Enhancing Physician Referral and Recommendation of Pharmacist Provided Medication Therapy Management (MTM) Services

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INTRODUCTION

Evidence-based, best practice models aimed at improving quality of care and patient safety, providing efficacious and cost-effective treatments, and improving health outcomes should be priorities in all health care settings, including pharmacies ("IOM committee calls for complete revamping of health care system to achieve better quality," 2001). Nowhere is improving quality of care more important than at the pharmacist-patient interface in community settings. With the aging of the senior population, concurrent use of multiple medications continues to increase, leading to adverse outcomes and risk for inappropriate therapy (Viktil, 20007). Poor adherence to medications is common with less than 50% of patients remaining adherent after 12 months (Cramer, 2003). Indeed, morbidity and mortality, caused by medication misuse in the ambulatory setting, exceed $177 billion in 2000, suggesting that more needs to be done to effectively educate and manage patients' complicated and confusing drug regimens (Ernst, 2001).

In response to the call for greater quality, the Medicare Modernization Act of 2003 provided for medication therapy management (MTM) services with the goals of providing education, improving adherence, and detecting adverse drug events and medication misuse. Since then, a number of pharmacist-led initiatives have been developed and assessed. The Iowa State Medicaid Pharmaceutical Case Management (PCM) program successfully demonstrated that pharmacists could identify drug-related issues and decrease the number of inappropriate medications used (Chrischilles, 2004). An MTM service provided to North Carolina State Health Plan employees found that pharmacists identified an average of 3.6 to 4.0 problems per patient and that patient satisfaction was greater than 80% (Christensen, 2007). Fairview Health Services in Minnesota provided MTM services to Blue Cross Blue Shield patients using a systematic process of assessment for drug-related problems, development of a care plan, and follow-up visits. An evaluation of this service showed an increase in patients meeting therapeutic goals and a decrease in per person expenditures (Issets, 2003). These and other early initiatives have shown that pharmacists can successfully assess and intervene to improve the quality of drug therapy in their patients. Yet, in order to have greater impact on patient outcomes, it is likely that pharmacists will need to work more closely with physicians in managing medication therapy more effectively. Pharmacist and physician practitioner organizations have called for collaborative practice strategies involving pharmacists and physicians as a component for improved medication management (Hammond, 2003). However, there are numerous challenges to developing MTM services in a truly collaborative environment.

Pharmacists have long recognized that patients do not perceive a need to participate in pharmacist-led MTM programs (Schommer, 2008). Patients, accustomed to point-of-sale interactions with pharmacists when they pick up prescriptions, are rarely exposed to a more comprehensive assessment of medication therapy. Community pharmacies are not designed for a longer office visit-type interaction. So, when patients are invited to participate in a comprehensive medication review or brown bag activity, it is no surprise that they do not recognize the value of such a service, even when the service is free to the patient. However, in order to provide evidence of positive and generalizable patient outcomes, engaging patients and enlisting their participation is crucial. Low participation rates are common among most MTM programs in the literature. In the Minnesota project, a total of 2834 patients were recruited through

mailers and referrals. However, only 285 patients received MTM services in its first year of implementation (Issets, 2003). In the North Carolina project, of the 130 patients identified, only 80 patients were seen by pharmacists (Christensen, 2007).   While there is limited information about the strategies or tools would encourage patients to find value in pharmacist-provided MTM services, studies have showed that physician referral to diagnostic and other health care services was associated with higher participation rates (Franke, 1995; Fox, 1991).

Physician understanding and acceptance of MTM services is important for identification and referral of eligible patients, as well as acceptance of pharmacist recommendations (Schommer, 2008). Despite evidence that pharmacists provide useful advice to MTM patients (Issets, 2003), physician acceptance rates of pharmacist recommendations are often low at around 50% (Christensen, 2007). Because physicians and community pharmacists do not interact face to face regularly, physicians may have incorrect perceptions or generalize expectations from other pharmacist encounters. Hughes and McCann (2003) found that physicians perceive community pharmacists to primarily be retailers, an image that was in conflict with that of a health care provider. Pharmacists were also perceived as not being accessible to patients outside of working hours, i.e., not responsible for patients when the pharmacy was not open or the pharmacist was not on shift (and not wearing a pager).

Many community pharmacists, who interacted with physicians and medical students primarily during pharmacy school, are uncomfortable with and lack the confidence to assert recommendations about their patients. Community pharmacists, focused on taking care of patients quickly and efficiently, frequently interact with physicians, or their nurses, to clarify concerns or ask quick questions. Rarely would a community pharmacist engage in the lengthy discourse or discussion about a patient's health that you might find while rounding in a hospital. With reimbursement rates squeezing community pharmacists more and more, there is simply no financial incentive to extend the time required to fill a prescription.

In order for community pharmacy to move toward a patient care model, it needs the cooperation and buy-in from other health care professionals, who must recognize the value of community pharmacists. The literature suggests that physicians do not interact frequently with pharmacists and consider pharmacists to be on the periphery of the health care team (Hughes, 2003). Negative perceptions, possibly fueled by poor interactions in the past, have led to a culture where there is little incentive and limited trust for physicians and pharmacists to work together on a larger scale. A literature search for research articles that include a collaborative relationship between physicians and pharmacists yielded few results, and those published are typically conducted in an information rich ambulatory clinic where physicians and pharmacists are housed in the same building. These projects cannot be generalized to a free-standing community pharmacy (Hunt, 2008). Because of the geographic distance between physicians and pharmacists, limited interaction while in school and residency, and a physician perception of pharmacists as retailers (Hughes, 2003), physicians and pharmacists do not recognize how they can work together and have misperceptions of each other's potential role in the health care setting. No studies could be found describing an effective process by which physicians and community pharmacists learned how to develop a collaborative relationship, and the pressing question of how to shift the paradigm has been raised.

AIMS

The two-fold goals of this project were to 1) connect physicians and pharmacists to communicate, problem-solve, and develop a respect and level of appreciation for what each can provide separately and together; and 2) synthesize the analyzed information into strategies and tools that will help build awareness of MTM programs, lead to physician referrals, and increase acceptance of pharmacist-provided drug therapy recommendations.

1. Explore facilitators and barriers (actual and perceived) of collaboration and develop strategies to overcome them

2. Discover physician and pharmacist projects in which providers have already actively problem-solved and addressed potential challenges and barriers

3. Evaluate whether the dyad interviews are an effective way to move pharmacists and physicians towards collaboration

Because there is little research regarding the facilitators and barriers to collaboration among provider networks, this project utilized a multi-step process so that each step could enrich and inform the next phase. This allowed physicians and pharmacists to be engaged in a participatory fashion throughout the entire initiative.

METHODS

Study Design

The project was conducted in three stages. The first stage, consisted of identifying physicians and pharmacists affiliated with Wisconsin Medical Society (Society) and Pharmacy Society of Wisconsin (PSW), respectively. Both organizations are enthusiastic supporters of this project. This led to the formation and selection of dyads consisting of one physician and one pharmacist willing to collaborate. The dyads were formed based on willingness to collaborate and close geographic proximity to other willing providers.

The second stage was a semi-structured interview with each member of the dyad. Instead of making assumptions about what providers see as opportunities to collaborate or advance patient care, these interviews provided a chance to engage the stakeholders to speak about specific issues, barriers, and facilitators to collaboration that they perceived as important.

The last stage was a meeting with both the physician and pharmacist, facilitated by the principal investigator and/or her project coordinator. The goal of this face-to-face meeting was to help promote communication, dispel preconceived ideas, and lay the groundwork for a mutually beneficial trusting working relationship.

Pharmacist and Physician Sampling (Stage 1)

The principal investigator partnered with Wisconsin Medical Society (Society) and PSW to identify willing physicians and pharmacist participants. Participants were recruited through both groups. The Society, the professional organization representing over 12,000 physicians in Wisconsin, agreed to identify physicians to participate in the project. The Society employs regional field directors who meet regularly with physicians and practices throughout the state. Field directors have "on the ground" knowledge about practice settings and physician philosophies. The field directors provided the researchers with the names of office managers and physicians to contact for the study. Although this seemed like a promising recruitment strategy it ultimately proved unsuccessful due to the office mangers not being comfortable committing for the physicians they worked with.

A second recruitment strategy that was used for physicians that proved successful was an advertisement for the study in The Society's weekly list serve. Six of the physicians were recruited in this way. The project coordinator and PI then sought out pharmacists near the physician's geographical area in order to identify a pharmacist that had patient overlap with the physician. The project coordinator then contacted those pharmacies to see if there was a pharmacist that was interested in participating. In hindsight, it would have been useful to confirm with the physician that the pharmacies identified were ones that his or her patient population visited frequently. In 3 cases, physician's and pharmacist's patient population overlapped only very minimally. In these cases each physician participant who completed the first interview was retained but a new partner was identified through recommendation by the physician or pharmacist.

PSW, the professional organization representing pharmacists in Wisconsin, has worked intimately with early adopting community pharmacies to develop and sustain medication therapy management services. The communication infrastructure, including their weekly email newsletter and list serve was used to reach out to interested pharmacists for participation in the study.

In two cases the pharmacist was first identified through PSW and then that pharmacist identified a physician with an overlapping patient population. The project coordinator then contacted the physician to see if he was interested in participating in the study and he agreed. In one of these cases the pharmacist recruited worked in an ambulatory care clinic setting and his data was excluded. The project coordinate did identify a new pharmacist for the physician that was originally matched with the pharmacist that had an overlapping patient population.

Individual Physician and Pharmacist Interviews (Stage 2)

Physicians and pharmacists in each dyad were interviewed separately to explore their perceptions of collaborating on a practice or research initiative. Prior to the interviews, the project coordinator contacted the physicians and pharmacists, respectively to gain consent. Each physician and pharmacist was given $100 for their participation in the study.

A semi-structured interview script was developed using the theory of planned behavior as a framework to guide the questions asked. The theory of planned behavior (Ajzen, 1980) has been applied in many studies evaluating predictability of intention to perform health-related behaviors and is based on four domains:

1. Attitudes – perception of self-performance of the behavior

2. Subjective norms – perception of social pressures, others' belief that the person should or should not perform the behavior

3. Perceived behavioral control – a person's ease or difficulty in performing the behavior

4. Behavioral intention – an individual's readiness to perform the behavior

Providers were asked questions related to communication issues, leadership approaches, the impact of interpersonal factors, resources needed, and logistical issues to overcome. Additionally, providers were asked to suggest possible target projects that they see as relevant to their patient population and could envision participating in. For the complete list of question see appendices A and B.   Although questions related to possible target projects were open-ended, examples of previously published collaborative projects with fundamental elements, such as physician referral to a pharmacist, standard communication procedures, and protocol development, were provided to help jumpstart this brainstorming session. Examples included immunization protocols, comprehensive medication review for patients with multiple disease states and medications, or medication device instructions.

Each interview took approximately 45 minutes and were all completed at the site of the physician's or pharmacist's choosing. One physician interview took place over the phone due to travel issues. The interviews were digitally audio-recorded and then transcribed.

Analysis of Individual Interviews

The content was analyzed by the researcher, J.S. using thematic analysis to identify patterns/themes within the interview content (Pope and Mays, 2006).   These themes were used to identify possible target projects that were compiled for a physician and pharmacist "wish list" that was used to facilitate the dyad meetings.

Facilitated Meetings (Stage 3)

The last data collection phase included a meeting between the physician and the pharmacist in the dyad, facilitated by the principal investigator and/or her project coordinator. The intention of this meeting was to allow the physician and pharmacist to meet face-to-face and become more comfortable with each other. The other intent was to gather information about whether the dyad interview could be an effective facilitator to improve collaboration. (See Appendix D, E, and F)

During the meeting, the pharmacist and physician were each asked to describe their practice and/or patient base and what a typical day is like for them. They were then asked if any information that the other stated was surprising in any way. Next, both wish lists were presented to the participants. The pharmacist and physician were then asked to choose their one or two top wishes. Next, the physician and pharmacist were asked for their thoughts and priorities related to these target areas. Specifically, they were asked if they would be interested in collaborating on these target areas versus others and how these projects could be hypothetically implemented in their practices. They were encouraged to problem solve together, sharing their own facilitators and barriers and identifying the resources and infrastructure that would be needed to effectively implement and sustain the project. These meetings lasted approximately

45 minutes and took place in a location close to both the physician and pharmacist. This meeting was once again digitally audio-taped and later transcribed.
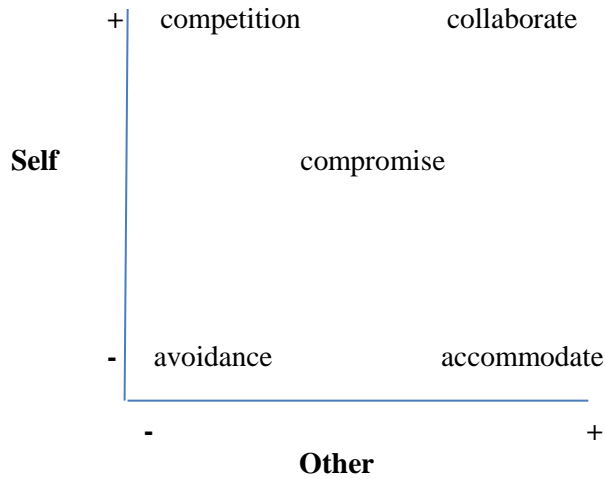
<u>Analysis of Dyad Interviews</u>

The analysis of the dyad interviews included two parts. First, we wanted to identify and describe which wish list items each professional identified and the ideas for solutions generated from the list. Second, we wanted to identify if the intervention of the joint interview allowed for collaborative behaviors. To identify this we turned to the communication literature and coded the interviews deductively using the Conflict Management Styles and Tactics framework (Wilmont, 2011). Table 1 lists the type of conflict management strategies used as well as the definition of each.

Table 1. Conflict Management Strategies

Strategy	Definition
Avoidance	As a style, refers to the denial of the conflict (e.g. changing the subject or sidestepping the issues, being non-committal)
Competition	As a style is characterized by aggressive and uncooperative behavior, one party pursuing his own concerns at the expense of another.
Compromise	As a style results in some gains and some losses for each party. Parties give up some important goals to gain power. Compromise suggests tradeoffs and exchanges
Accommodation	As a style characterized by not asserting the individual needs in exchange for harmony. Individual sets aside own concerns in favor of pleasing the others involved.
Collaboration	As a style is cooperative, effective, and focused on team effort, partnerships, or shared personal goals. Requires high level concern for self and the other, active listening, empathy. Collaboration is a struggle with the other to find mutually agreeable solutions. It calls for parties to work creatively to find new solutions that will maximize goals for both parties.

Figure 1 illustrates the impact these strategies have on the individual involved and the person they are working with (other). For instance, when party A (self) accommodates with the other person, the result is positive for party B (the other person) but negative for party A since party A may be giving up their goals in order to accommodate. Compromise is the middle ground in which both parties sacrifice some of their goals, whereas collaboration results in a positive outcome for both parties as they work together to find a solution that will meet the needs of both parties.

Figure 1.

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+|  competition          collaborate



Self                compromise




-|  avoidance           accommodate

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    -                        +
            Other
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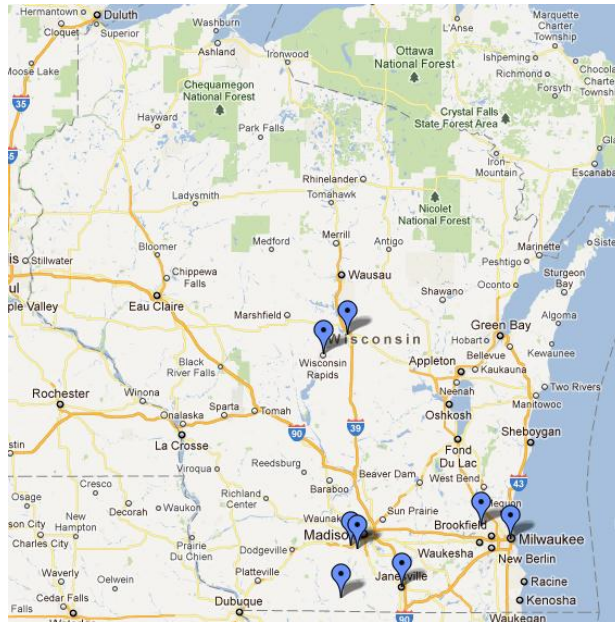
RESULTS

Table 2 identifies the characteristics of the pharmacists and physicians that were included in the study. Eight dyads, each with one physician and one pharmacist located in close proximity, were identified. See map for geographical dispersion of the eight dyads. Pharmacists in the sample included pharmacists at independent, national deep discount, and regional deep discount pharmacies. Physician specialties included mental health, internal medicine, family medicine, geriatrics, and pediatrics.

Table 2. Participant Description

Dyad	Physician	Pharmacy	City
A	Pediatrician	Independent pharmacy	South-Central WI
B	Family medicine/ geriatrician	Regional deep discount pharmacy	South-Central WI
C	Psychiatrist	Independent pharmacy	Southeast WI
D	Family medicine/geriatrician	Regional deep discount pharmacy	South-Central WI
E	Family Medicine	Regional deep discount pharmacy	Southeast WI
F	Psychiatrist	Independent pharmacy	South-Central WI
G	Family Medicine	National deep discount pharmacy	Central WI
H	Internist/geriatrician	Small grocery store chain pharmacy	Central WI

Figure 2. Geographical dispersion of dyads

Results of Individual Interviews

Themes were organized into the following categories for each interview: descriptive information, description of how the physician interacts with the pharmacist or how the pharmacist interacts with the physician, barriers to that interaction, and how working with the other profession could improve patient care. These outcomes have been collated into an aggregate summary of physician and pharmacist perceptions (see appendix C). Possible target projects were also compiled on a physician or pharmacist "wish list", respectively. The items on the wish lists were then further explored in the facilitated meetings. See appendices D and E for the physician and pharmacist wish lists, respectively.

<u>Summary of Physician Interviews</u>

In general, physicians stated that they interacted with pharmacists when they had a question about a drug product. For instance, they would contact the pharmacist to verify that a drug was in stock, could be compounded, was on the formulary, or was less expensive than another drug product. They stated that pharmacists would contact them when there was a potential problem or irregularity with a prescription that they had written i.e., potential drug interaction. One physician has worked with a particular pharmacist to help monitor narcotics use in pain patients and blood sugar for his diabetic patients. Physicians admitted that they typically delegate to their nurses when the pharmacist needs to be contacted about a problem, or to follow-up on an issue that the pharmacist brought to his/her attention.

Physicians cited numerous barriers to working more collaboratively with pharmacists. Many of the barriers were related to a lack of a relationship with a pharmacist. Physicians stated that they did not personally know the pharmacist in their community, possibly because there were a number of rotating pharmacists at those pharmacies. They cited decreased interactions due to greater emphasis on e-prescribing and phone calls going to voice mail. Because of a limited relationship, physicians were irritated when pharmacists would repeatedly contact the physician about a medication concern (possibly a

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new guideline) that he/she was already aware of. Lastly, physicians indicated that they were under significant time pressure and were focused what needed to be done at that moment, rather than discuss a situation collaboratively with an unknown pharmacist.

When asked how working with each other can improve patient care, physicians had a number of good ideas. Physicians expect that pharmacists provide detailed patient education and counseling, and they depend on pharmacists to explain to their patients how to take their medications correctly, including inhaler instruction. They would like pharmacists to inform them when their patients are non-adherent on their medications. One physician indicated that he would appreciate a list of OTC combination products with ingredients, so that he could better answer his patients' questions and be better equipped to recommend OTC products when appropriate. One physician discussed pharmacist-provided MTM and stated that he thought it would be helpful for him to have the information that a pharmacist could learn in an MTM, but only if the physician could coordinate the MTM with his own office visit with the patient. Lastly, some physicians readily stated that having the pharmacist and physician learn more about each other's work through formal and informal mechanism can improve patient care. One formal mechanism that was suggested was to ask the pharmacist to present new warnings and/or clinical guidelines to their clinic on a regular basis.

Summary of Pharmacist Interviews

Pharmacists generally contacted physicians for either therapeutic reasons or insurance reasons. They indicated that they try to limit phone calls to problems that are truly important, and to not send "junk". They do this so that if the pharmacist contacts the physician, the physician knows it is really important. Communication was generally via fax, or through a telephone call to the nurse.

Pharmacist cited numerous barriers to collaborating with physicians. First, pharmacists stated that there was a lack of direct communication with the physician. Pharmacists primarily relayed a concern to the nurse. The lack of actual talking time with the physician appeared to be a contributing factor to limiting relationship building with the physician. Also, pharmacists stated that the nurse sometimes did not convey the message accurately to the physician, leading to additional clarification. In one case, the pharmacist asked the physician to sign a collaborative practice agreement for immunizations, but the physician declined because he did not have a working relationship with the pharmacist. Second, pharmacist stated that there was a lack of information. They do not have access to the medical chart and did not feel comfortable doing an MTM service and making recommendations to the physician without it. Third, pharmacists perceived a lack of support from pharmacist's organization for practice improvement, which included a lack of pharmacist overlap for MTM services.

Despite these barriers, pharmacists did want to work together with physicians to improve patient care. However, pharmacists did not know what they could do to improve their collaborative relationship. Indeed, some of the pharmacists had agreed to participate in this study so that they would find out what the physician needed to support his/her work. Pharmacists hypothesized that it might be helpful to set up collaborative practice agreements, and work together to lower medication costs and increase adherence for their patients, but were not sure how to do this. Pharmacists stated that they would be willing to meet the physician at his/her office. Indeed, one pharmacist stated that it might be productive to shadow a

physician for a day to answer questions in real time, and get a feel for what the physician's work day was like.

Results of Dyad Interviews

A full summary of the dyad interview results can be found in Appendix G.

<u>Wish List Summary</u>

Wish list items that were selected by most physicians:

1. Controlled substance monitoring
2. Medication adherence
3. Inhaler or device instruction
4. A procedure to inform physicians about a new clinical guideline (possibly face to face)

Wish list items that were selected by most pharmacists:

1. Collaborative practice agreements
2. Adding information to prescriptions
3. Mechanism to facilitate more direct communication with MD for urgent issues

Of the wish list items that were selected, there was clear consensus that discussing a mechanism to facilitate more direct communication for urgent issues addressed the common goals of both physicians and pharmacists. For both professions, they recognized the need to be able to contact the other profession when faced with having to make a quick decision. For physicians, they discussed needing to select a drug product that was in stock and not back ordered, could be compounded, on the patient's formulary, or was inexpensive enough that the patient could purchase it. One physician reported that he sometimes calls the pharmacy during the patient office visit (with the patient in the room) in order to make a real-time prescribing decision. For pharmacists, they discussed the need to contact the physician when patients were waiting, or if the problem was too complicated to relay to the nurse. In these cases, both physician and pharmacists complained about the need to go through the receptionist/nurse at the physician's office, or the technician at the pharmacy. They both also complained about having to navigate through time-consuming and annoying phone trees.

There were a number of solutions that were presented as this subject was discussed. First, many pharmacists made assumptions about the appropriate mechanism in which to communicate urgent issues. One pharmacist thought that faxing the physician was the "most considerate" because the pharmacist could provide detailed and actionable information on the fax for the physician to respond to. To the pharmacist's surprise, the physician actually responded that most faxes are placed into a pile and addressed at the end of the week. Some pharmacists mentioned that they used to have a physician telephone line that rang in the pharmacy with a distinctive ring. This ring allowed the pharmacist to focus on answering this telephone, rather than the general line. After physicians listened to pharmacists share about the dedicated physician line, one of them stated that they have a similar line for other physicians (bypassing the receptionist and rang directly to the nurses' station). He stated that he might be amenable

to releasing that telephone number for pharmacists to use in urgent cases. One physician actually gave the pharmacist his cell phone number to use for urgent cases during the interview.

The subject of controlled substances prescribing and dispensing was also a common theme among several dyads. Both physicians and pharmacists admitted that they had been duped by their patients at one time or another, and were uncertain how to address this. They were familiar with pain contracts but were not confident that they were an effective way to manage patients with abuse potential. In one dyad, the pharmacist shared that she thought that "things were fishy" when patients wanted to pay cash for his/her pain prescription. The physician did not understand why that would be irregular and a conversation took place about how insurance plans provide additional drug utilization review during their adjudication process, and that savvy patients knew that. In the end, though, both agreed that the best way to address this problem would be for Wisconsin to implement a narcotics registry.

A third theme that appeared to make sense to both physicians and pharmacists is the idea of developing blanket orders or a collaborative practice agreement for a number of requests that pharmacists make to physician offices every day. There were two areas in which blanket orders were discussed. First, pharmacists approached physicians about the potential of substituting therapeutically equivalent drug products in order to decrease copay costs for patients. They specifically suggested proton pump inhibitors, nasal steroid inhalers, and angiotensin receptor blockers, but they were open to whatever classes of drugs that the physicians were comfortable substituting. To most of the pharmacists' surprise, the physicians were generally agreeable to considering this request. Second, pharmacists asked physicians how they felt about developing a blanket order to convert a 30 day supply to a 90 day supply, and for converting prescriptions to accommodate tablet splitting. Physicians were surprised that authorization was necessary for these changes, but pharmacists were quick to explain that they needed authorization documentation for an audit situation. Both professions recognized that insurance criteria were guiding these changes. In all cases, physicians agreed that blanket authorization for these issues would be appropriate and would support the work taking place in physician offices and pharmacists. The one barrier that physicians noted was that they would need management approval to move forward to these types of agreements.

A fourth theme, generated primarily by physicians, was medication adherence. Physicians recognized that pharmacists have more information regarding adherence and were quick to ask pharmacists for adherence information for their patients. When this theme emerged in the interviews, pharmacists stated that they would be happy to provide such information. However, when pushed for more specifics (such as how often do they want information, how do they want to receive the information, did they want adherence information for all drugs for all their patients, or selected ones), physicians were less clear with their request.

The last theme, generated by physicians on asthma device instruction and by pharmacists on diagnosis and other information, will be described together since the solution and barriers to the solutions appear to be similar. Two physicians identified inhaler and device instruction as an important way that pharmacists could help them provide optimal patient care. Indeed, they expected that extensive inhaler instruction was regularly being conducted at the pharmacy. Pharmacists countered that while they do provide inhaler instruction, they sometimes are unaware of whether the patient is a new inhaler user.

They suggested that the physician might provide a note on the prescription that the patient is a new user, or to request inhaler instruction. Similarly, pharmacists requested that physicians add information on the prescription so that pharmacists can better determine if medication was appropriate for the patient, and/or if a change on a previously taken prescription was intended. Pharmacists gave many examples to physicians regarding the importance of including the diagnosis on the prescription. Other examples included information such as "noted dosage change". These types of information would allow the pharmacist to recognize that the physician was making a deliberate decision, rather than an unintentional slip. Pharmacists shared that they frequently called the physician office to verify these types of prescriptions. While physicians understood and recognized how the pharmacist may be concerned about these prescriptions, they were hesitant to add anything on the prescription. For a summary of the dyad interviews themes, please see appendix G.

Conflict Management as a barrier to collaboration

In addition to the barriers that physicians and pharmacists discussed, we also explored the possibility that the manner in which they approached problems and sought solutions may be a barrier to collaboration. Table 3 contains example interview quotes for each of the conflict management strategies.
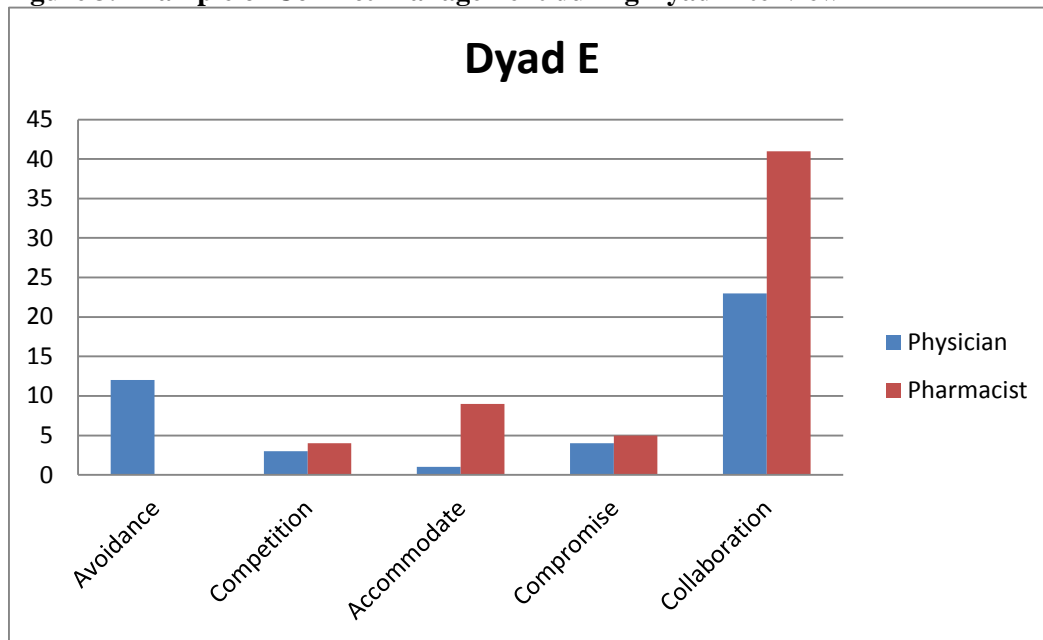
Table 3. Example interview quotes

Strategy	Quotes
Avoidance	In reference to whether or not it would be a good idea for a physician to indicate a couple drug options in certain cases where the drug is similar but it's not certain which drug will be covered by insurance. Physician: *You can't, well, unless you, again, there's a comment section, but then that would kind of defeat the whole eScript idea. It would be a, uh, it would also be really time consuming.*
Competition	Physician: *And they'll, you know, get the eighth call for the day. Did you know that there's an interaction between cephalexin and penicillins? No. Damn. Never heard that one before, you know, I'm glad you picked that up, you know. Here, put this with the other 27 faxes you send over… I'm being, you know, sarcastic, but that's the kind of thing that, you know, it drives you bonkers. And you can't, there's no one to talk to. You can talk to the store manager, but he doesn't know. It's not his area.* In reference the pharmacist asking about rounding and the physician saying that things that couldn't' be measured that exact anyways. Pharmacist: *Right. Exactly. But you can measure. I have syringes that measure .2 very accurately, so do you want me to go to 12.2? I can. We can. That's not a big deal. It's not inconvenient for the patient. Or should I just round down? Like and you would be surprised, like I've had my butt chewed by physicians for not calling, and, you know, or like, it's like you can't win unless you've actually like had that conversation with the nurse or the like, mostly usually it's the nurse, but the physician.*
Compromise	**Pharmacist:** *Those calls have come through, that kind of stuff. So my anticipation would be that simply as we get on that will go away.* **Physician:** *… four months from now, we should, it should just be all automatic.* **Pharmacist:** *Right.*

	Physician: *But it doesn't hurt, if the dosing's really wacky.* **Pharmacist:** *Right. Yeah. I would always call in a wacky dose. And sometimes it is really what you want, and sometimes it's not at all what you intended, I mean, not you, personally, but what they intended.* In reference to when exceptions occur with a blanket authorization: **Pharmacist:** *I would make my argument for, if I thought like, like if I strongly thought that your, you know, whatever thing. And then we would just follow that unless there's like some exception to it like the patient tells me they have nosebleeds with fluticasone, and Nasonex worked, and they never had that or whatever it is.*
Accommodation	**Pharmacist:** *And we're just willing to go, you know, the extra mile.* **Pharmacist:** *Or now the patient's here, and, you know, and hacking up a storm in my pharmacy or whatever, I still don't have this. Like can we figure this out now? [Laughs]. But, I mean, if it's something less critical, I think we're really good about communicating to the patients like, you know, it might not happen instantaneously. We are happy to, you know, and I always feel like, do you want us to fax? Do you want us to call? What's the better? We send a ton of faxes out. I know, I'm sure you get them from everyone. Is that the best way?*
Collaboration	**Physician:** *I think, you know, the other thing is how to generalize this to, so he can use it for all physicians. And so most, not all, but most physicians that I think the, at least the physicians within my group, and I think, as a general rule, probably nationwide, the quickest access to a physician is, and I suppose a lot of, maybe physicians need to start carrying cell phones now, but is pager, which isn't super easy, but it's way easier than trying to go through our receptionist and through the nurse, through the whatever. And, I mean, I can happily give that number to any pharmacist.* **Pharmacist:** *And a lot of times the day supply is completely blank, you know, and so you don't know. And then it's not, they're not matching up. And so I think there's a little bit of, they've got a ways to go.* **Physician:** *It would be interesting some time when I'm out at [name of pharmacy], to try to, because you can probably call up old scripts on other patients or something.* **Pharmacist:** *Oh, I can show you a lot of eScripts that I have.* **Physician:** *But, I mean, I could, you know, next time I send a couple eScripts to [name of pharmacy] that I think these would be interesting to see what they look like on your end, and then I . . .* **Pharmacist:** *Yeah, that would be, if you wanted to come out.* **Physician:** *And then I, I'm out at [pharmacy] occasionally anyway.* **Pharmacist:** *And maybe you could, um, maybe help me. I could actually pull up some of the scripts that I had issues with...* **Physician:** *...You have problems with, and you know that they're coming from [name of hospital]'s clinics.* **Pharmacist:** *Yeah, but I'd just like to show you what we're dealing, you know, with.* **Physician:** *Yeah, I'm sure they're a pain...*

Figure 3 provides a graphical display of the frequency of statements in each of the conflict management coding framework. During Dyad E, physician statements were stated for each strategy and pharmacist statements were stated for all strategies except avoidance. For this interview, the physician made twelve statements that indicated that he was avoiding the subject, primarily by changing the subject when he/she was uncomfortable with the subject matter. The pharmacist in this dyad made more accommodating and collaborative statements, than the physician, although the physician also stated a number of collaborative statements as well. All of the dyads communicated a little differently, with some more collaborative than others. But, in general, the pharmacist tended to be more accommodating and collaborative than the physician.

Figure 3. Example of Conflict Management during Dyad Interview

DISCUSSION

This project set out to determine how pharmacists and physicians could better collaborate for purposes of recommending and referring patients to pharmacist-provided MTM services. This goal ended up being too lofty in part because physicians did not have a clear understanding of what pharmacists did in their daily work life, much less the barriers associated with MTM programs. Pharmacists mirrored that perspective and focused immediately on simple ways in which they could build trust, so that they could ultimately discuss MTM collaborations in the future.

What was clear in their interactions was that they both wanted to work together. They recognized that they were taking care of the same patients and that identifying strategies was a starting point for both improving in their patients' care but also improving their work efficiencies. A win-win for everyone. Several assumptions were dispelled. For physicians, they did not understand why they were being asked to approve 30 day to 90 day supplies or table splitting. For pharmacists, they did not understand how to communicate efficiently with that particularly physician.

Some take-aways for the pharmacists were that each physician likes to be communicated with differently, and to not make assumptions based on what other physicians in the clinic might do. Pharmacists recognized that physicians do appreciate more scientific or therapeutic discussion, often inviting the pharmacist to provide a 5 minute presentation at their regular clinic meetings.

Some take-aways for the physician was that pharmacists did not want to be the drug police, always badgering the physician about formulary or prior authorization issues. They did not realize that pharmacists work hard to triage as many problems as possible without bothering the physician first, and that they try to anticipate what the physician might ask or need in order to make a sound clinical decision.

There were identified barriers that continue to exist, that needs to be further discussed. First, timing of the physician-pharmacist communication appeared to be an important feature about patient care issues. Physicians spent considerable time describing how they interact with patients in the confines of an office visit structure. Indeed, they are paid based on this billing structure. When the patient has an office visit, the physician spend the time to work up the patient, evaluate all appropriate information, and makes patient care decisions. The physician's intent is that he/she will not need to think about that patient again until the next office visit. When a pharmacist makes a request to the physician during a time that does not coincide with the office visit (such as a recommendation to add an ACE inhibitor for a diabetic patient, or provide adherence information), the physician has two choices: 1) spend the non-reimbursable time to review the chart, accept the pharmacist's recommendation, and then document the change; or 2) add the note to the chart and make the change at the next office visit (but without feedback to the pharmacist about his decision). When explained to the pharmacist, the pharmacist understood this timing issue, even though this concept was initially somewhat foreign to them since pharmacists are used to taking patient requests for information (i.e., OTC recommendations) without a reimbursed prescription. More work needs to be done to identify mechanisms to support "the right information at the right time" between physicians and pharmacists.

A second barrier was time. Both pharmacists and physicians were extremely protective of the time required to do anything extra in their typical workload. For instance, while both complained about having to navigate through each's time-consuming telephone trees, neither was willing to give them up as the phone trees help triage requests and protects their time. Physicians in particular were less accommodating to some of the requests that pharmacists made regarding the addition of information on prescriptions. Despite excellent rationale for adding information in the notes section of e-prescriptions (such as diagnosis, recognition that the physician was intentionally increasing the dose, the fact that a tier 1 formulary medication had already been attempted, etc.), physicians would not commit to increasing their prescribing time even a few seconds. One physician suggested that much of the information requested was required to already be documented on the electronic health record, and that the appropriate method for pharmacists to receive access to that information is to either gain access to the electronic record or to develop a mechanism to include such pieces of information on the e-prescription.

Interestingly, none of the physicians selected the wish list items that included managing diabetic or heart failure patients. On the wish lists, this included monitoring and titrating medication doses. Again, in an age where physicians are highly concerned with liability and recognize a lack of a relationship with other health care professionals that take care of their patients, the idea of pharmacists managing their complex patients' disease states may be premature. We need to first build collaborative relationships that

address point of service issues, so that we can move forward to work together to partner on disease management.

Face to face time between physicians and pharmacists appeared to be valuable. In two cases, the physician was willing to meet at the pharmacy for the dyad interviews, but the other dyad interviews were conducted at the physician's clinic either during a lunch break or at the end of their clinic day. In these cases, the pharmacist agreed to meet on their day off or arranged for coverage at their pharmacy. While all of the pharmacists came away from the interviews with valuable insights, they commented that they were not paid or even encouraged to cultivate these types of relationships and that they would have to do this "on their own time." From the pharmacy perspective, this may be a significant barrier. This study may provide the first evidence to pharmacy owners/corporations that providing willing and interested pharmacists with a mechanism to develop personal relationships with physicians may be money well spent if strategies discussed and agreed upon may allow pharmacists to fill prescriptions more efficiently, and thereby fill more prescriptions.

Limitations

There were a number of limitations that should be noted. First, we only interviewed eight physicians and pharmacists. Second, it is probable that those that agreed to be interviewed were more open to collaboration. As a result, while this project sheds light on many assumptions that are made by both professions, and that issues and strategies may be similar, it would be inappropriate at this time to generalize these findings to all physicians and pharmacists.

The primary interviewer is a pharmacist. She attempted to frame the questions and facilitate the discussion in an unbiased manner, so that both the pharmacist and physician were on equal footing during the interview. However, in analyzing the transcripts, it is clear that she was more comfortable talking with the pharmacists than the physicians. For instance, she referred to the pharmacist by first name, whereas she referred to the physician as "Dr. so and so". There were several instances in which she may have framed the question that implies that the pharmacist should accommodate the physician rather than support an opportunity for them to discuss, compromise, or ultimately collaborate on an issue or strategy.

Dissemination Plan

We are excited to be developing a number of manuscripts from this work. We anticipate a manuscript describing the wish list and strategies that the dyads identified that will be submitted to the Journal of the American Pharmacists Association. A second manuscript that describes the interview as a facilitator for collaboration will be submitted to either RSAP or JAPhA. A third manuscript, describing the conflict management strategies will be submitted to a journal focused on interprofessional collaboration.

CONCLUSIONS

This study adds to the literature on physician pharmacist communication in a unique way, in that no other researchers have used this method of iteratively interviewing both professions, and using those initial interviews to inform a productive dyadic conversation. We have not only used that literature to develop this project, but we have also drawn from the inter-professional communication literature to come to our conclusions. This project provides a clear and simple recipe to stronger collaborative relationships between physicians and pharmacists, by bringing the two into a face-to-face interaction that simulates the types of interactions that physicians and pharmacists have in hospitals and ambulatory clinics. Indeed, this interaction appeared to dispel assumptions, build trust, and stimulated conversations that would probably have not taken place otherwise. Lastly, the results of this project may provide pharmacists with the confidence to reach out to their physician colleagues. Small victories with processes such as communication during urgent situations and simple blanket agreements can pave the way for larger more complex collaborations to support medication therapy management, disease management, and patient safety initiatives.

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Appendix A.

Physician Interview Guide

Opening Questions:

1. Can you give us an example in your day-to-day practice when a patient's care was improved by your interaction with a pharmacist?

    - What lead to this instance?

    - Was there anything different or particular about this patient or situation from others?

Attitude

2. In what ways would working with pharmacists improve your patients' healthcare?

3. How do you feel about working with pharmacists?

Subjective Norm

4. Do you think other people would be aware if you worked with pharmacists?

5. Do you know of other physicians who routinely call pharmacists to clarify questions and make recommendations to improve patient care?

6. In what ways does your office manager/owner encourage you to routinely interact with pharmacists?

Perceived Behavioral Control

7. How likely are you to initiate a conversation with a pharmacist about a patient's care?

8. What barriers do you perceive would limit your collaboration with a pharmacist?

9. Do you think pharmacists would be interested in accepting inquiries and recommendations from you about a patient's care?

Intent

10. *Interviewer provide patient scenario…* On a scale of 1 to 10, how likely would you seek out a pharmacist to conduct a comprehensive medication review (CMR) for this patient?

11. How likely is it that you would accept a pharmacist's recommendation about a medication addition or deletion?

12. How likely is it that you would be open to any of the following services pharmacists have to offer:

    o medication device instruction

    o focused adherence intervention

    o dose optimization

    o therapeutic duplication

Final closing question:

13. Can you think of anything in particular you would like for a pharmacist to do that you believe would help improve the care you are able to give your patients?

Appendix B.

Pharmacist Interview Guide

Opening Questions:

1. Can you give us an example in your day-to-day practice when a patient's care was improved by your interaction with a physician?

    - What lead to this instance?
    - Was there anything different or particular about this patient or situation from others?

2. In what ways have you reached out to a physician to improve patient care?

Attitude

3. In what ways would working with physicians improve your patients' healthcare?
4. How do you feel about working with physicians?

Subjective Norm

5. Do you think other people would be aware if you worked with physicians?
6. Do you know of other pharmacists who routinely call physicians to clarify questions and make recommendations to improve patient care?
7. In what ways does your office manager/owner encourage you to routinely interact with physicians?

Perceived Behavioral Control

8. How likely are you to initiate a conversation with a physician about a patient's care?
9. What barriers do you perceive would limit your collaboration with a physician?
10. Do you think physicians would be interested in accepting inquiries and recommendations from you about a patient's care?

Intent

11. How likely is it that you would contact a physician about conducting a CMR for a patient?
12. How likely is it that you would contact a physician about a medication addition or deletion?
13. How likely is it that you would visit a physician's clinic to meet the physician and his/her staff face-to-face?
14. How likely is it that you would offer to visit the physician's clinic for a short period of time to field clinical questions on the spot?
15. How likely would you work with a physician if he/she approached you about a patient or service?
16. How likely is it that you would offer any of the following services for a physician's patients:

    o medication device instruction
    o focused adherence intervention
    o dose optimization
    o therapeutic duplication

Final closing question:

17. Can you think of anything in particular you would like for a physician to do that you believe would help improve the care you are able to give your patients?

Appendix C. Summaries of Individual Interviews

Dyad	MD/ RPh	Description of Interaction with other profession	Barriers to Interaction	How working with other professional could improve patient care
A	MD	RPh may contact MD if RPh notices a dosing error, wants to suggest a medication change, double check an allergy, or to alert MD that patient is getting narcotics from more than one provider. MD may contact RPh if there is a question of where patient can get a certain medication (like OTC) or to see if they can compound a medication. Generally the nurse relays message back and forth between the MD and RPh.	Time constraints. Patients see many different rotating RPhs at different pharmacies in the area. Lack of direct communication. Not wanting to interrupt the RPh. MD being contacted by the RPh about a medication concern the MD routinely prescribes and is already aware of the warnings associated with it.	Collaboration between RPhs and MDs in the design of e-scribing software. MD thinks it would be helpful for RPh to do very detailed counseling with patients. RPh could help inform MD of non-compliant patients. RPh could provide a list of OTC formulas to MD so he is aware of what is in them.
	RPh	RPh may contact MD if they think a medication dose may be incorrect or possible therapeutic duplication. RPh generally communicates with MD through fax. RPh puts patient safety above all else and will contact the MD if there is a question. When questioning the MD the RPh approaches the problem in a non-confrontational way. RPh tries to only contact the MD when it's important and to not send "junk" so the MD realizes that if the RPh is contacting him it's something important.	Lack of direct communication with MD. Lack of timely responses to questions. RPh not having time to contact the MD. Lack of relationship between RPhs and MDs despite RPhs being expected to have a larger role in the care of patients. New technology such as EHRs making contacting the clinic and talking to the MD more difficult. Lack of access to the patient's medical record – RPh feels that a quick glance at the patient's chart could answer some of his questions and avoid	Since RPh is out in the community he could alert the MD of any concerning changes a patient may have. RPh would be willing to conduct MTM with MD's patients and share the results. RPh would be interested in providing services that the MD thinks would be useful (medication use instructions, monitoring medication adherence of specific patients, giving presentations to the community or clinic, etc).

			a phone call to the clinic.	
B	MD	MD has minimal interaction with retail RPhs due to e-prescribing. MD is not familiar with RPhs by name, only by store. MD calls pharmacy to ask inventory, formulary, or insurance questions. MD is contacted by the RPh when there is a problem with a medication he prescribes. RPh may fax, call, or send an e-message to the MD. Phone messages usually go to nurse or voicemail. Generally the nurse returns the call after MD has decided what to do.	Time constraints on both MDs and RPhs. Difficult to have a relationship with a RPh when his patients have the ability to go to so many different pharmacies. Lack of direct communication with RPh – MD phone calls are sent to pharmacy voicemail.	MD thinks it may be useful to coordinate MTM with office visits (e.g. the patient has MTM done before their visit). RPh could alert MD if patient is non-compliant with medications. RPh could help educate patients about their medications and what they treat.
	RPh	RPh does MTM and makes recommendations to the patient's MD via fax. RPh must call the MD when a formulary change is initiated by the insurance. RPh usually communicates with the MD through the nurse. RPh will contact the MD whenever she feels it is necessary to do so.	Access – difficulty talking to a real person when she calls the clinic. As a result, most messages are sent by fax. Locating a MD to sign a collaborative practice agreement so the pharmacy can do immunizations and cholesterol screenings and organizational barriers on the MD's side that allow him or her to sign one. Pharmacy the RPh works for would be unwilling for her to meet with MDs in person during her working hours. MD would likely not have time for a meeting.	In the past RPh had an asthma program set up with a local MD so that the RPh could help with inhaler education. RPh and MD could set up a collaborative practice agreements for certain drugs. RPh could keep MDs informed on how patients are doing as some patients come into the pharmacy daily. RPh would be happy to work with MD on any specific programs they could provide in the pharmacy (e.g. medication device instruction, adherence, etc).

C	MD	MD interacts with RPh in his mental health care system several times a week and has collaborated on patient safety efforts together in the past. MD and RPh have set up comprehensive medical reviews for patients. As for community RPhs, RPh may contact the RPh for prior authorization questions, to advocate for a patient who is having trouble getting medications, or problem solve with the RPh about different issues.	It is difficult to set up any sort of standard practice with pharmacies within the medical practice because different pharmacies do things differently. RPhs and MDs don't have a good understanding of what it's like in the other's world. MD recognizes that other MDs may not recognize the skills and knowledge that RPhs possess.	RPh could provide information on medication adherence to MD. RPhs and MDs learning more about each other's work through formal and informal mechanisms could ultimately improve patient care.
	RPh	Most contact is with MDs who part of the closed mental health care system the RPh is employed by. RPhs have access to the patient's medical record. RPh can make recommendations to the MDs for medication changes and biannual medication reviews are done. Contact with MD is usually over the phone or though messages relayed through the nurse. When the RPh calls the MD he sets up the conversation as an inquiry about what the goal of the MD is with the medication and has a proposed solution in mind before calling so he can make a recommendation.	Ego of MDs. Time constraints for RPh and MD. Time pressure associated with filling high volumes of prescriptions. Financial issues associated RPhs being involved in the clinical care of patients. A lack of previous engagement between RPhs and MDs during pharmacy and medical school respectively.	Interacting with MDs in their clinical environment may increase trust and collaboration. RPh is willing to offer whatever kind of services would be helpful to the MD such as glucose monitoring, asthma screenings, and medical equipment rental.
D	MD	Mainly encounters the pharmacotherapy RPh that is also employed by her clinic. This RPh has access to the patient's medical	Financial and time constraints – MD is not reimbursed for the time spent on the phone. Recommendations that the	RPh can advise patients on OTCs and supplements. RPh may recognize that there is a cheaper alternative available if a patient is on an

		records. MD does not know the community RPhs well. Contact with MDs is usually over the phones or though messages relayed through the nurse. RPh may call MD with specific medication questions or concerns because of a problem with a medication or an insurance issue.	MD receives from the pharmacy that aren't associated with an upcoming visit causes issues. MD does not have time to go back review the chart and see if the recommendation makes sense when it isn't in the context of a visit. Fragmentation of the health care system in general. Physician doesn't include as part of the e-prescription if the prescription is replacing a medication that the patient was already on – relies on pharmacist to recognize this.	expensive medication. RPh could help with medication device instruction. RPh could help ensure there are no potential drug interactions with the medications the patient is taking.
	RPh	RPh might call MD to alert physician of possible patient harm, notice of drug interaction, prescription error, or to recommend medication addition. When RPh calls MD about a medication he plans what he wants to ask and has a solution in mind to fix the issue. RPh feels that he is on an equal playing field with MDs in terms of respect of one another's professions.	MD's office may not return phone call even after several calls. Nurse may relay message to MD incorrectly or not at all.	RPh could give medication device instructions to patient. RPh thinks it would be beneficial to shadow a physician and be able to answer questions during appointments in real time.
E	MD	RPh will contact MD to alert physician that patient is on medication that the MD might not have known about, to alert MD of potential drug interaction, medication questions, formulary issues.	RPh may make inappropriate suggestions for therapeutic substitutions because he doesn't have access to patient's chart. Patient may get a list of formulary medications	RPh could monitor what medications the patient is taking if they get their medications within the same pharmacy system. Having the RPh be a bigger part of the health care team. Ideally there would be a

		Information is communicated through medical assistant, fax, or occasionally directly with MD.	from the pharmacy and ask to be on one of those but medication may be inappropriate. It can be confusing for the patient and is a time sink. Lack of trust with pharmacists. HIPPA concerns over how much information can be shared with pharmacists. Time constraints for pharmacists Some pharmacists do not have the background or interest to discuss clinical care with MDs	pharmacy in the clinic. More immediate feedback after prescriptions are sent in (e.g. patient has already had several narcotics filled this month).
	RPh	MD might contact RPh about potential drug interaction, dose questions, possible medication additions or deletions, inventory questions, pricing, or general medication questions. Communication with MD is generally through faxes but RPh will call if concern is more urgent. A message is left with reception or nurse for the MD and then the nurse usually calls back. RPh has better relationship with some MDs than others. RPh is willing to call an MD to advocate on behalf of a patient. RPh feels pharmacists vary in how comfortable they are calling the MD. Some	RPh is unable to speak directly to physician when calling clinic. MDs are not always responsive to RPh recommendations. Lack of feedback as to whether a message that was sent was understood clearly and correctly.	More communication between RPhs and MDs could prevent drug interactions. Working together could lower medication costs for patients since MDs don't know the prices. Comprehensive medical reviews Improved adherence (MD could call RPh to take sure medication was picked up) More patient education/presentations by RPh.

		prefer to fill without questioning while others question everything.		
	MD	MD has called the RPh to research information, ask dosing questions, pricing questions, or if it is suspected a patient may be abusing a medication. RPh contacts MD to alert her of possible drug interactions. MD feels like RPh and MD are both part of the patient care team.	Can be difficult to reach a RPh and may need to go through automated system to get through. Time constraints for the physician – minimal unscheduled time for the MD to make a phone call.	Possibly having the RPh do therapeutic substitutions.
F	RPh	RPh does medication reconciliation after the patient is discharged from the hospital then communicates with the patient's health care providers. RPh alerts MD of possible unsafe doses, to verify dose changes, about possibly suggestions for additions or deletions. MD sometimes calls the RPh to ask questions about complex patients – this is more typical for community support physicians vs. typical primary care physicians. RPh has done some medication reviews with a nurse or physician in order to optimize patient care.	MD may feel bothered by the RPh calling to ask questions and clarify medication changes. RPh's pharmacy is adamant about having accurate medication lists for patients, but MD may not want to be bothered with these questions. Lack of support from the RPh's organization for practice improvement with physicians. Time constraints for RPhs and MDs Lack of an established relationship between RPhs and MDs Barrier of comprehensive medication reviews is not having insurance on board to pay for it	RPh can get the big picture of all the medications a patient is on if there are multiple prescribers and share that information with MDs. RPh thinks meeting MDs in person could help establish better MD-RPh relationships and lead to improved patient care. RPh would be willing to go to a MDs office to field clinical questions.
G	MD	MD might call RPh to ask about cost of medication, a therapeutic question, to	MD has lack of direct contact to RPh (has to go	Direct communication between both parties could

		order a prescription over the phone, to get an accurate medication list, or when there is a complex situation with a patient. MD may call RPh during actual patient appointment if he needs something clarified. RPhs fax over drug warning information for MD's patients that may be at risk. Contact is through calling or faxing, messages can't be sent electronically at this time.	through phone tree). Access and time, but MD would be willing to find time to meet with pharmacist. RPh does not have access to the patient's medical record and they would be able to contribute more to the patient's care if they did.	save everyone time. RPh could provide input as to what therapeutic option may work best (e.g. medication therapy management) and make suggestions for deletions and additions of medications. Implementation of a controlled substance registry. RPh could provide medication device instructions.
	RPh	RPh may call MD if the patient can't afford a medication so the MD can suggest a different one or if prescription appears to be e-scribed incorrectly (e.g., contains contradictory information). Lack of direct contact with physician –messages are passed through the nurse. RPh says he would not call an MD to question if a medication is therapeutically correct because RPh does not have access to the information that would be needed to access that.	RPh is unable to do MTM because RPHs are scheduled with so little overlap it couldn't be incorporated into the current workflow. Corporate likes the idea of it but doesn't help facilitate it. Lack of time for both MD and RPh.	RPh could alert MD if patient is not taking a medication due to cost so they can find an alternative that patient can afford. Pharmacist could provide medication device instruction, disease education, etc. RPh would like to help with the problem of medication adherence but not sure how he would be able to identify if patients are taking their medications.
H	MD	RPh may contact MD if there is therapeutic duplication, a possible drug interaction, or to recommend a therapeutic substitution if necessary. MD notes that about 75%	Mail order pharmacies don't allow the MD to communicate with a local RPh about the patient. Time constraints for both the RPh and MD.	RPh is able to see all the medications a patient is on even if they are ordered by different MDs. It would be useful if there is a new medical warning or clinical guideline for the RPh

		of the time his nurse speaks to the RPh and about 25% of the time he speaks to the pharmacist. Most communication with the pharmacist is via fax. MD may call pharmacist if he has a formulary question. MD has worked with RPhs to help monitor narcotics patients and diabetic patients.	MD doesn't have a way to indicate urgency of having medication. MD gets annoyed with redundant message from RPhs about medication warnings.	to share that information with the MD, but it would also be helpful if RPh could let MD know which patients it effects. MD thinks it may be helpful to have a pharmacist present when he's reviewing medications for complex patients during their exams. MD thinks it would be useful if pharmacist could help monitor medication adherence.
	RPh	RPh would contact physician if he notices drug-drug interaction, medical assistance issues, needs to change medication for insurance reasons, or possible narcotic abuse. RPh makes sure he does research to back up any recommendations for medications he makes for physicians. RPh generally communicates with MD through his/her nurse.	Lack of direct communication between pharmacists and physicians. Messages that the RPh leaves with the nurse may not get communicated correctly. Some RPhs may not feel comfortable making recommendations to physicians. RPh is unable to call physician directly despite the physician being able to call the pharmacist directly via the "doctor line." RPh does not do MTM in the pharmacy because he has not been trained in it and thinks it would be difficult to do without the full patient profile. He does see a need for it though.	RPh thinks RPhs and MDs could make better decisions together regarding patient care than they would be able to do separately. RPh would like the MD to include on the prescription why the medication was prescribed so that he could do more effective counseling on the medication. RPh would like to have more conversations with MDs about medication costs. MD may not realize that their patient isn't picking up prescriptions due to cost. RPh would be willing to help MD with providing clinical advice for patients and to inform the MD about medication adherence.

Pharmacist Wish List

1. Blanket authorization and/or collaborative practice agreement, with FYI communication to MD, regarding therapeutic substitutions
   a. PPIs, nasal inhalers, steroid inhalers, ARBs
2. Mechanism to facilitate more direct communication with MD when necessary (i.e., not having to go through receptionist, MA, nurse for a complicated clinical problem)
3. Adding diagnosis and other pertinent info to prescription
   a. If cheaper drug already tried and failed
   b. If another drug resulted in adverse reaction
   c. If dosage or strength out of range deliberately (i.e., not an error)
4. Mechanism to work with physician to prescribe less costly drugs (i.e., making physicians aware of the cost, and how that might related to a patient's medication adherence)
5. Follow-up communication back to the pharmacist (uncertainty as to whether messages to clinic are received and understood)
   a. Such as when a pharmacist makes a recommendation, physician accepts but works only with the patient to address the concern.
6. Greater clarity regarding when a nurse can make a decision, and when the physician must okay a recommendation

Appendix F. Dyad Interview Guide

Good afternoon. Thanks for joining us today. I'm here with Jamie Lapin. Jamie is one of the researchers doing this study and will be assisting and listening in today.

Prior to today, both of you were interviewed separately about your interactions with either pharmacists or physicians as it pertains to patient care. Today, we're here to talk with you together about some of the things that we found in those initial interviews and facilitate an opportunity for you two to work together to improve your patients' care. There are no right or wrong answers to the comments today. We just want to hear your thoughts and opinions.

We're recording this session because we don't want to miss any of your comments. No names will be used in any reports or publications. Your comments are confidential.

We put name tents around the table. These help me but they can also help you. You shouldn't feel as if you have to direct your comments to us. If you want to follow-up on something someone has said, if you want to agree, disagree, provide an example, please feel free. We ask only that the conversation remain respectful and that only one person talks at a time. My role is to introduce questions and make sure everyone has a chance to talk.

1. Please describe your practice, the types of patients you see (both get a turn)
    a. This is an opportunity for them to introduce themselves to teach other, where they work, what type of MD/RPh they are, etc.
2. Please describe what your typical day looks like (both get a turn)
    a. Probe for what good things happen in a day
    b. Probe for why they are busy, what things stress them out
    c. Probe for responsibilities that don't have to do with patient care i.e., chart review, etc.
 3. Ask the other participant what did you learn that surprised you?
    a. Probe for surprises about types of patients, technology interfaces, the way in which MDs/RPhs are incentivized and paid, potential issues with management/technicians/nurses, etc.
    b. Probe for why pharmacists communicate with physicians the way they do, for the reasons that they do;
    c. Probe for why physicians may not respond to pharmacists the way pharmacists want them to respond, etc.
    d. May provide some examples of what people said to facilitate discussion if necessary
4. Provide a wish list from the MD and RPh (both this dyad and other dyads as well). Ask them to rank order their top three wishes for each discipline.
5. Ask them to jointly choose one wish for each to work on together
6. Going back and forth, identify barriers for implementation of the wish (on big paper)
7. Brainstorm ways to minimize those barriers
8. Final question - What is one thing that you can take away from this discussion (not necessarily implementation of the wish list project)
    a. No expectation that they will actually implement their wishes, I just want to watch the problem solving process

Appendix G. Summary of Dyad Interviews

Appendix Dyad	Physician and Pharmacist Items of Discussion	Solutions/Ideas Generated/Outcomes
A	Immunizations (like flu for traveling) done in pharmacy	MD is happy to have the RPh give immunizations as long as the information is entered into WIR.
	RPh has a difficult time quickly resolving issues because questions are entered as notes so he can't easily talk to the MD.	MD and RPh agree that EHR often makes things more time consuming. They also elaborate on that saying it seems to cause different kinds of medication errors.
	Best way for RPH to contact the MD	MD says calling him is the best way, but does admit it will probably go through a phone tree. He states he will check if there is a more direct line.
	From Wishlist Controlled substance monitoring	Small issue in pediatrics. The MD does have narcotic contracts for patients. They talk about the need for a central database.
		Both looked at this as item of interest and discussed what medication classes it might be useful for.
	Blanket procedures for medication substitutions	Brainstormed ways that RPh could directly leave notes instead of going through the receptionist
	Facilitation of direct communication between MD and RPh.	
B	Streamlining the process of determining what medications are on formulary	Best solution would be to be able to integrate insurance information into EHR. Discussed the possibility of therapeutic interchange decision making in the pharmacy for certain drug classes or listing 1st choice, 2nd choice, 3rd choice of drugs on initial prescription. Both RPh and MD liked the idea of therapeutic interchanges but though the implementation might be difficult due to special circumstances that may come up with a patient.
	RPh would find it useful if there was a way that MD could send a message that a medication has been discontinued.	Both agreed this is a big problem because often times the patient is unsure if a new medication is an addition or if they are supposed to stop a different one. They both agree this should be done electronically but don't know the logistics of how it could be accomplished within the EHR. IT would be useful if the after visit summary could be sent to the pharmacy because that has the most updated information.
	From Wishlist or interviewer initiated	Both the MD and RPh agreed it is stilly that it can't be changed and the MD suggested he always write for

			90 if the patient will be on medication long term. Collaborative practice agreement may be a solution.
	The ability for RPhs to change a prescription from 30 and 5 refills for 90 and 1 refill.		Both RPh and MD agreed it should be done when it makes sense to do - a "no brainer." MD assumed it was already being done. Patient is generally the one that splits the pill, pharmacy will do it for a fee or if the patient is unable. Collaborative practice agreement may be a solution.
	Tablet splitting		
	Detailed inhaler instructions		MD assumed it was being done already. RPh confirmed that if it is a new inhaler the RPh does take it out of the box and gives step by step instructions.
	Use of blister packs or pill boxes to help with medication compliance		MD will recommend the patient go to a pharmacy that provides this service if it is needed because they have cognitive or dexterity problems. Pharmacy is willing to fill pill boxes if necessary.
	Adding diagnosis to prescription		MD links a diagnosis code to each prescription but the RPh cannot see it. Because this is already done, this is something the MD and RPh felt would best be dealt with electronically and it wouldn't be more work for either party.
C	RPh and MD working together as a team to take care of patients		MD and RPh working in a closed health system and have regular meetings that have included case managers, nurses, MDs and RPhs. MD also sets up regular meetings to review patient's medication lists with the RPh. Monthly meetings between RPh and MD.
	RPh access to MD		RPh can call MD and make recommendations as he does now along with support for why he is recommending a change.
	From Wishlist Adding diagnosis to the prescription		For most clients in the mental health program, the RPh can see the MD diagnosis because they receive the MD orders. This is not the same for community MDs.
	Tablet splitting and the ability for RPhs to change a prescription from #30 with 5 refills to #90 with 1 refill		RPh thinks this should be able to be done without calling the MD. It is a waste of time for both parties to communicate about black and white issues such as these. It's something that should just be legally allowed without fear of audit from insurance companies.
	A mechanism for MD to prescribe less costly drugs		Discussed a way to allow MDs to understand to the cost of medications and the impacts that high cost medications have on patients. Currently the RPh

	RPh helping with compliance	notes the high cost and then alerts the MD to a possible change in medication to reduce the cost but maintain quality of care. Both agree compliance is very difficult in retail pharmacy, but a non-issue in their practice setting because clients are on a fixed 30 day cycle. Difficulty would be if the patient uses multiple pharmacies.
D	Streamline the prior authorization process	MD suggested the RPh could note the medications used in the past and why they failed. RPh said they do currently give that information so there must be issues with it getting through.
	From Wishlist Controlled substance issues	Both agree it's a difficult issue due to limited information. The patient could be going to multiple pharmacies. The MD does have pain contracts with his patients but they are difficult to enforce. Pharmacy does not get a copy of the contract. Both agree there would be more control if they could fax the prescription instead of it being handwritten.
	Communication about patient compliance	RPh is uncertain how to contact the MD about patient compliance to medication. MD instructs the RPh to leave a phone message with the nurse which will get sent to the MD via a "phone encounter" in the EHR because he checks those regularly. MD notes that different MDs have different preferences, but RPh is given a good sense of how information is triaged at that clinic.
E	Difficulty prescribing through EHR due to conflicting information appearing from programming defaults and dosage calculators	For rounding issues from dosage calculator, RPh will call MD to ask what to do especially for pediatric doses. MD states that in most cases it probably doesn't make a clinical difference and that he tries to put in standard doses when he can and he thinks the issue will eventually resolve itself as the preference list gets built. They resolve that the RPh should always call when there is a "wacky" dose.
	RPh access to MD	RPh and MD discuss in what situations it is better to call vs. fax information.
	MD spends a lot of time dealing with prior authorizations	RPh tries to provide as much information as she can up front to the MD including alternatives and what number the MD needs to call in order to minimize work for the MD as much as possible. MD says it's more a problem with other pharmacies.
	From Wishlist Controlled substance issues	Both RPh and MD are frustrated with the way

		controlled substances are handled. MD has pain contracts for patients but they don't prevent problems. MD and RPh both agree a state registry for narcotics use would be ideal, in the meantime it may be helpful if MD could just alert the RPh on the script that the patient has insurance as paying cash for narcotics is a flag for abuse.
	Blanket authorization for therapeutic interchanges	MD says he generally doesn't care if they are in the same ARB class for instance, but there are some exceptions. Solution may be to write a collaborative practice agreement that is followed and if the MD doesn't want a medication substituted he could write that on the prescription.
	Ability for RPhs to change a prescription from #30 with 5 refills to #90 with 1 refill	MD says that anything over 90 days is a long term one that he doesn't mind if they change the way the refills are written for insurance reasons. 90 days or less is short term and MD will likely see the patient back in the clinic in 30 days.
	Tablet Splitting	Both agree the RPh should just be able to do this when within talking to the MD when it makes sense to do so.
F	RPhs and MDs being part of the same care team	MD would welcome the RPh to the care team meeting to give input. MD already calls RPh with questions she doesn't know.
	MD would like to have information about adverse interaction reports send to her.	RPh says they usually call and talk to the nurses about them but they could also easily send the information to the MD.
	From Wishlist	
	A mechanism to support more direct communication with the MD	This is more of an issue with primary care doctors than the mental health MDs and care staff. The RPh has been able to contact the mental health nurses easily.
	MD would like face to face time with the RPh to ask questions	RPh and MD think it would be helpful for RPh to attend perhaps bi-annual team meetings with the MDs and other care staff to share information and so the MDs can ask the RPh questions.
G	MD notes that he doesn't know what gets submitted to RPh during e-scribing.	RPh states that he does get contradictory information on e-scripts sometimes which is why the RPh ends up calling the MD. Both agree it would be beneficial to be able to see what the other person sees. MD offers to stop by the pharmacy to see the RPhs e-scribing screens and welcomes the RPh to come by the clinic.
	MD was unaware if refill requests	RPh states that a form for them to send it pops up if

	from the RPh were patient requested or autogenerated.	the patient calls in for a refill but it is expired or how of refills. MD states that now that he knows that he'll respond to those more quickly.
	From Wishlist Inhaler counseling	RPh states that proper inhaler usage is something he is personally very focused on, MD just wants to ensure that someone is providing high quality counseling for his inhaler patients. The idea of including on the prescription that it is a new medication is floated and they both think it may be advantageous to include that on the prescription.
	MD having easy access to RPh for questions	RPh shares the information for a direct "doctor line" that uses a different phone number
	RPh having more direct access to the MD	MD gives RPh his pager number and says that's the best way to reach him
	Narcotic registry	Both RPh and MD agree a narcotics registry is WI would be hugely beneficial as there is currently not a good program in place to protect against narcotic abuse.
H	Ability for RPhs to change change a prescription from #30 with 5 refills to #90 with 1 refill (this is also on wish list but they brought it up)	MD is aware of this issue and writes his prescriptions for the 90 supply when possible so the RPh doesn't have to call and ask to have it changed. The reason it probably comes through that for other MDs is because the default in EMRs is usually at 30 quantity so that may be something to discuss with software company to have that changed.
	From Wishlist RPh would like a blanket authorization to change a prescription from #30 with 5 refills to #90 with 1 refill	RPh thinks with would be useful, but realizes the work that would have to happen to have collaborative practice agreements with every doctor in the area.
	Ability for RPh to make therapeutic substitutions for drugs like ARBs	MD admits he usually just picks one without knowing what is covered and that they often can be substituted. They agree that since exceptions are rare they could make it a rule to allow for it and then the MD could just note if there shouldn't be a substitution.
	RPh thinks It would be helpful to know why medications are prescribed.	MD states they already have to link prescriptions to diagnosis so thinks the information should just be able to be viewed by RPhs.
	Altering MD of new clinical guidelines	RPh says he could easily give the MD a list of which patient's the change may affect instead of calling for each patient.

	Best way for RPh to reach MD	MD states that for urgent issues calling is best or the question may get buried in the fax pile. MD has a direct line to his nurse that he would share with trusted RPhs.
	Best way for MD to reach RPh	MD should call the "doctor line" in the pharmacy.