to coach to better adherence. Pharmacists were given additional training specific to adherence and the PQA Measures but in an effort to allow the pharmacists autonomy, no specific exclusion criteria was specified to the pharmacists. 71 patients were identified to coach to better adherence. From the data submitted by pharmacists, 36 patients were included in the analysis of the study. Inclusion criteria of patient data was as follows; have at least two previous fills at the pharmacy, have a PDC of $\leq 80\%$ at the start of the intervention, taking a PQA intervention medication, have at least two subsequent fills at the pharmacy following the health coaching encounter by the pharmacist.

Adherence Measures for the study were adapted from PQA Measures. The Proportion of Days Covered (PDC) measure assesses the percentage of patients covered by prescription refill records for

the intervention medication. Clinical evidence provides support for a standard PDC threshold of 80%. The Gap in Therapy (GAP) measure assesses the percentage of patients who experience a lapse in medication therapy, measured in days, beginning on the last day covered by a prescription refill for the drug of interest and ending on the date of the next prescription refill. A single GAP of at least 30 days is considered significant. The Adherence Navigator Score[®] is a validated adherence tool developed to identify patient risk to not adhering to medications. The three question patient survey examines concern, commitment and cost as predictors for adherence.⁸

Data analysis was analyzed utilizing descriptive statistics, related-samples Wilcoxon signed-rank test. The study was approved through the University of Iowa Institutional Review Board (IRB).

Results

There were 36 patients included in the analysis for the study. The average age was 57 years (range 29-92) with similar numbers of each gender (52.8% female, 47.2% male). The average number of prescriptions was 7.7 with a range of 1-20 medications. One-half of the patients were taking the intervention medication for hypertension, 33% for cholesterol and 17% for diabetes. The mean Adherence Navigator Score[®] was low, with a score of 3.88 from a possible 36 points. More than half (56%) of patients had a score associated with a low risk of not adhering to medications.

Prior to the health coach intervention, the average PDC was 62.2%. Following the intervention the average PDC improved to 80.1% ($p < 0.001$). There was a significant improvement in the number of patients ($n=20$, 56%) with a PDC $> 80\%$ at the completion of the intervention ($p < 0.001$). The average GAP decreased from 21.4 days at the start of the study to 10.4 days ($p < 0.001$). Prior to the intervention nearly half ($n=16$, 44.4%) had a GAP ≥ 30 days. This improved significantly to only six patients (16.7%) with the use of pharmacist health coaches to improve adherence ($p=0.0075$).

Discussion

The community pharmacists trained as health coaches were able to effectively coach patients to better adherence. Pharmacists trained in motivational interviewing, patient engagement, reflective listening, appreciative inquiry, shared-decision making, and when to recognize change talk made a statistically significant impact on patient medication adherence. The PQA Adherence Measures of PDC and GAP were significantly improved in this small patient sample. The PQA goal of $\geq 80\%$ PDC was accomplished by the patients identified in the study, a significant improvement from the beginning of the intervention. Looking at PDC improvements on an individual level, more than half of the patients achieved the goal of $\geq 80\%$ PDC. Nearly half of the patients in the study had a GAP of more than 30 days at the beginning of the study and this was also significantly impacted by the interactions from pharmacist health coaches.

To our knowledge, this is the first study to demonstrate improved adherence measures through health coaching and the first study to examine the impact of pharmacists as health coaches. While there are several studies that have examined pharmacists impact on improving medication adherence, we were not able to identify any studies that utilized the techniques of health coaching to improve adherence. The well-known Asheville Project referred to the pharmacists/case managers in their project as coaches, but the training specific for the pharmacists was in cardiovascular disease rather than health coaching.⁹

There are several limitations to this research. The small sample size of pharmacists and subsequently patients is a limitation; however, this did not prevent us from finding statistically significant results from the pharmacists' efforts. The nature of the study funding was a short six month timeline, thus limiting the number of patients and the length of the impact. We do believe if we continued the study, we would find an even greater impact on adherence, as most statistics show that adherence wanes over

time. There also exist several barriers to community-based research including communication and challenges with obtaining IRB approval.

Conclusion

The study was intentionally conducted as “low-tech” in order to be easily replicated. Replication of the project would include an educational activity to train pharmacists as health coaches, along with forms to document adherence (if data were desired). Pharmacists should consider health coach education in order to improve their PQA Adherence Measures and improve the outcomes associated with their Medication Therapy Management interactions, particularly those dealing with patient adherence.

In this small study, the PQA Adherence Measures of PDC and GAP were significantly improved and met the target goals specified by PQA. The results of this study show that pharmacists trained as health coaches can be effective. Health coaching techniques utilized by pharmacists improve patient adherence to medication therapy. Pharmacists should consider seeking out training on health coach techniques to improve medication adherence.

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Coaching to better adherence: The pharmacist as a health coach

Summary of results

Demographics

Age, mean (range)	57.03 yrs (29-92)
Female	52.8%
Total # Rx, mean (range)	7.69 (1-20)

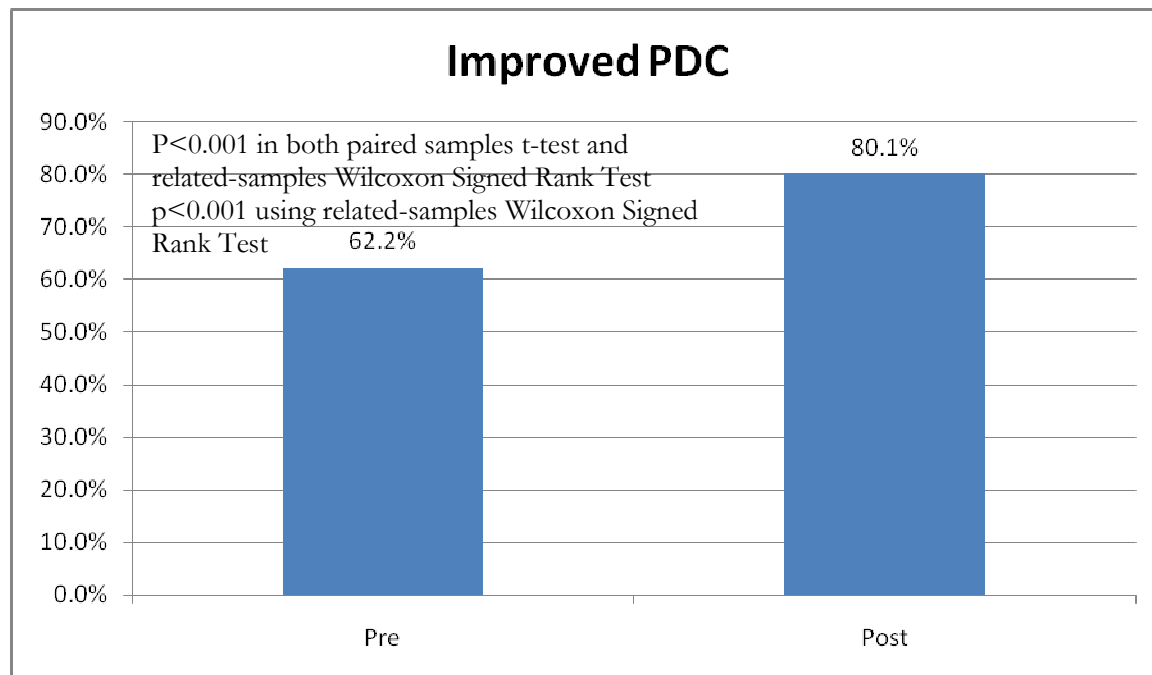
Intervention medication

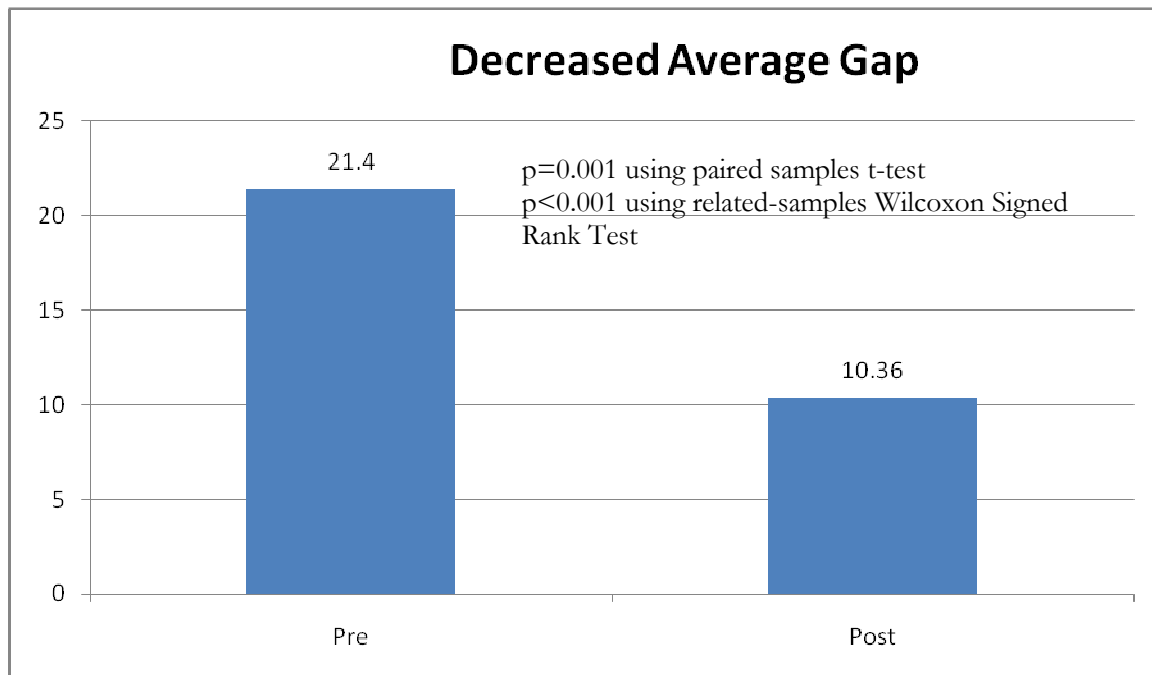
Hypertension	18 (50.0%)
Diabetes	6 (16.7%)
Cholesterol	12 (33.3%)

Adherence Navigator Score®

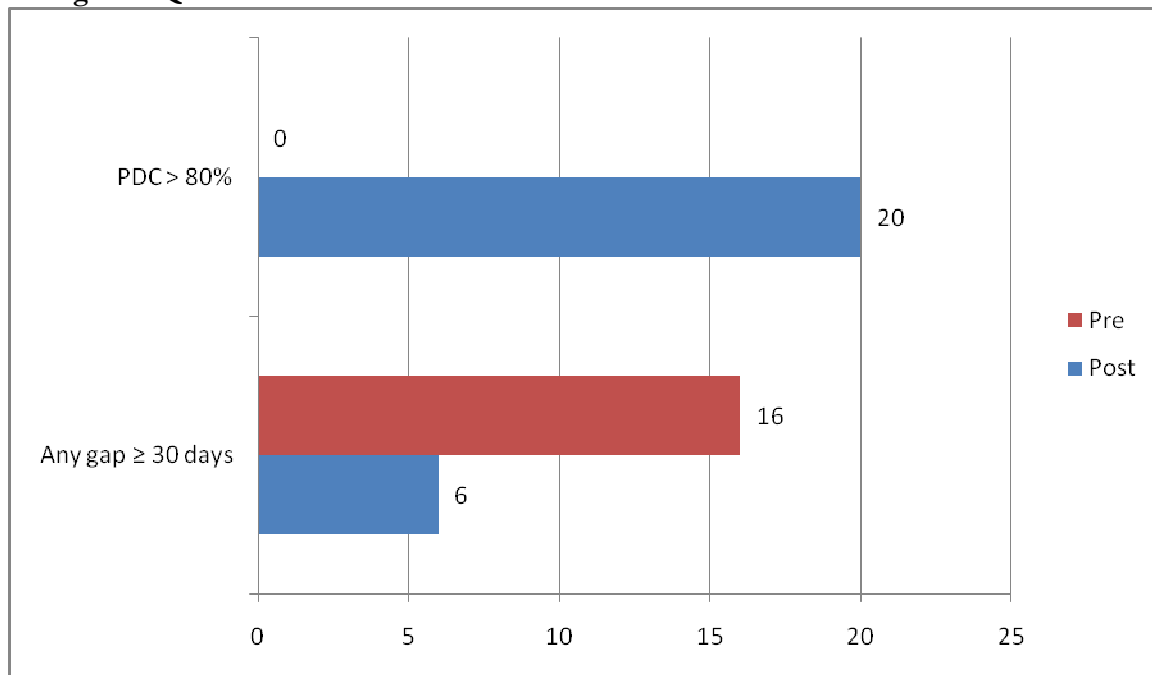
Mean score	3.88
Low risk (score=0)	20 (55.6%)
Medium risk (score = 2-7)	9 (25.0%)
High risk (score=8-36)	5 (13.9%)

Note: N=34 due to missing data.





Change in PQA measures



	PDC > 80%	Any gap \geq 30 days
Pre	0	44.4%
Post	55.6%	16.7%
% Change	55.6%	-27.7%
p-value	<0.001	0.0075

APPENDIX D: Massachusetts Pharmacy Association Final Report

Implementation and Evaluation of a Community Pharmacy Adherence Pilot Project Final Report

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Introduction

Poor adherence to prescription medication is a major problem as it has a significant impact on health care. Poor adherence causes avoidable hospitalizations¹, premature deaths² and increases the cost of health care.³ Adherence to prescription medication has received significant attention as policymakers attempt to address the continuing increases in health care costs and the challenges in providing health care coverage to all under health care reform.^{4,5}

Community pharmacists are an underutilized resource and are uniquely situated to influence adherence due to their access to prescription refill records and consistent contact with those who use prescription medications. Despite this, there is a lack of published research evaluating the impact of the community pharmacy services on adherence.⁶

The goal of this proposal is to demonstrate how a community pharmacy can impact medication adherence and evaluate the results. This proposal will test the following hypotheses;

1. The provision of a counseling session by a pharmacist on medication adherence and the use of the electronic adherence closure will improve the patient's understanding of the importance of medication adherence and this will result in an increase adherence to their prescription medications.
2. The provision of the electronic adherence closure will increase adherence by assisting patients to remember to take their medication.
3. The counseling session by the pharmacist will demonstrate to the patient that the pharmacist is interested in helping the patient with medication adherence. This will stimulate additional communication between the pharmacist and patient on adherence barriers.

Methods

As patients come to fill or refill prescriptions, the pharmacy will review the patient's prescription history. If the pharmacy has at least 6 months of refill history for the medication, the pharmacy will

offer to provide the electronic adherence closure to the patient for no additional cost. If the patient accepts the offer the pharmacy will provide the electronic adherence closure and a counseling session. The pharmacy will record the patients who receive the service the date the service was provided and the prescriptions that were dispensed with the electronic adherence closure. Since the electronic adherence closure that has been selected only lasts for 3 months, the pharmacy will provide a replacement at this time. A total of 500 electronic adherence closures & counseling sessions will be provided in order to ensure that the pharmacy is able to collect refill history 6 months prior and 6 months after the first provision of these services on 100 prescriptions.

The electronic adherence closure used in this proposal will be the The Pill Timer™ (RxCAP) by Med Time Technology Inc. This product allows the patient or caregiver to program the RxCAP to provide an audio and visual alert to remind them that the next dose of a medication is due. It also records the last time the vial was opened. The RxCAP also has many other features. A complete list is available at www.medtimetechnology.com. This product was chosen because it provides benefits that are greater than or equal to other products at a significantly reduced cost. The reduced cost makes it financially feasible to provide this product as part of an adherence program in community pharmacies.

Approximately 4 months after the provision of the RxCAPs and counseling sessions the pharmacy will ask patients who receive the service to complete an anonymous survey. The survey is anonymous to obtain accurate results. The survey is designed to solicit feedback from the patient on the acceptance and perceived benefit of the RxCAP, change in understanding of the importance of adherence, and as well as the benefits of the counseling session and the impact on future communications with the pharmacy about adherence. The survey contains a total of 16 statements. Seven of the statements are related to the communication between the pharmacist and the patient regarding adherence. Nine of the statements are about the RxCAP. The patient was asked to record their level of agreement or disagreement to each statement.

After the patient has used the RxCAP for a total of 6 months, the prescriptions records for the patient will be reviewed by the pharmacy. The refill history for all prescriptions taken for at least 6 months prior and 6 months after the adherence services (including the medication dispensed, day supply, and date of fill and prescriptions dispensed with the RxCAP) will be produced.

Allen's Pharmacy in Manchester Massachusetts was selected to participate in this study. We later learned that Allen's Pharmacy had participated in field tests of previous versions of the Pill Timer™ RxCAP. We realized that this could impact the results of this project because many of Allen's Pharmacy patients would not be suitable for this study. Nevertheless, Allen's Pharmacy agreed to provide adherence counseling and the Pill Timer™ RxCAP to their patients and also agreed to provide data so that we could evaluate the adherence on these patients.

Because of Allen's Pharmacy's earlier participation in adherence programs, we searched for an additional community pharmacy to participate. We were able to identify Medicap Pharmacy in Adel, Iowa that was interested in the project and had no previous experience with adherence services. The adherence results after the provision of adherence services from Medicap Pharmacy could be compared to adherence results after the provision of pharmacy services at Allen's Pharmacy and if the results were similar this could be used to demonstrate successful models at two different pharmacies in two different areas of the country.

Analysis

Summary and descriptive statistics on the number of patients, number of prescriptions, number of prescriptions per patient, were calculated. The refill dates of each prescription that is closest to 6 months prior and 6 months after the provision of adherence services as well as the days supply for each fill was used to calculate the Proportion of Days Covered (PDC) as long as there were at least 4 refills prior to or after the provision of the services. The difference in adherence was calculated using an independent samples t-test.

The impact of the adherence services on prescriptions that were dispensed with the RxCAP and counseling sessions was analyzed by comparing the PDC prior to and after the provision of adherence services using a paired samples t-test.

Descriptive statistics on the survey results will be calculated to describe how patients felt about the communication with the pharmacist and the benefit of the RxCAP.

Results

The number of patients, number of prescriptions, and mean PDC for Medicap Pharmacy (Pharmacy #1) and Allen's Pharmacy (Pharmacy #2) are contained in Table#1. Although the pharmacy had difficulty recruiting patient for the adherence services they came close to meeting the goal of 100 prescriptions. Patients who participated in this study had approximately 2 prescriptions that met the criteria for the adherence calculation (2.3 prescriptions/patient in pharmacy #1 and 1.7 prescriptions/patient in pharmacy #2).

Table #1 Adherence Prior and After Pharmacy Services

Description	Pharmacy #1		Pharmacy #2
	Prior to adherence Services	After Adherence Services	After Adherence Services
Number of Patients	40	37	50
Number of Prescriptions	92	86	87
PDC Range	80.20 - 100	61.86 – 100	51.70 - 100
Mean PDC(SD)	94.26 (5.7)	91.60 (9.3)	89.97 (12.1)

The mean PDC in pharmacy #1 was very high prior to the delivery of adherence services. A paired sample t-test did not detect any difference in the PDC after the provision of pharmacy services ($t = -0.07$, $p > 0.05$). However, when the analysis included prescriptions that had a PDC less than 90% prior to the delivery of pharmacy services (Table #2), a significant difference was seen ($t = -3.84$, $p < 0.01$).

Table #2 Change in Adherence for Prescriptions with a PDC Less Than 90%

Description	
Number of Patients	8
Number of Prescriptions	13
PDC Prior to Pharmacy Services (SD)	85.46 (2.7)
PDC After Pharmacy Services (SD)	92.64 (6.9)

The survey was mailed to each patient who received adherence services and they were asked to mail the completed survey back for analysis (the survey is included in this report). Seventeen of the forty eight surveys (35.4%) were received. After each statement the patient had 4 options (strongly agree, agree, disagree, and strongly disagree). Survey answers were coded so positive responses received a smaller number (1 or 2) compared to negative responses (3 or 4). The results of the survey are described in Table #3. Mean responses below 2.5 are considered positive and those above are negative.

Table #3 Survey of Patient-Pharmacist Communication and the Pill Timer RxCAP™

Description	Range	Mean (SD)
Statements related to the pharmacist – patient communication on adherence		
Discussion was helpful	1-2	1.59 (0.51)
Learned new information	1-3	1.81 (0.66)
Learned about the importance of adherence	1-2	1.72 (0.46)
Length of time was appropriate	1-2	1.75 (0.45)
Discussion changed my views	1-3	2.20 (0.68)
Others would benefit	1-2	1.62 (0.50)
Recommend this to my friends/family members	1-2	1.62 (0.50)
Statements related to the Pill Timer RxCAP™		
Easy to use	1-3	2.12 (0.70)
Reminders well-designed	1-4	2.06 (0.83)

Helped me remember to take my medications	1-4	2.38 (0.81)
Would have missed doses without it	1-4	2.62 (0.72)
I am more confident I can take medicine as prescribed	1-4	2.67 (0.72)
Would continue to use if free	2-4	2.65 (0.61)
Would continue to use by purchasing	2-4	3.18 (0.64)
Others would find it beneficial	1-3	1.82 (0.53)
Would recommend it to others	1-4	2.00 (0.87)

Discussion

The impact of pharmacy adherence services on patient adherence was limited by the fact that patients who were recruited into this study were already highly adherent with their medications. Despite this limitation a statistically significant change in PDC was seen when the PDC prior to the delivery of pharmacy adherence services was below 90%. Future studies should target patients with less than optimal adherence to ensure that they are being delivered to patients who can benefit.

The pharmacy had some difficulty incorporating the delivery of the adherence services with their other responsibilities. A plan on how to provide adherence services while providing traditional services would benefit others who would like to provide adherence services. Some patients were not receptive of receiving the adherence services. It is unclear if the patient did not understand that the pharmacist could help them or if they were intentionally not taking the medication as prescribed (for some other reason) and did not want to address it with the pharmacist. Strategies on how to market adherence services to patients would also be helpful.

The adherence of patients who received adherence services at pharmacy #2 was also very high and similar to pharmacy #1. Because we do not have adherence information prior to the delivery of pharmacy services in pharmacy #2 we cannot conclude that the high adherence was the result of the services. Pharmacy #2 does serve as an additional example, in a different geographical area, that adherence services can be provided by pharmacists in a community pharmacy.

The survey results demonstrate that patients' viewed the communication between them and the pharmacist very positively. Because these patients had a high adherence prior to the communication, they already understood the importance of taking prescription medications as prescribed. It is unclear if patients with a lower adherence rate would feel differently. The survey items that related to the Pill Timer RxCAP™ were either slightly positive or slightly negative. Patients felt positive about the design, use and benefit to others. They did not feel the product was beneficial to them. This is not surprising considering they already had a high adherence. It is unclear how patients with a lower adherence would view this product.

This study has several limitations. The high adherence of the patients who were recruited into the study severely limited the ability to evaluate the impact of the pharmacy adherence services. Adherence

was only measured for 6 months prior to and after the delivery of pharmacy services. Measuring adherence for a longer time period would provide a more accurate measure of adherence. We are also not able to evaluate the impact of adherence counseling separate from the Pill Timer RxCAP™.

Conclusion

The high adherence rate in the patients enrolled in this study limited the ability to evaluate the impact of the community pharmacy adherence services. There was a statistically significant increase in the adherence rate when the adherence rate prior to the delivery of adherence services was less than 90%.

Patients viewed the adherence counseling very positively. However, it is unclear if patients with a lower adherence would feel the same. Patients viewed the Pill Timer RxCAP functionality and ease of use positively. They did not believe they benefited from using it because they were already taking their medication as prescribed. They did believe it would be beneficial to others.

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Medicap Pharmacy Counseling and Pill Timer Survey

This survey is designed to obtain your experience talking with your pharmacist about taking your medication as prescribed and your experience with the Pill Timer™. This survey is anonymous (we will not know who completed the survey). Thank you for taking the time to provide this feedback.

Questions related to talking with your pharmacist

Talking with my pharmacist about taking my medication as prescribed was helpful.

Strongly agree Agree Disagree Strongly disagree

I learned new information when talking with my pharmacist about taking my medication as prescribed.

Strongly agree Agree Disagree Strongly disagree

I learned about the importance of taking my medication as prescribed when talking with my pharmacist.

Strongly agree Agree Disagree Strongly disagree

The length of time spent talking with my pharmacist about taking my medication as prescribed was appropriate.

Strongly agree Agree Disagree Strongly disagree

Talking with my pharmacist changed my views about taking my medication as prescribed.

Strongly agree Agree Disagree Strongly disagree

I believe that others would benefit from talking with their pharmacist about taking their medication as prescribed.

Strongly agree Agree Disagree Strongly disagree

I would recommend that my friends/family members talk with their pharmacist about taking their medications as prescribed.

Strongly agree Agree Disagree Strongly disagree

Questions related to the Pill Timer™

I found the Pill Timer™ easy to use.

Strongly agree Agree Disagree Strongly disagree

The reminders of the Pill Timer™ (i.e. beep sounds, flashing lights) were well-designed and caught my attention.

Strongly agree Agree Disagree Strongly disagree

The Pill Timer™ helped me remember to take my medications.

Strongly agree Agree Disagree Strongly disagree

OVER

I would have forgotten to take one or more doses of my medication without the help of the Pill Timer™.

Strongly agree Agree Disagree Strongly disagree

Since I have begun using the Pill Timer™, I am **more** confident that I can take my medications as prescribed.

Strongly agree Agree Disagree Strongly disagree

I would continue to use the Pill Timer™(s) if provided for me at no cost.

Strongly agree Agree Disagree Strongly disagree

I would purchase (a) Pill Timer™(s) with my own money, depending on cost.

Strongly agree Agree Disagree Strongly disagree

I believe that other patients would find the Pill Timer™ beneficial.

Strongly agree Agree Disagree Strongly disagree

I would recommend the Pill Timer™ to others.

Strongly agree Agree Disagree Strongly disagree

APPENDIX E: Virginia Pharmacists Association Final Report

SuperioRx Care Adherence Discovery

Michelle Herbert Thomas, PharmD, CDE

The SuperioRx Care Adherence Discovery grant was awarded to allow for establishment of a collaborative arrangement with a community primary care physician office practice. The premise was that the addition of a pharmacist to the provider team one day per week would, among other benefits, improve patient adherence to therapy. It is with great appreciation that the following summary of the project is presented.

The project consisted of the following steps:

1.	Identification of a primary care physician practice site	Nov-Dec 2010
2.	Recruitment of the site to the process	Dec 2010
3.	Implementation of a plan for identifying participating patients.	Jan 2011
4.	Training of the pharmacist at the site	Jan 2011
5.	Initiation of pharmacist visits	Jan-June 2011
6.	Dissemination of participant patient opinion survey.	June 2011
7.	Collection, analysis, and summary of survey results	July-August 2011

1. Identification of a primary care physician practice site

The primary care site was chosen because of several factors:

- They had recently implemented electronic medical records
- The practice consisted of an interdisciplinary team, including a physician assistant and several nurse practitioners
- The practice planned an expansion to a newly built medical office building with space for group classes.
- The site was on a rural outskirts of Richmond, Virginia where access to care was a bit more limited than an urban site
- The providers at the site indicated an interest in pursuing status as a Patient Centered Medical Home.

In addition to these factors, it was later noted that both physicians in the practice had experience interacting to some degree with clinical pharmacists in the past.

2. Recruitment of the site to the process

After selecting a site to target, an organized process of recruitment of the physician owners ensued. Some research was done to identify who were the medical directors at the site and who would be the best individual to target. A letter of introduction was drafted. The letter and curriculum vitae were personally delivered to the physician by the pharmacist. After a

brief wait in the waiting area of the office, the physician made himself available for fifteen minutes to hear a summary of the proposal. A second meeting was planned to discuss with both physicians.

At the second meeting with providers, the pharmacist presented data supporting pharmacist participation in clinics as well as details on how billing might be accomplished for the services. There was quite a bit of discussion about other pharmacists across the country that provides similar services and their successes and pitfalls. The meeting lasted one hour.

A follow up letter of thanks was promptly sent along with additional data requested by the physicians at the meeting. After two weeks, the pharmacist contacted the office again to follow up. At this time the grant had been awarded. Another meeting was set wherein salary and duties were outlined. The pharmacist was hired for one day per week with 50% of that time paid by the research project for the first 6 months.

3. Implementation of a plan for identifying participating patients.

Patients were identified for referral to the pharmacist either at the time when lab reports were sent to the physician or when medication related problems were identified at office visits. At this practice, letters are routinely mailed to patients explaining lab results and recommending next steps for resolving any abnormal values. Within the “lab letters”, recommendations were made to either see the pharmacist individually or to attend the group class offered by the pharmacist about cholesterol (or both).

- a. All patients with LDL levels above goal on lab report were invited to a monthly cholesterol education group class taught by the pharmacist.¹ The group class was a two-hour group discussion of the risks associated with high cholesterol and pharmacologic as well as non-pharmacologic management. The class focused on adherence to both lifestyle and to medication (statins in particular).
- b. All patients with statin-related myopathy at physician office visits were scheduled to see the pharmacist. Individual visits regarding lipid lowering therapy consisted of a discussion of the benefits of treatment for prevention of cardiovascular disease, options for minimizing statin-related myopathy, and a review for drug related problems
- c. Patients with A1C>7 were also scheduled to meet with the pharmacist to discuss both pharmacologic and non-pharmacologic treatment.² These pharmacist visits included assessment of patient knowledge of diabetes management, diabetes education, and medication management (review, discussion and modification as appropriate).

4. Training of the pharmacist at the site

During the first two weeks of pharmacist presence, visits were conducted alongside the physicians. In addition, training was provided on the electronic medical record by the physician assistant.

¹ Initially invitations were selectively sent to patients with elevated LDL values on lab report. After initial success of the group class, all patients who received “lab letters” were invited to attend the program.

² The original project proposal included only interventions on lipid therapy, but the providers referred numerous patients with diabetes. These patients were also invited to complete the opinion survey.

5. Initiation of pharmacist visits

The pharmacist schedule included patient visits by referral from any of the physicians, nurse practitioners, or physician assistant as described above. The pharmacist was assigned a patient room adjacent to one of the two primary physicians. Generally mornings were spent with one physician and afternoons with the other. Initially the pharmacist conducted the visit, summarized to the physician, then had the physician come in and conclude with the patient. As the process evolved, the physicians eventually became comfortable with a brief hello to the patient as they were exiting. If a complicated issue arose wherein evaluation was requested by the pharmacist, the physician was available to walk in and assess the patient. In all cases the physician was immediately available and physically present in the hallway next to the pharmacist visits. This enabled billing “incident to” the physician.

6. Dissemination of participant patient opinion survey.³

At the conclusion of the six-month trial period, a list of all patients seen by the pharmacist individually or at group classes was compiled. A computer search of the electronic medical record revealed 81 patients who were seen by the pharmacist during the six-month project. An opinion survey, found in Appendix 1, was sent to each patient along with a self-addressed, stamped envelope and a \$2 bill. Responses were mailed to an anonymous PO Box.

7. Collection, analysis, and summary of survey results

Of the 81 surveys sent out, 50 (62%) were returned completed by patients and one had insufficient address. This included 35 patients who were seen individually and 15 seen as part of group sessions. The satisfaction survey yielded overwhelmingly positive results. In addition, patient comments offered valuable feedback about the service. Evaluations from each of the two intervention approaches are outlined in appendix 2 and 3. Of note, the surveys reflect the opinions of patients seen immediately after pharmacist training and

³ THIS PROJECT DIFFERS FROM THE ORIGINAL PROPOSED PROJECT DUE TO DIFFICULTIES IN OBTAINING IRB APPROVAL FOR GATHERING ADHERENCE DATA FROM PHARMACIES AS FOLLOWS: PRESCRIPTION FILL DATA COLLECTION FROM LOCAL PHARMACIES WAS ORIGINALLY PLANNED, BUT WAS HALTED DUE TO A REQUIREMENT OF THE MEDICAL COLLEGE OF VIRGINIA INSTITUTIONAL REVIEW BOARD TO COLLECT INFORMED CONSENT FROM EACH CONTROL PATIENT TO REQUEST HISTORICAL REFILL DATA. COLLECTION OF SIGNED CONSENT FROM EACH INDIVIDUAL IN THE CONTROL GROUP WAS NOT FEASIBLE SINCE THERE HAD BEEN NO RELATIONSHIP WITH THE PHARMACIST. IN THE INTERVENTION GROUP CONSENT WOULD HAVE SKEWED THE RESULTS BY INFORMING THE PATIENTS WE WERE MEASURING FILL DATA. THIS LED TO A SHUTDOWN OF THE FILL RATE DATA COLLECTION PROCESS. INSTEAD, A PATIENT SATISFACTION SURVEY WAS DEVELOPED TO ASSESS THE IMPACT OF THE INTERVENTIONS BY THE PHARMACIST.

during startup phases. The high scores are consequently encouraging as they are likely to continue to improve as the pharmacist role is delineated. Additionally, slightly lower self-reports of health improvement (survey question #9-4.0, 3.9) are understandable given that there was not enough time elapsed for quarterly laboratory value feedback to have been provided to most of the participants yet. Future evaluation of the change in LDL and A1C values over a six-month time course is warranted.

Scalability

At the conclusion of the six-month program, a meeting was held to discuss the outcomes of the program. The positive outcomes included the following:

1. The providers were happy with the service and felt that the pharmacist time spent with patients was making a significant impact in improving patient health.
2. By having the pharmacist spend more time educating patients, the physicians felt they could save time in subsequent physician visits.
3. Patients reported a high opinion of the service, satisfaction with the pharmacist-provided program, and improvement in adherence as a result of the program.
4. The financial outcome of the service was break-even for the physicians. After the initial ramp-up period, all agreed that the service was financially viable and therefore could be continued.

The provider group made the decision at the conclusion of the 6-month pilot to retain the pharmacist one day per week for another six months as a continuation of the trial program. As soon as pharmacist patient appointments are full 3 weeks out, another 8-hour day will be added. Additional services, including Medication Therapy Management visits (paid for by Outcomes MTM) and Diabetes Self-Management Education group classes (billed under G-codes following Diabetes Education Recognition obtained for the site by the project pharmacist) have already been implemented by the pharmacist at this site. The next step in implementation will be addition of Medicare Wellness visits to the pharmacist schedule. Continued expansion of services is desired by all parties and will continue with the help of continued data collection. Additional grant support would be of great help in expanding the program. Replication of this model is feasible and essential to the expansion of the pharmacists' role in primary care community practice.

Appendix 1-Patient Satisfaction/Opinion Survey

Please help us evaluate the service provided by **Michelle Thomas, PharmD, and CDE**. Circle your response to each question below & return the survey in the enclosed envelope. Comments can be written on reverse. Your input will be kept confidential.

In what format did you see Dr. Michelle Thomas? Individual visit Group class

- | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. I am satisfied with the care I received | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 2. She adequately answered my questions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 3. She provided helpful information on my treatment goals. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 4. She explained things in a way that I am able to understand. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 5. She helped me better understand what to expect from my medication (egg: why & how long to take it) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 6. She helped me better understand how my health risks are improved by my medicine | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 7. She provided helpful information about side effects my medication may cause | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 8. She helped me get motivated to make changes in my diet and/or exercise patterns. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 9. There has been an improvement in my health as a result of working with her | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 10. After I met with her, I took my medications as instructed | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |
| 11. I would schedule a visit/class with her again | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | Strongly agree | agree | neutral | disagree | Strongly disagree |

-
12. I developed a positive working relationship with her
- Strongly agree agree neutral disagree Strongly disagree
13. The amount of information I received was the right amount
- Strongly agree agree neutral disagree Strongly disagree
14. The care I received from the PharmD is unique from other healthcare providers who have worked with me
- Strongly agree agree neutral disagree Strongly disagree

Please add comments on reverse.

Thank you for your time!

Appendix 2 Satisfaction Survey results: Individual Visit participants⁴

Survey Item	Mean (\pm SD) ^a
I am satisfied with the care I received. (n = 31)	4.5 (\pm 0.8)
She adequately answered my questions. (n = 34)	4.5 (\pm 0.8)
She provided helpful information on my treatment goals. (n = 35)	4.5 (\pm 0.8)
She explained things in a way that I am able to understand. (n = 35)	4.5 (\pm 0.7)
She helped me better understand what to expect from my medication (egg: why & how long to take it). (n = 34)	4.4 (\pm 0.8)
She helped me better understand how my health risks are improved by my medicine. (n = 34)	4.3 (\pm 0.9)
She provided helpful information about side effects my medication may cause.(n = 33)	4.2 (\pm 0.9)
She helped me get motivated to make changes in my diet and/or exercise patterns. (n = 35)	4.2 (\pm 0.9)
There has been an improvement in my health as a result of working with her.(n = 35)	4.0 (\pm 1.0)
After I met with her, I took my medications as instructed. (n = 34)	4.4 (\pm 0.7)
I would schedule a visit/class with her again. (n = 35)	4.1 (\pm 1.2)
I developed a positive working relationship with her.(n = 32)	4.2 (\pm 1.0)
The amount of information I received was the right amount. (n = 34)	4.2 (\pm 1.0)
The care I received from the PharmD is unique from other healthcare providers who have worked with me. (n = 35)	4.0 (\pm 1.0)

n = number of responses

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Please add comments on reverse...
I didn't answer questions 5-7 because I'm not on diabetes medicine yet
Michelle is a very nice woman. She is very knowledgeable. She confirmed everything Dr. Golly suggested. However, I visited with her 2 times. She would talk and then she would leave the room to consult with Dr. Golly. The wait was bothersome. I see Dr. Golly every 3 months and feel the visit to Michelle is unnecessary in my case. Thanks for asking. Keep the \$2.00 to hold down costs.
I have referred all my friends to you. My diabetic friends especially.
By the survey I am taking nothing away from the staff because I just did not take my problem serious enough. I really do like your service added to what they already had.
I can relate to a female better than a male. I get lock jaw with a Dr.

⁴ All survey data compilation and analysis completed by Leticia Moczygemba, PharmD, PhD

Appendix 2 Patient Survey Group Session participants

Survey Item	Mean (\pm SD) ^a
I am satisfied with the care I received. (n = 14)	4.6 (\pm 0.5)
She adequately answered my questions. (n = 15)	4.7 (\pm 0.5)
She provided helpful information on my treatment goals. (n = 15)	4.7 (\pm 0.5)
She explained things in a way that I am able to understand. (n = 15)	4.7 (\pm 0.5)
She helped me better understand what to expect from my medication (egg: why & how long to take it). (n = 12)	4.5 (\pm 0.7)
She helped me better understand how my health risks are improved by my medicine. (n = 13)	4.5 (\pm 0.7)
She provided helpful information about side effects my medication may cause.(n = 13)	4.1 (\pm 0.6)
She helped me get motivated to make changes in my diet and/or exercise patterns. (n = 14)	4.4 (\pm 0.7)
There has been an improvement in my health as a result of working with her.(n = 14)	3.9 (\pm 0.7)
After I met with her, I took my medications as instructed. (n = 12)	3.8 (\pm 1.1)
I would schedule a visit/class with her again. (n = 15)	4.6 (\pm 0.5)
I developed a positive working relationship with her.(n = 15)	3.9 (\pm 0.6)
The amount of information I received was the right amount. (n = 15)	3.9 (\pm 0.6)
The care I received from the PharmD is unique from other healthcare providers who have worked with me. (n = 15)	3.9 (\pm 0.6)

n = number of responses

1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Please add comments on reverse...
Michelle was a good instructor. Pleasant, knowledgeable. She stayed on track and on time. The power-point was helpful. The handouts were good. <u>It was especially useful to plug my numbers into the worksheet.</u> The chairs were comfortable. Would not have stayed if they were folding chairs. The appointment setter was very strict - that my husband (the patient) had to be there or I couldn't attend. Why?
I declined to answer questions 5 thru 10, since I am not taking medication.
Questions #5,6,7,9,10 response is neutral because I do not take any medication. Ms. Thomas was very helpful and patient with questions.
I feel this is a very good healthcare program that Chickahominy Family Physicians are providing their patients
Michelle was informative and presented herself professionally with an enjoyable presentation. Her sense of humor kept the class on a friendly level. I would absolutely attend classes she presents pertaining to my health needs.
Thank you for offering this new service, provided by Michelle Thomas, PharmD, and CDE. Thank you Margaret Mount castle for telling me about the class
Thank you for offering this service by Michelle Thomas, PharmD, and CDE. Thank you for Margaret Mount castle letting us know about the class.

APPENDIX F: Pharmacy Society of Wisconsin Final Report

Pharmacy Society of Wisconsin

701 Heartland Dr.
Madison, WI 53717

FINAL REPORT

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Project Summary: Phase 1 and Phase 2

Phase 1: “Pilot Project” and first use of original draft of tools

Evaluation of tool card effectiveness by 8 community pharmacies in Wisconsin using subjective (pharmacist survey) and objective (longitudinal change in adherence measures, Gap in Therapy and Medication Possession Ratio) was measured for 5 patients gathered over 5 months.

These 5 patients were required to be on at least 1 chronic medication and have had at least one gap in therapy of >30 days or a medication possession ratio of <80% in the last 3 months, based on refill date. Medication possession ratio (MPR) and the number of gaps in therapy were calculated for each of the patient’s chronic medications before the patient’s first intervention with a pharmacist, 2 months after the initial intervention, and at least 5 months after the intervention.

Phase 2: Distribution of revised tools, and evaluation of training

Pharmacists who attended the 2011 PSW Educational Conference received live training on these tools presented by the creators of the tool card: Laura Jester and Jessica Wolf. The training included discussion on the optimal use of the card as well as the successful experiences of pharmacists from Phase 1. Pharmacists present at this training were asked to complete a survey concerning the tool card and the training provided to be submitted by the end of the conference. The feedback provided by these pharmacists will be utilized in future presentations of this material.

Timeline

the timeline presented in the original proposal was revised due to circumstances that arose

during the development of the toolkit (see below). First, the dates were adjusted based on graphic design team timelines. Second, many of the pharmacies provided feedback that the project would be more viable if we waited until the beginning of the next clerkship student rotation. Regardless, we were able to complete what we proposed to investigate.

Revised Timeline for NASPA Adherence Project

- Mar 2nd: Email with new deadlines etc.
- March 2, 9th: Draft of PowerPoint, survey for Educational Conference, learning assessment questions
- March 14th: Block 6 students start rotation
- March 16th, 23rd: Mid-cycle report for NASPA
- March 30th: Reminder to send 1-month data by April 1st, finalize & send NASPA mid-cycle report (DUE 3/31)
- **April 1st: Deadline for baseline data from pilot pharmacies**
- April 4th – 8th: Incorporate feedback into new toolkit, new tutorial
- April 11 – 15th: Toolkit to Silver line for printing to receive by April 18th
- **April 20th: Educational Conference, Phase 2 (all data collected at conference)**
- April 25th: Collect and assess responses from conference, incorporate into final report
- May 4th: Reminder email to pharmacies to submit 1-2 month thoughts by May 17th
- **May 17th: Deadline for 1-2 month data from pharmacies**
- May 18th: Incorporate 1-2 month info into final report
- May 23rd: Block 1 students at sites
- July 13th: Reminder email to pharmacies to submit final thoughts by August 2nd
- **August 2nd: Deadline for phase 1 pilot pharmacies**
- **Aug 30th: Final summary sent to NASPA**

List of Completed Project Activities

The general process and timeline of the two phases of this project included:

- Design and production of the pilot version of the Adherence toolkit
- Development of a patient-oriented tear-off form to be used during pharmacist consultation with the patient
- Compilation and revision of a fax communication template from pharmacists to physicians, and other documentation tools to be used following consultation with patients
- Distribution of an online tutorial on how to use these tools; presented to pharmacists in the pilot project (Phase 1)
- Development of an online pharmacist feedback survey related to objective data on patient adherence and subjective feedback regarding the toolkit and tear-off form
- Recruitment of pharmacists at 10 Wisconsin pharmacies for involvement in Phase 1 of the project

- Distribution of pilot materials to the participating pharmacists: see Appendix A for a detailed list and copies of these forms and tools
- Collection of feedback from participating pharmacists, using follow-up communications as reminders when necessary
- Revision of the toolkit and the tear-off form with the help of a faculty member at the University of Wisconsin School of Pharmacy who has an extensive background in Motivational Interviewing
- Preparation for ACPE-accredited online and live presentations of the toolkit
- Presentation of the revised tools at PSW's Annual Educational Conference on April 19-20, 2011
- Subjective feedback collected from conference attendees
- Final responses from participating pilot pharmacists collected

Detailed Description of Project-Related Activities

This project involved the collaboration of several individuals, including a graphic design team, a faculty member at the University of Wisconsin School of Pharmacy, PSW staff members, and several pharmacists at independent and chain pharmacies around the state.

Toolkit and Tear-off Form Design and Production

Upon receipt of the grant, PSW designed, revised, and printed the pilot version of the adherence toolkit and the patient-oriented "My Medication Plan" tear-off form. This tool is meant to provide patients with a reminder and motivational tool to take home which lists the plan that they developed with the help of the pharmacist for how to address their barriers to non-adherence.

After feedback was formally and informally received from the pharmacists participating in Phase 1 of the project as well as from Beth Martin, faculty member at the University Of Wisconsin School Of Pharmacy, another version of both the toolkit and the tear-off form were created and printed. The updated versions of these tools were changed in the following ways: the new toolkit includes an expanded section on how to communicate with patients about adherence, a short 3-question patient survey that can help pharmacists determine a patient's barriers, and the name tear-off form was changed from *Adherence Action Plan* to *My Medication Plan* to avoid confusion with the Asthma Action Plan already in use by several Wisconsin pharmacists.

Coordination of Pilot Pharmacy Participation

Email invitations were sent to recruit pharmacists to participate in the pilot project (Phase 1). The goal of recruiting 10 pharmacies was achieved quickly, displaying state-wide interest in this topic.

Training on the use of the toolkit and tear-off form was provided in the form of a 20-minute power point tutorial, which includes a description of the grant received, the requirements to fulfill (including grant program deadlines), and contact information for study leaders. Pharmacists were provided with the following materials:

- *Adherence* toolkit, pilot version (3 per pharmacy)

- *My Medication Plan* patient tear-off forms
- Calculations grid for data collection (for pharmacist reference only)
- Prescriber communication fax template (use is optional)
- Online survey link and copy of the survey

Copies of these forms and tools are provided with this report. (See Appendix B)

Email reminders were also sent periodically to remind pharmacists of deadlines for data submission, to provide tips from other pharmacists participating in the pilot program, and to invite pharmacists to attend the Educational Conference and receive live training on the second version of the toolkit.

Data Collection and Analysis

Pilot pharmacists were asked to submit their data using the Qualtrics online survey portal. A copy of the questions can be found in Appendix B of this document. After submission, the data was manually entered and coded in an Excel spreadsheet to allow simple data analysis.

Pharmacists, student pharmacists, and pharmacy technicians who attended the live training for Version 2 of the materials at the Educational Conference were requested to complete a short survey regarding their motivation for attending the program and knowledge gained during the session.

Final Results: Phase 1

Baseline Data:

1. Of the 10 pharmacies that agreed to participate, 8 submitted data on a total of 37 patients. The average MPR was 0.51 and the average GIT was 46.9 days.

1-2 Month Data:

Of the 10 pharmacies who agreed to participate, 8 submitted data on a total of 29 patients. The average MPR was 0.78 and the average GIT was 11.7 days. Data was not submitted on 8 of the original 37 patients due to discontinuation of the medication or failure of the patient to return to the pharmacy to pick up the medication.

5-6 Month Data:

Of the 10 pharmacies who agreed to participate, 7 submitted data on a total of 27 patients. The average MPR was 0.85 and the average GIT was 8.8 days.

Summary of Change in Adherence Measures:

The MPR and GIT at baseline show that the population selected by the pharmacies had significant non-adherence. Since some patients did not refill their medications during the 6 month period, their 1-2 and 5-6 month GIT and MPR could not be calculated. Since taking a raw average of all data reported would not clearly represent the change in only those patients with whom follow-up was recorded, only data on patients followed up upon at both 1-2 months and 5-6 months are considered in the following summary of overall improvement in adherence during Phase 1. The 27 patients for whom data was submitted during all 3 phases of the project had an average MPR at baseline of 0.56 and 0.89 at 5-6 months. Average baseline GIT for the 27 patients was 37 which fell to 6.7 at 5-6 months.

The average change in MPR among the 7 pharmacies over the 6 month time period was 0.29 and the average change in GIT was -26.6.

There were clear and impressive trends in increase of the MPR and decrease of the GIT in 5 of the 7 pharmacies. Below are 2 tables that provide the pharmacy level data. In addition, patient level data showed positive trends within each of the pharmacies, with many of the patients attaining an MPR of close to 1 and a GIT of close to 0 by 6 months.

Medication Possession Ratio (MPR)

Pharmacy	MPR (baseline)	MPR (1-2 months)	MPR (5-6 months)
Pharmacy 1	0.663	0.93	0.998
Pharmacy 2	0.426	0.793	1.05
Pharmacy 3	0.555	0.985	0.79
Pharmacy 4	0.685	0.66	0.98
Pharmacy 5	0.5105	0.6995	0.846
Pharmacy 6	0.601	0.742	0.82
Pharmacy 7	0.475	0.678	0.733
Average MPR	0.55935714	0.78392857	0.88814286

Gap in Therapy (GIT)

Pharmacy	GIT (baseline)	GIT (1-2 months)	GIT (5-6 months)
Pharmacy 1	20.5	3	-0.5
Pharmacy 2	91.33	8	-1.67
Pharmacy 3	27.5	0.5	8
Pharmacy 4	15	23.5	1.5
Pharmacy 5	32	13	5.75
Pharmacy 6	27.8	14.2	9
Pharmacy 7	45	21.5	24.5
Average GIT	37.0185714	11.9571429	6.65428571

Final Results: Phase 2

The Pharmacy Society of Wisconsin holds an annual Educational Conference at the Monona Terrace in Madison. This conference provides continuing education and networking opportunities for pharmacists and student pharmacists, and includes CE presentations relating to ambulatory patient care topics such as adherence. Pharmacists from across the state attend two days of live programming. This conference was determined to be the most appropriate and effective location to distribute the second version of the toolkit.

A 50-minute presentation and analysis were developed, including a PowerPoint slide set, a role-play scenario, and a survey to be taken by audience members after the session to gauge their learning experience. See Appendix C for a copy of these materials.

Forty-eight attendees returned surveys. Overall, the attendees stated that they found the session to be very useful. Their average response when asked the likelihood that they will use the adherence tools was 3.35, which correlates to an answer between somewhat likely (3) and highly likely (4). Participants most commonly stated that they learned how to use the toolkit and about the topic of adherence in general (such as how frequently it occurs, etc.) and most frequently cited not knowing how to implement the tools at their practice sites due to the busy nature of an outpatient pharmacy. A full description of the responses given to these questions, as well as a copy of the survey, are found in Appendix C.

Barriers

There were several barriers noted throughout this project. They can be categorized into pharmacy enrollment and insufficient duration of project. It was not difficult to attain pharmacy interest in the project by the 10 pharmacies; however, factors like change in ownership, involvement in other time consuming PSW initiatives and lack of consistent students and residents during the study period likely affected the survey completion rate. Additionally, the preparation work for this project was significant (i.e. development of the toolkits and accompanying tools) in launching the program on time. It was difficult to launch the surveys without revising the timeline given the significant time and staff required to create the toolkit and related materials. An additional reason that pharmacies may not have completed all 5 of the patients required was that the MPR and GIT thresholds chosen for this project may have prohibited some patients from participating.

Sustainability of the Model

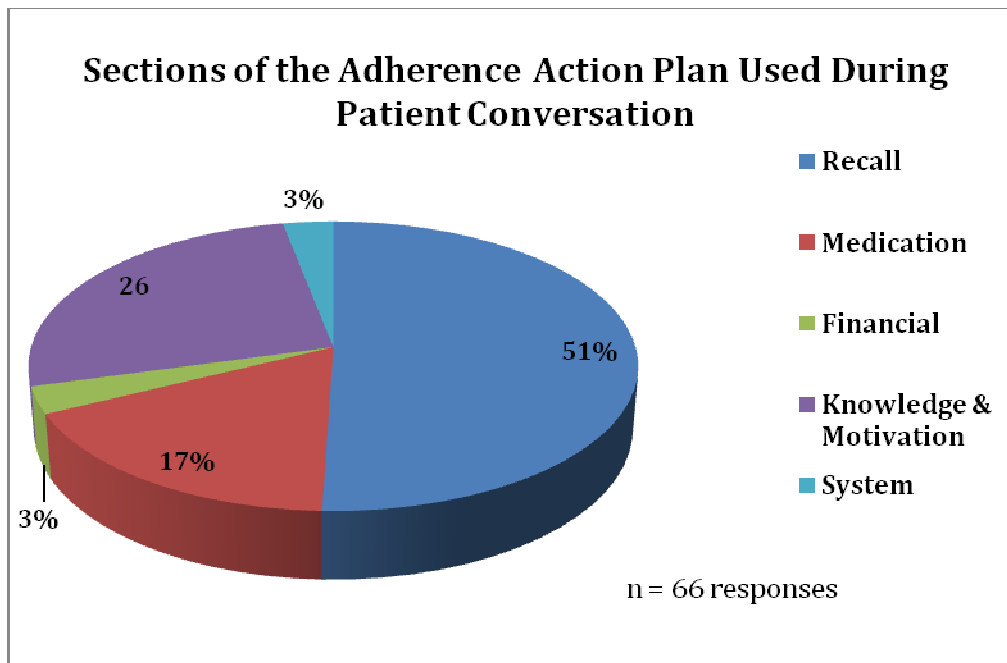
Though completed on a small scale, this model has the potential to be sustainable in the future. Wisconsin has incorporated this tool into its training of Wisconsin Pharmacy Quality Collaborative (WPQC) pharmacists, and each WPQC pharmacist has received one of the toolkits and tear off form packets for use with patients. WPQC payors compensate pharmacists for providing adherence services within and separate from the comprehensive medication review service, which may contribute to the future sustainability of this model. Most participants (84%) reported that the visits were conducted during less than 10 minutes, which lends itself well to a short visit that may be replicable.

PSW has already received requests from a health insurer to make this tool available to its health care providers via Internet as well as social workers and nurses who PSW staff interfaces with on other collaborative project work. In addition, the tool has the potential of being incorporated into a software system or “app” in the future so that it is available to more individuals and can be updated more easily. Future plans include recording a tutorial of the training contents for better understanding of the toolkit and related materials.

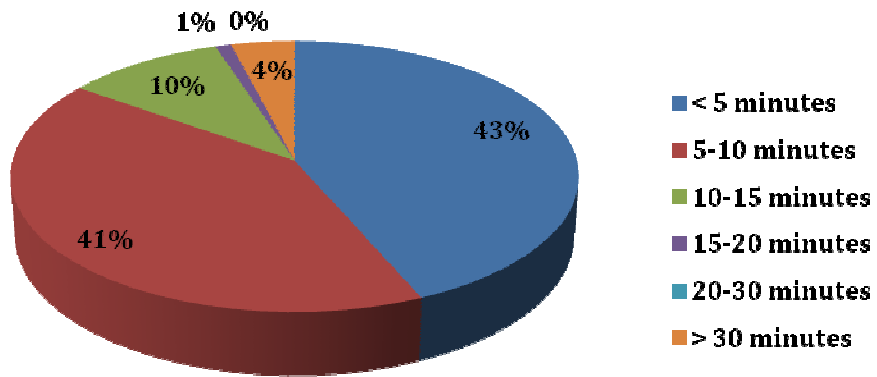
Appendix A: Tools developed for Phase 1 Pharmacists and Phase 1 Data

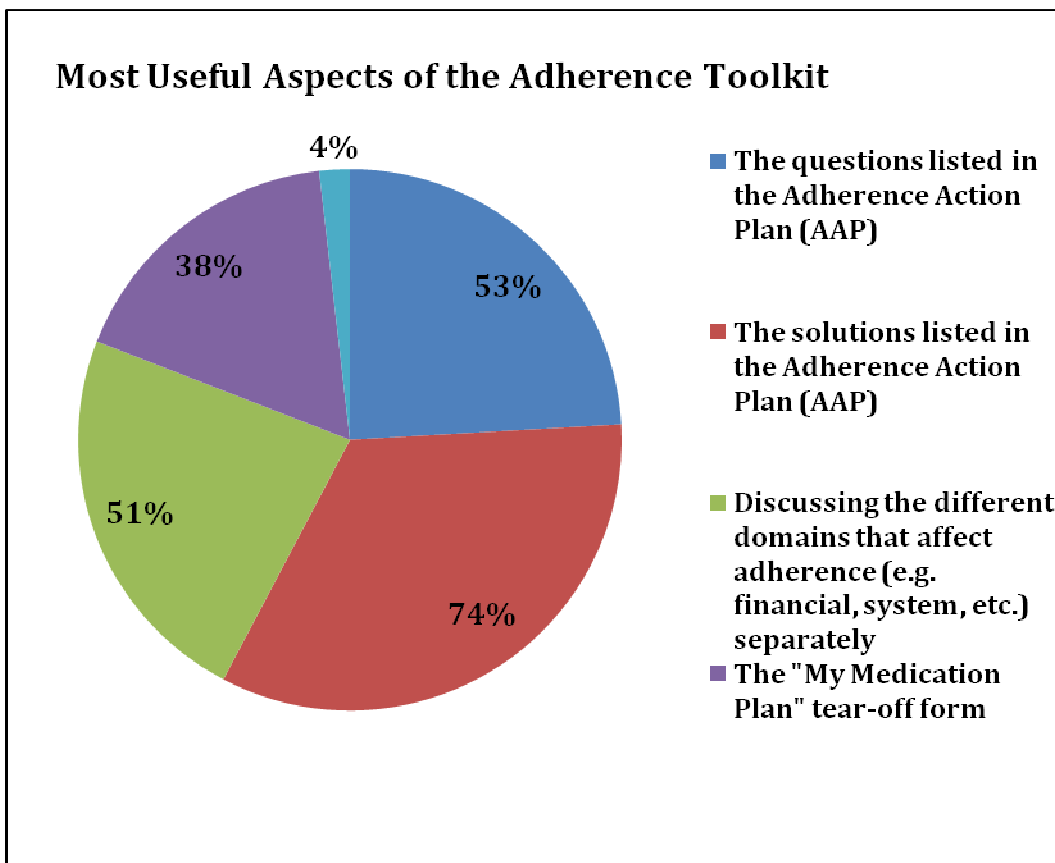
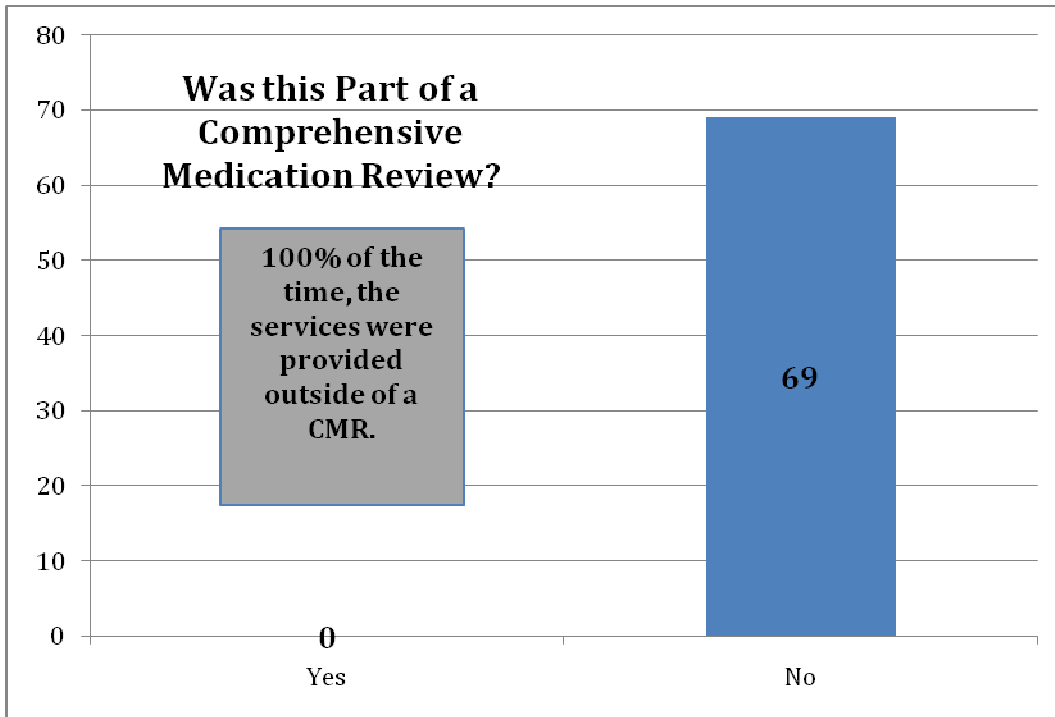
Attached are the Phase 1 tools developed through this project:

1. Summary charts of baseline, month 1-2, and 5-6 data from pilot pharmacies
2. An *introduction letter* for Phase 1 (“pilot project”) pharmacists that includes links to the data collection survey and instructions to access the adherence tutorial on the PSW website (PDF of power point slides included)
3. A *prescriber fax template* that is specific to this project.
4. A *documentation grid* which pharmacists could use for their own documentation purposes
5. A printable copy of the *online survey*
6. Version 1 of the *Adherence Toolkit* and *My Medication Plan* tear-off form



Time Spent with Patients





Appendix B: Selected Email Communication between PSW and Participating Pharmacists Regarding the Phase 1 Pilot component of the project

The email which was sent announcing the project to participating pharmacists is shown below:

We are ready to begin the PSW Adherence Project!

Once again, thank you for your participation. To get you started, there are several documents attached to this email. Printed copies of the attached tools, 3 copies of the adherence toolkit, and copies of “My Medication Plan” have been mailed via USPS today.

The tools attached to this email include:

7. An *introduction letter* to help you get started that includes links to the data collection survey and instructions to access the adherence tutorial on the PSW website**.
8. A *prescriber fax template* that is specific to this project. Please feel free to add your pharmacy logo to the top and customize as you see fit!
9. A *documentation grid* which you can use for your own documentation purposes
10. A printable copy of the *online survey* for your reference

**To view the tutorial, go to <http://www.pswi.org/professional/adherence/> and use the following information to login.

username: adherence

password: adherence2011

The first set of data (baseline) should be sent to PSW through the link provided in the introduction document by *April 1st*. A friendly reminder will be sent a week prior to that date.

Please feel free to contact Kari Trapskin at karit@pswi.org or Jessica Wolf at jessicanwolf@att.net if you have any questions about these materials or about this project.

Thank you again for your participation!

A copy of the reminder email that was sent to participating pharmacies on March 2nd is shown below. It was sent in response to several detailed questions from pharmacists and student pharmacists shortly after they had received and begun to utilize the toolkit and other materials.

Greetings from PSW!

By now you should have received the packet of information and toolkits that was sent to participants in the adherence project. A few updates and points of clarification have been requested in the past few days:

1. **Deadlines for survey submission have been adjusted** to allow for greater participation of 4th year pharmacy students. These are updated from the dates that are listed in the tutorial.

- Baseline Information: Please submit by ***Friday, April 1st***
- 1-2 month Information: Please submit by May 17th
- 3-4 month Information (project end): Please submit all final thoughts and data by Tuesday, August 2nd

The first set of surveys is especially important because it will help us revise the adherence tools and tutorial for the Educational Conference on April 20th. *If feedback is not received by April 1st, then we may not be able to incorporate those thoughts into the final form of the toolkit, tear-off form, and training.*

2. ANY chronic, non-controlled prescription medication may apply, whether patients receive a 28 day supply, 45 day supply, or 30 day supply. Due to the short duration of the project, *prescriptions for patients taking 90 and 100 day supplies should be avoided* so that there are as many opportunities for data collection as possible.

3. When selecting the list of 5 patients, a patient only needs to display a pattern of non-adherence to ONE of their medications. This medication would then be monitored during the project. Use these calculations to select a patient and medication to monitor:

- a GIT (gap in therapy) > 30 days
- OR
- a MPR (medication possession ratio) < 0.80

4. To calculate the GIT and MPR, *use the dates from the last two refills* of the medication (for example, today and last month). This way these calculations will apply to the time period just prior to their conversation with you.

5. If you have used the toolkit with a patient who is not officially being followed as part of

this project, you can still submit your thoughts and feedback to PSW in survey form or directly by email.

Please feel free to email Kari Trapskin (karit@pswi.org) or Jessica Wolf (jessicanwolf@att.net) with any questions or comments. Thank you and have a great day!

On June 16th another reminder email was sent, this time including quotations and details collected from pilot pharmacies to encourage further work on the project.

Good morning!

Wow, a lot of progress has been made on the PSW adherence project! It is exciting to hear about the ways that the adherence toolkit and tear-off action plan form have been used. Thirty-eight baseline and twenty-five follow-up surveys have been recorded online. We realize that this represents a lot of work!

It is exciting to hear about the impact that this tool can have for your patients: 36 out of 39 total survey responses listed that the toolkit is easy to use and increases the likelihood that an adherence conversation will take place! Wow! Here are some of the other comments we have received so far:

"The questions helped me promote dialogue with patients"

"To new pharmacists I would say TRY IT!"

"The toolkit was very helpful and easy to use!"

This is just a small reminder that the pilot project is still going on. It's not too late to submit baseline or

1-2 month data if you have not yet done so. **Final data at the 5-6 month mark should be submitted by August 3rd, but you don't have to wait that long.**

To submit data and feedback at anytime, go to the qualtrics survey link at:

http://wiscpharmacy.qualtrics.com/SE/?SID=SV_eM0OqWMOPco2ccc And, as always, feel free to

send your questions by email to karit@pswi.org

Thanks again for your time and participation!

Appendix C: Educational Conference Materials

Enclosed are the materials developed for Phase 2 of the project:

1. *Summary* of survey responses
2. Version 2 of the *Adherence Toolkit* and *My Medication Plan* tear-off form
3. *Power point* slides used during the live presentation on April 20th
4. Role-playing *active learning scenario* for toolkit training
5. *Survey* to be taken by audience members after the session to gauge their learning experience

Summary of Survey Responses:

