Impact of the United Way and PSW Collaboration to Bring Pharmacist Comprehensive Medication Reviews to Community Settings

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Comprehensive medication reviews (CMRs) delivered by community pharmacists are known to improve clinical outcomes, as demonstrated by a review including 35 systematic reviews.[1] This is especially true for improvements in outcomes for patients with diabetes, hypertension, or hypercholesterolemia. Kallio and colleagues also conducted a systematic review that demonstrated the positive effect of interventions and recommendations identified during community-based CMRs on reducing the incidence of adverse drug events (ADEs) and improving overall patient health outcomes.[2] Despite the benefits of pharmacist-conducted CMRs, not all eligible patients are able to participate.[2,3] For example, one community pharmacy experienced a 25% dropout rate, with lack of time and becoming household bound among the top reasons for patients being unable to access a CMR.[4]

In Wisconsin, two organizations are working together to provide one of the most populous counties with a way to access CMRs using a novel community model. In Dane County, Wisconsin, The Pharmacy Society of Wisconsin (PSW) and The United Way of Dane County (UWDC) have been working together since 2011 to reach patients through the provision of CMRs by Wisconsin Pharmacy Quality Collaborative (WPQC)-certified pharmacists at convenient locations for patients.[5,6] By bringing pharmacists to convenient community-based locations instead of requiring patients to travel to a

pharmacy, the goal of this service was to increase the number of patients who have access to CMRs.

WPQC is "a network of accredited pharmacies throughout Wisconsin that are committed to higher standards of medication management, patient education, quality assurance and patient safety."[7] Pharmacists undergo additional training by PSW to provide CMRs to complex patients with multiple chronic conditions in order to become WPQC-certified. The community-based CMRs offer patients a one-on-one, 60-minute appointment with a WPQC-certified pharmacist to assess adult medication regimens, including use of prescription and over-the-counter (OTC) medications, use of supplements, lifestyle factors, and individual patient goals. The pharmacist listens to and addresses patient concerns, then makes recommendations to both the patient and their primary care provider with the goal of preventing ADEs, reducing fall risk, and improving the patient's quality of life. The objective of this evaluation was to determine the number of community-based CMRs delivered, the types of interventions recommended by pharmacists, and patient satisfaction from the community-based CMR program.

Methods

Community-based organization (CBO) partners that participated in this program were identified and engaged based on their organizational mission and the populations they served. Initially, partners included senior centers and neighborhood senior coalitions. However, as the program grew,

new CBO partners included neighborhood community centers, churches, and various social service agencies. The PSW program coordinator and the WPQC-certified pharmacists traveled to community settings to provide the CMRs. Wisconsin Medicaid provided authorization and compensation for CMRs provided to eligible Medicaid recipients.

The PSW program coordinator and the community partner collaborated to

TABLE 1. Baseline Characteristics

Age	#	%
50-59	28	19.6
60-69	26	18.2
70-79	35	24.5
80-89	32	22.4
90+	8	5.6
Not Reported	14	9.8
Sex	**#**	**%**
Female	98	68.5
Male	39	27.3
Not Reported	6	4.2
Race/Ethnicity	**#**	**%**
Caucasian	86	60.1
African American	44	30.8
Asian	1	0.7
Latino	1	0.7
Not Reported	11	7.7
Number of Persons Living in Home	**#**	**%**
1	46	32.2
2	32	22.4
3 or more	13	9.1
Not Reported	52	36.4
Who Manages the Patient's Medications	**#**	**%**
Self	72	50.3
Spouse/Significant Other	7	4.9
Professional Service	6	4.2
Child	3	2.1
Other	4	2.8
Not Reported	51	35.7
Number of Medications Taken (Mean +/- SD)	**# ± SD**	
Prescription (n=107)	7.3 ± 4.3	
Over-the-Counter (n=106)	3.4 ± 3.2	

TABLE 2. Pharmacist-proposed Interventions by Category

Proposed Intervention	#	%
Medication Addition	90	20.7
Immunization	89	20.5
Medication Device Instruction/Education	71	16.4
Dose/Dosage Form/Duration Change	54	12.4
Medication Deletion	46	10.6
Adherence	34	7.8
Therapeutic Interchange	27	6.2
Labs Due	15	3.5
Dose Consolidation	8	1.8

provide this unique community-based CMR model in neighborhoods where at-risk, underserved, and older adults lived. The program coordinators served as education, outreach, and intake coordinators. CMRs were initially offered to individuals age 60 or older; however, following discussions with the CBOs, coordinators realized there was a greater need for the program. The criteria were expanded to include low-income and older adults with complex medication regimens in Dane County.

Patient information (demographics, income, primary care provider(s), pharmacy information, Medicaid or other insurance status, falls risk assessment data, and HIPAA authorization) was collected and provided to the pharmacist prior to the CMR. This information informed the pharmacist about the patients, and helped ensure that the appropriate number of WPQC-certified pharmacists were recruited for each day. Of note, this program also included UW-Madison pharmacy students, who assisted the pharmacists in the patient intake process.

Each visit began with patient intake by the PSW program coordinator, during which the patient was educated about the visit, was given HIPAA privacy notices, and consented to the service. The pharmacist then conducted the CMR using an approved electronic documentation platform and any written materials per their professional judgement. For the purposes of this evaluation, the pharmacists also had paper forms to record the nature of their recommended interventions. Patients were initially asked for their personal goals, and

pharmacists followed a standardized process within the clinical documentation platform. PSW pharmacy student interns received the list of pharmacist recommendations for each patient seen at a community CMR event, and recorded and categorized the interventions.

The primary outcome of this evaluation was the number of CMRs the service was able to provide. Secondary outcomes included the recommended interventions, and patient satisfaction. Recommended interventions were documented by the pharmacists during the CMRs. Intervention categories included adherence, dose consolidation, dose/dosage form/duration change, labs due, medication addition, medication deletion, medication device instruction/education, immunization, and therapeutic interchange. Patient satisfaction was measured via a patient interview with the PSW program coordinator. Patient satisfaction with pharmacist performance during the CMR visit was measured using a satisfaction survey consisting of seven questions using a five-point scale (poor, fair, good, very good, and excellent). This was collected following the CMR appointment but prior to the patient leaving.

Following the CMR, patients were contacted via telephone by PSW pharmacy student interns at 14, 30, and 90 days post-CMR. Each telephone call was attempted up to three times. During this interview, the PSW student intern would determine the patient's acceptance of pharmacist recommendations. A script was used to collect this information (available upon request) and the information was

documented in REDCap, a HIPAA-compliant web-based database.[8] Given the difficulty of consistently contacting patients via phone, many patients received a 14- or 30-day phone call, and therefore only the 30-day results are reported. Descriptive statistics were calculated as means and counts. As this project was undertaken for programmatic evaluation, it did not meet the federal definition of research and per the UW-Madison Health Sciences IRB, full IRB review was not required.

Results

An initial pharmacist visit was documented for a total of 143 patients, and 102 patients (71.3%) responded to the one-month follow-up call between April of 2019 and January of 2020. To offer this service, 15 pharmacists and 22 pharmacy student volunteers served patients at 12 community-based locations. The patients enrolled in this program were predominately female (68.5%) and had approximately even representation across the decades aged 50–89 years, with only 5.6% of patients aged 90 years or older (Table 1). The majority of patients lived alone (32.2%) or with one other person (22.4%). Most patients managed their own prescriptions (50.3%), with others receiving help from family members or professional services. Patients reported taking an average of 11 medications. This included a mean of 7.3 ± 4.3 prescription medications and a mean of 3.4 ± 3.2 over-the-counter medications.

Pharmacists made 434 recommendations during the community-based CMRs (Table 2). This was a mean of 3 recommendations

TABLE 3. Patient Satisfaction with Pharmacist Performance During CMR (% Patients Responding)

Survey Question	Poor	Fair	Good	Very Good	Excellent
Pharmacist's ability to answer your questions?	0.0	0.0	7.1	23.1	69.8
Pharmacist's ability to provide you with information about your medicines?	0.0	0.5	6.6	29.1	63.7
Pharmacist helping you to understand the purpose of your medicines?	0.6	0.0	5.1	27.0	67.4
Pharmacist helping you to understand how to take your medicines to prevent problems?	0.6	0.0	6.9	25.7	66.9
Pharmacist's ability to be clear when explaining suggested changes to your medicines?	0.0	0.0	6.6	25.7	67.7
Overall care you received from the pharmacist?	0.0	0.0	3.8	22.5	73.6
Of note, instances where participants chose not to answer a question are removed from the percentages.					

per patient. Medication additions (90) and immunizations (89) were the two most frequent recommendations made by the pharmacists. Pharmacists also frequently recommended or provided medication device instruction/education (71), a change in dose/dosage form/or duration (54), and medication deletions (46). Of the recommendations with a known definitive outcome at the 30-day follow-up call, 162 (74%) were accepted and implemented while 57 (26%) had been declined.

When surveyed following the CMRs, patients reported high levels of satisfaction regarding the pharmacist's performance (Table 3). The majority of patients ranked the pharmacist's performance as "excellent" for each aspect of performance, and greater than 90% of patients ranked the performance as "very good" or "excellent" across each criterion.

Discussion

The outcomes of this community-based CMR service demonstrate the impact pharmacists can have on increasing patient access to CMRs and optimizing medication regimens in at-risk patient populations. By traveling to convenient locations for patients, pharmacists were able to make significant interventions and reach patients who might not have been able to go to a pharmacy. Additionally, the rate of accepted interventions in this evaluation was consistent with previously published literature. In a systematic review by Kallio and colleagues, 76% of pharmacist-recommended interventions were accepted, which was similar to the percentage after this community-based CMR service of 74%.[2]

Notably, pharmacists were able to provide numerous recommendations for patient intervention, including both medication and non-medication recommendations. The most common medication recommendations provided were the addition of a medication or a dose and/or dosage form change. The most frequent non-medication recommendations were for immunizations and education on how to use a medication device. Based on these results, our community-based CMR service proved to be useful, as a majority of patients accepted and implemented the pharmacist-proposed interventions.

Overall, patients appeared to be satisfied

with pharmacist performance during CMRs, rating the majority of components on the satisfaction survey as "excellent" or "very good." Patients were most satisfied with the pharmacist's ability to answer questions and clearly explain recommended interventions. Some respondents (0.5%) gave a "fair" rating to "pharmacist's ability to give you information about your medications." Improvements could be made in this area, perhaps by encouraging more incorporation of motivational interviewing techniques into this component of the CMR, and by using methods such as "teach-back" to ensure patient understanding. The "teach-back technique" allows providers to assess patient comprehension, providing increased patient satisfaction during patient-provider interactions.[9]

There were several limitations to this service model. First, the size of the cohort included in the analysis was relatively small and comprised of a limited population of patients who had the ability to visit the senior centers where the CMRs were conducted. Additionally, numerous patients were lost to follow-up, which limited the ability to determine whether those patients implemented the recommended interventions. One factor that may have reduced the number of patients reached for follow-up was the limited availability of pharmacy interns to conduct calls on a regular basis. Furthermore, when conducting CMRs, we did not ask pharmacists to specify the medication changes in a measurable way. This information could have provided details on potentially preventable ADEs. Lastly, our work did not include a control arm, which restricted our ability to determine whether our delivery method further improved patient outcomes compared to the traditional method of having the patient travel to the pharmacy for CMR services.

In the future, we hope to expand delivery of our services in order to improve access for patients to attend CMR events. Possible methods to do so include providing services at additional community sites outside of Dane County, offering in-home visits, and creating a telehealth option. Additionally, we see the potential to extend our services to younger populations who are considered at high-risk, with resources and funding available from the Wisconsin ForwardHealth (Medicaid) Medication

Therapy Management program, in addition to UWDC. Lastly, we hope to better balance resources and staff availability to improve our overall follow-up with patients after making initial interventions.

Conclusions

This unique CMR delivery method has been demonstrated to be an effective way to provide services to at-risk patient populations. Further expansion of services and more consistent follow-up with patients is necessary to provide more detailed information on the impact of this service to reduce ADEs in at-risk patient populations.

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