

Development, Pilot, and Evaluation of a Qualitative Documentation Tool for Pharmacists to Share High Impact Patient Intervention Stories

Alex William Middendorf, PharmD, MBA¹; Aaron Hunt, PhD, MPH²; Alexa Vanden Hull, PharmD¹; Deidra Van Gilder, PharmD¹; Erin Miller, PharmD, MBA¹; Sharrel Pinto, BSPHarm, DMM, MS, PhD, FAPhA³

¹ South Dakota State University College of Pharmacy and Allied Health Professions

² Utah State University College of Education and Human Services

³ Belmont University College of Pharmacy and Health Sciences

Abstract

Background: Community pharmacists are often the most accessible member of the healthcare team to many patients and can play a key role in managing their chronic conditions, such as diabetes or heart disease, through enhanced pharmacy services. Despite their accessibility, pharmacy services are often underutilized due, in part, to a lack of adequate reimbursement models that comprehensively encapsulate all elements of those pharmacy services. While routine documentation of services does collect certain qualitative data, they do not always indicate the nuance of the full scope of services with resulting robust impact and value of those services for the patient and healthcare system. **Objective:** To develop and pilot an online reporting tool for pharmacist documentation of high impact patient intervention “stories” that includes the nuances of care provision processes in outpatient pharmacy settings that promote positive outcomes. **Methods:** An online Patient Stories Reporting Tool (PSRT) was developed to allow outpatient pharmacists to document details on distinct direct patient care encounters, or “stories”, that they felt showcased their value. Documentation through PSRT included limited quantitative data and qualitative data with a focus on a free response narrative for the “story”. In a pilot, the PSRT was distributed to 18 pharmacists across 16 practice sites from one partnering pharmacy organization. Qualitative data, the focus of the included analysis, was collected, assessed by project team members, and organized by intervention types. **Results:** Forty-seven stories involving 17 pharmacists across 13 practice sites from August 2021 to March 2023 were reported. Three types of key intervention stories were identified including General Patient Education (7 stories), Medication Optimization (20 stories), and Cost Reduction (20 stories). Given the nature and scope of this initial pilot, one story for each of the three most prevalent intervention types was identified as exemplifying the types of stories the tool can collect and are subsequently discussed in detail. **Conclusions:** The three selected stories help to characterize the services pharmacists provide, the critical components of pharmacist-patient interactions, and the value of sharing these stories utilizing tools such as the PSRT. Through these stories, the PSRT also begins to record the nuances of pharmacist interventions and the impact they can make in a patient’s healthcare journey. Potential applications of the tool are multivarious including supporting improvements in the perception of pharmacists’ roles on the healthcare team and justifying expansion of reimbursement models.

Keywords: Documentation, Patient Stories, Community Pharmacy

Background/Introduction

A collaborative approach to healthcare, utilizing every member of the healthcare team, is needed to help patients manage chronic disease. In the United States, more than 51.8% of adults have at least one chronic disease, such as heart disease, diabetes, and cancers, which are the leading cause of death in the United States and account for 90% of the \$4.5 trillion in healthcare costs each year.¹⁻³ Effective management of these chronic conditions requires the utilization of a variety of healthcare professionals and services, including pharmacists.⁴ An understanding of the key role each of these team members play is needed to strengthen the entire healthcare team and improve outcomes for patients.

Corresponding Author:

Alex William Middendorf, PharmD, MBA
South Dakota State University
College of Pharmacy and Allied Health Professions
Email: alex.middendorf@sdstate.edu

Pharmacists play a key role in managing patients’ chronic conditions through enhanced pharmacy services, including medication therapy management (MTM) and comprehensive medication management (CMM). These enhanced pharmacy services facilitate conversations between the patient and the pharmacist regarding the patient’s medication use behaviors and experience with medications, which has been shown to improve patient health outcomes, cost savings, satisfaction, and trust.⁵⁻⁹ Furthermore, community pharmacists can often be the most accessible member of the healthcare team, with approximately 96.5% of the overall US population living within 10 miles of a pharmacy.¹⁰ These pharmacists are located within patients’ communities and are readily available to engage with patients both in-person and via phone or other electronic means.

While some formalized programs exist through third-party payers, lack of adequate reimbursement for services rendered leads to true comprehensive medication management services often being an underutilized intervention.¹⁰⁻¹² One major problem is that existing MTM and other pharmacy services are typically structured as primarily a fee-for-service model, such as

Medicare-based MTM. When systems for reimbursement for such pharmacy services exist, they are based almost entirely on whether interventions have been completed or not completed and do not routinely consider the quality of the interventions provided nor the more nuanced aspects of medication management with other care pharmacists provide.¹³ If reimbursement for services could instead be focused on providing personalized care rather than the completion of the service, the result could be even more improved health outcomes for individual patients.

One way to potentially improve reimbursement models is to establish a way to effectively capture the nuance of enhanced pharmacy services for the corresponding impact they make. Results of pharmacist-patient encounters are documented in a variety of ways, however, the design of these formalized programs with their pre-specified service types and documentation tools do not give the pharmacist the opportunity to document the full scope of the encounter and its impact.¹⁴⁻¹⁶ Consequently, sharing this information routinely in an actionable form is a current challenge.^{14,17,18}

For this reason, there is a need to collect robust qualitative data in addition to quantitative data to encompass the patient's full health "story" and, likewise, the "story" of the pharmacy team's progressive interventions that led to a positive resolution. Qualitative data can have value in understanding viewpoints on actions, events, and relationships of participants.¹⁹ Currently, there are systematic ways to collect quantitative data on intervention category, frequency, and outcome, but few pharmacies have systems established to collect robust qualitative data on a regular basis that include the nuance of the full scope of services provided.^{20,21}

Beyond routine qualitative data, anecdotal information is a useful tool leveraged in many disciplines to highlight and reinforce examples of excellence to advocate for change. When advocating for change through conversations with stakeholders, we believe it is valuable to collect anecdotal information regarding one-off effective pharmacist-patient interactions that stick out as true highlights of what can be accomplished when an engaged pharmacist makes a breakthrough with a patient. These moments detail those "secret ingredients" of a pharmacist working with a patient that are extremely difficult to capture. Routine documentation and traditional research data collection does not regularly capture anecdotal information that is otherwise commonly shared in interpersonal storytelling or conversation.

The objective of this project was to develop and pilot use of an online reporting tool to help pharmacists document and share high impact patient intervention stories that promote positive outcomes from care provision in outpatient pharmacy settings. The goal was to share best practices for implementation into patient care delivery and to describe detailed experiences to guide discussion on reimbursement of pharmacy services with

a focus on quality of individualized patient services provided. This study partnered with a regional chain pharmacy comprised of more than 50 locations in the largely rural Great Plains region of the United States.

Methods

The Patient Stories Reporting Tool (PSRT) was developed by the project team for the South Dakota State University 1815 Project, a Centers for Disease Control and Prevention-funded project to develop sustainable and financially viable statewide programs which facilitate expansion of the role of the pharmacist in diabetes and cardiovascular care. This team included experts in population health and pharmacy practice, including individuals with experience deploying and providing enhanced pharmacy services in the outpatient environment. The tool was designed based on the project team's past experiences working with stakeholders, including other practitioners, administrators, and payers, and by working closely with staff from the partner pharmacy organization.

Discussions to develop the PSRT began between project team members and the partner pharmacy organization in May 2021 to determine mutual goals related to implementation and application of outcomes. This partner pharmacy organization has more than 50 locations across the state and region and, despite its size, prioritizes taking a personalized approach to pharmacy operations and enhanced pharmacy services similar to an independent pharmacy or much smaller chain to serve the local communities. Potential applications of the PSRT initially discussed included use in discussions with stakeholders, internal communications within pharmacy organizations, and newsletters or other media applications. Partner pharmacy organization staff noted past success when advocating for change with stakeholders by utilizing anecdotal patient stories to showcase the value of changes. Discussions focused on ensuring the PSRT was feasible for pharmacists to document stories quickly while also allowing flexibility for anecdotal details.

The PSRT question content was developed with the goal of collecting information that showcases the value of pharmacists providing direct patient care and other enhanced pharmacy services. Questions were designed to be brief with a focus on categorization to assist with quick recording. Significantly, the form also contained a single open-response question for documenting the narrative comments of the patient story with the goal of collecting unbiased, compelling, and detailed narrative content (see Appendix 1). Each submission to the PSRT, or "story", is intended to represent complete resolution of one patient's identified health need from beginning to end and may include multiple patient interactions with interventions from different members of the pharmacy team over a period of time. Patient-identifying information was intentionally not collected through the PSRT. The tool is not intended to replace or duplicate existing clinical

documentation. The PSRT was adapted for use in Google Forms (version 0.8), which was selected due to the partner pharmacy organization's operational experience with the software. An external review of PSRT question content was completed by pharmacy professionals who regularly engage with stakeholders and are the target audience for the outputs of this tool.

The PSRT was initially drafted in May 2021 then revised through July 2021 based on feedback from internal review by project staff and external review from collaborators. The PSRT was officially launched on August 23, 2021 by sharing the PSRT Google Form link and details on expectations via email with pharmacists within the partner pharmacy organization. Included pharmacists could complete the PSRT at their convenience after a successful intervention and were recommended, but not required, to submit at least one "story" every month, ideally detailing the most impactful patient care they felt they provided that month. The PSRT was distributed to a subset of the partner pharmacy organizations' pharmacists and sites to pilot its use and assess initial effectiveness of the tool. For the pilot, this included 18 pharmacists routinely working at 16 different outpatient practice sites including ambulatory care clinics and community pharmacies. Pilot participants and sites were selected by the project team through discussions with the partner pharmacy organization who perceived them to be a representative sample of all their pharmacists and sites in the region. Full details on all submissions were exported from the Google Form by one pharmacy organization staff member into spreadsheet format (Microsoft Excel) and securely shared with project staff for review and analysis at the end of the project period in March 2023.

Due to the small sample size of the pilot and the abundance of qualitative information collected, the project team elected to focus the content of this article on the qualitative data from the stories collected. Collection of qualitative, or even anecdotal, information in a more standardized fashion is the primary unique strength of the PSRT, and we wish for that to be highlighted at this stage. While the 'Category of Clinical Impact' was utilized to frame review of other qualitative data, other categorical information that was collected did not undergo specific analyses in this initial pilot.

PSRT submission "stories" were organized based on the identified 'Category of Clinical Impact' and team member review of the story narrative. Initial evaluation and review of stories was completed by one project team member, with another completing their own review with follow up discussion between team members to ensure agreement on each selected submission. A formal method of qualitative analysis, such as thematic analysis, was not planned due to the nature of this initial pilot. Stories were organized into three categories:

General Patient Education, Medication Optimization, and Cost Reduction.

Stories were categorized as General Patient Education if they were education-related categories from Category of Clinical Impact where medication adjustments were not the major focus of the intervention based on the story narrative. Stories were categorized as Medication Optimization if the pharmacy team's role related to more robust adjustments to a patient's medication regimen including categories such as 'Drug Interaction/Safety' and 'Lab Value/Disease State Improvement'. Finally, stories were categorized as Cost Reduction if 'Formulary/Cost Effective Alternative/Therapeutic Interchange' was selected as the Category of Clinical Impact and cost was the primary focus of the story's narrative. This project was reviewed and approved by the South Dakota State University Institutional Review Board.

Results

Overall, from August 2021 to March 2023, 47 PSRT submissions, or "stories", were reported. In total, 17 different pharmacists across 13 different practice sites were involved in the care described in the 47 stories. The stories were submitted by nine different pharmacists (multiple pharmacists may be involved in a single patient's care in one story), with each of these pharmacists reporting more than one story. Participants were not required to complete submissions at any particular time, however most participants submitted after or toward the end of a patient's health journey for a particular issue once a major achievement had been made.

General Patient Education was the key service delivered in seven stories reported, Medication Optimization was the key service delivered in 20 stories reported, and Cost Reduction was the key service delivered in 20 stories reported. Aligning with these three intervention story types, three stories were identified by the project team as exemplifying the type of qualitative narrative data the PSRT can collect. While broad recommendations cannot be made from an assessment of such detailed information, these stories provide nuanced examples of pharmacist-patient care through existing service delivery, which may have unique and important applications. The full narratives of each of these three stories organized by intervention types are included in Table 1.

In Story 1, a patient with type 2 diabetes mellitus had a high reported A1c of 12.8%, placing her at higher risk for diabetes-related complications. She was referred to the pharmacist to help lower her A1c and be eligible for bariatric surgery. As part of the intervention, the pharmacist provided education to the patient, which included educating them on understanding what a carbohydrate is and how it affects their health. The pharmacist also collaborated with her endocrinologist and the patient was started on a continuous glucose monitor. After

several months working with the pharmacist, the patient's A1c dropped to 8.1% and she was now eligible for bariatric surgery.

In Story 2, a patient with a high A1c of 13.8% worked with the pharmacist and their provider to manage their A1c. The pharmacist made recommendations to the patient's provider about medication changes, including placing the patient on empagliflozin/metformin ER 25-1000 mg. The pharmacist also provided patient education and set up a new blood glucose meter with the patient. Furthermore, for the recommended new medications, the pharmacist provided the patient copay cards to reduce their costs. Three months later, the patient's A1c had dropped to 10.3%, and the pharmacist provided another recommendation to the patient's provider to increase the current medication and start the patient on semaglutide. The pharmacist again provided education and a copay card. Three months later, the patient's A1c was down to 6.8%, resulting in an A1c reduction of 7% over a six-month period.

In Story 3, the pharmacist was processing a prescription for a 1-year-old child and observed the copay for the prescription was high at \$168. The pharmacist knew that a minor adjustment to the prescription would result in the same effectiveness with a significantly lower copay for the child's father and found a way to connect with the provider despite it being after closing hours. By staying beyond the pharmacy's closing time and doing their "due diligence", the pharmacist was able to get the prescription that was needed and save the child's father a significant cost on the child's medications.

Discussion

Pharmacists provide important patient-centered care that is complex in nature and results in improved outcomes for patients. Following the pilot of the Patient Stories Reporting Tool (PSRT), the stories collected were categorized by intervention type, including General Patient Education, Medication Optimization, and Cost Reduction, which have all been previously identified as intervention strategies that positively impact a patient's healthcare journey.²⁰ What the stories collected through the PSRT uniquely highlight are the complexities of pharmacist-patient interactions that occur during interventions which are not routinely gathered in a standardized fashion but are impactful to share. These include the descriptive narrative details that show frequent overlaps between intervention story types as well as the nuances of service delivery that can only occur in a personalized, patient-centered care environment and with health care professionals who have extensive knowledge and expertise of medications and disease states.

General Patient Education

Patient education provided by pharmacists can aid a patient in improving their disease states by helping them understand simple yet impactful factors about their health condition, their medications, dietary intake, and lifestyle choices. For patients

with diabetes, education is often the most common intervention strategy utilized by pharmacists to enhance patient medication adherence and is correlated with improved outcome measures such as in systolic and diastolic blood pressure and hemoglobin A1c.^{17,22} Furthermore, education is typically involved in all other intervention strategies at some level.²² The stories of patient education collected through the PSRT indicate how impactful education, a key part of pharmacist-provided care, can be for patients.

Story 1 indicates how patient education can be both a formal process as well as an informal one which requires the pharmacist to work closely with the patient to individualize both the educational content and educational approach to match patient needs. Prior to this intervention, the patient in Story 1 may or may not have received past education on these same topics, but there remained a gap in baseline knowledge (not knowing what a carbohydrate was) that resulted in barriers leading to poor clinical outcomes. By communicating with the patient and understanding her individual needs, the pharmacist identified not only that education was needed, but the specific topics that the patient needed to be educated on to enable her to adhere to her treatment plan, resulting in positive outcomes.

Medication Optimization

Pharmacist recommendations for optimizing medications in the outpatient setting provides the opportunity for patients to be on individualized and cost-effective therapy that improves overall management of their disease states over time. Optimization of medication regimens also reduces instances of polypharmacy and potential harm to the patient due to adverse drug reactions or harmful prescribing practices.²³ Patients who have frequent encounters with the pharmacist are given more opportunities for continuous evaluation of the efficacy and safety of their medication regimen. In general, medication optimization and medication reviews by pharmacists have been found to be related to significant positive effects on overall outcome measures for patients with diabetes and heart conditions.^{24,25} The stories of medication optimization collected through the PSRT indicate the important role pharmacists, with their extensive knowledge of medications and disease states, can play in ensuring patients are on optimal treatment plans.

For example, Story 2 is a useful look into a pharmacist providing comprehensive medication management services by completing a medication review and proactively optimizing a patient's medication in a continuous manner. The pharmacist's account describes the chronological process of the medication optimization in detail as well as multiple instances of that continuous care cycle completing. Not only does this story detail the steps the pharmacist took to get the patient on the medications best for their condition, but also how the pharmacist proactively took steps to ensure those medications were affordable for the patient. Allowing the pharmacist to make these interventions and document the full story of the

patient shows the full impact that a pharmacist can make on a patient's disease state.

Cost Reduction

Through enhanced pharmacy services, pharmacists limit patient costs by providing recommendations which can lead to greater accessibility and increased patient satisfaction. Pharmacist-provided care can also impact the total cost of healthcare services, including reducing unnecessary healthcare expenditures for preventable emergent services. Cost is a major factor in improving patient outcomes through factors like improving adherence to medication regimens. Given their comprehensive knowledge of navigating complex systems involved with provision of medications and medical products, outpatient pharmacists are well-positioned to positively impact the patient's healthcare journey care in this manner.^{5,10,26-28}

Unlike Stories 1 and 2, Story 3 does not detail a pharmacist intervention through an enhanced pharmacy service like Medicare-based MTM, but rather a pharmacist using their knowledge and expertise to provide quality care during routine prescription processing in pharmacy workflow. In this story, the pharmacist was able to save a father and his family a significant financial cost by recognizing the issue and simply facilitating a change in the strength and directions of the medication. It takes the knowledge and expertise of a pharmacist to recognize this opportunity at this critical point in the patient's healthcare journey, communicate it effectively with the patient and other members of the healthcare team, and implement the intervention.

Furthermore, it is important to note that reducing costs of specific medications is the less significant cost-reduction that pharmacist services can impact. Instead, it is in the total cost of care that these services can make the biggest difference. If a patient, like this father, decides to skip a medication because of the cost barrier, it can lead to future healthcare expenditures as their illness worsens, be that from needing other medications, having to make additional unnecessary office visits, or having to utilize emergency services. Indeed, as Story 1, Story 2, and Story 3 all indicate, cost reduction can occur by pharmacists making the effort to educate patients, facilitate medication adjustments, and/or find alternative solutions that make the patient's care more affordable, which in turn can prevent additional avoidable costs to the patient and the healthcare system.^{29,30}

Finally, each of these stories indicates the nuance of the unique services which outpatient pharmacists provide. In part because of their practice setting, community pharmacists are a key part of the healthcare team because they are accessible to members of the community they serve.²⁷ It is shown that interactions between pharmacists and the patient increases the patient's knowledge and satisfaction with their dispensed medications.^{5,27,31} These interactions are sought out by many patients who desire a closer relationship with their healthcare

team in order to better understand factors contributing to their health and disease state management.^{5,27} The PSRT collects stories that indicate this important role that outpatient pharmacists play, providing a platform for valuable anecdotal information to be shared in a standardized manner. Facilitating pharmacist-patient interaction is crucial to success in a patient's health care journey and the PSRT can help support this.

Applications of the PSRT

Community pharmacies, ambulatory care clinics, and outpatient settings of all types could benefit by having a tool like the PSRT to collect and share information and incorporate the lessons learned to improve pharmacy practice. The PSRT was specifically designed as an optional external form for pharmacists to utilize to collect high quality, impactful stories that could be shared. For this initial implementation, an external web-based form was used due to site and staff familiarity as well as customizability, but incorporation into software utilized in pharmacist workflow could be explored in the future to increase uptake. The PSRT was designed to be deployed by a single pharmacy organization for their own pharmacists in this pilot, however there may be opportunities to deploy it across multiple pharmacy organizations simultaneously across a network such as a Community Pharmacy Enhanced Service Network (CPESN) where the standard set of enhanced services continues to evolve based on opportunities available.³²

It is important to make the distinction that the information collected through the PSRT is not intended to replace or include specific required details as routine patient encounter documentation, especially from the perspective of billing and reimbursement requirements. This instead is meant to tell an engaging story that helps stakeholders understand the key points that resonate from the impact the pharmacist had on the patient's care from a story-telling perspective rather than rigid, structured encounter notes.

Highlights from results acquired using the PSRT could be converted into informative messaging in the form of a concise newsletter, vignette, or testimonial video and disseminated both within the healthcare field (e.g. to other pharmacists, health care provider groups, administrators, etc.) as well as to healthcare adjacent stakeholders (e.g. federal, state, and local public health organizations, patient advocacy organizations, policy makers, etc.). Results from the PSRT could be used to improve pharmacist advocacy to justify additional reimbursement for commonly provided services that are known to have positive impacts on patient lives which may not be fully incorporated into existing quality of care measures. In addition, PSRT results may help inform transformations of existing fee-for-service models, such as Medicare-based MTM, to focus more on quality of care measures that incorporate positive impacts of personalized care rather than binary

completion of the service. Funding for these services could allow for more routine implementation and better access to these services for all patients rather than just when an engaged pharmacist feels they have the time to do so. Results from the PSRT could also be used to complement pharmacy innovation or advocacy programs, such as Flip the Pharmacy, by providing information on pharmacy practice that is typically not captured in traditional documentation.³³

Results from the PSRT could also be used to increase patient awareness of pharmacist-provided services they may utilize to help them improve their own health, seeing themselves in the stories of other patients from testimonials or other outputs based on PSRT results. These results serve as unique evidence on the impact of pharmacist-provided services and encourage patients to utilize these services. Likewise, disseminating these results to other healthcare professionals could also provide education and a reflection opportunity through showing real-life examples of pharmacist care. In addition, the narrative nature of the PSRT may help facilitate conversations between patients and all members of their health care team to increase their confidence in identifying and resolving difficult patient care-related situations. While the narrative story was the focus of the analysis in this targeted report, the additional qualitative and quantitative data from PSRT submissions can be analyzed further to help demonstrate the need to provide pharmacist-provided health and wellness services in more outpatient settings.

Limitations and Future Work

The pilot of the PSRT did have limitations within this project. The tool was distributed to a small number of pharmacists within a single regional chain pharmacy and should be implemented with a larger number of pharmacists to evaluate the impacts at several other practice sites. In addition, the tool itself was not externally validated and only reviewed. Another important consideration is that the PSRT submission was by pharmacists from their perspective as the provider of care, meaning specific feedback from the patients who received care was not incorporated directly into the process.

Future work in this area could be to implement this project on a larger scale, including within the entirety of a pharmacy chain or throughout a network of pharmacies such as via CPESN.³² This standardized mechanism of collecting impactful narrative stories may also be beneficial when national or state changes to pharmacy practice are implemented to put a “human face” on the interactions those changes facilitate especially in more rural areas of the United States, with recent examples such as Test and Treat or oral contraceptive prescribing.²⁸

The authors would stress that this use of the PSRT should remain voluntary to keep the spirit of the tool alive in ensuring only the high quality, impactful stories that demonstrate positive highlights are submitted rather than quotas of

additional forced documentation. Further development of systematic ways to both submit and review results could also be implemented to ensure the most impactful stories are collected, analyzed, and shared. In the future, a cost-effective technology-based analysis could capture qualitative data highlights to help with effective dissemination of this information. Further development of systematic ways to leverage technology-based solutions both for submissions and initial analysis should also be explored to generalize implementation of the PSRT in a variety of settings. Robust qualitative analysis methods, such as thematic analysis, on submitted stories would also facilitate development of more impactful takeaways and lessons learned from these stories.

Future work could also gather the patient’s perspective on how the pharmacist was able to impact their health outcomes. This could address the potential bias in the pharmacists’ perception of patient or prescriber satisfaction. It could also show areas where pharmacists could improve or where more opportunities exist for pharmacists to impact patient health outcomes. Additionally, with a larger dataset, performing descriptive statistics on categorical data could also provide useful findings. The project team encourages adoption, adaptation, or use of the PSRT as a framework to guide similar work to share stories of pharmacist-patient interactions and interventions that may not otherwise be captured in traditional patient encounter documentation. Questions included in the PSRT form are included in Appendix 1 and the processes utilized are outlined in Methods for ease of duplication and adjustment to be generalizable to the unique needs of other pharmacy organizations.

Conclusion

Overall, the Patient Stories Reporting Tool is a powerful resource to give pharmacists the opportunity to share the nuanced qualitative details of the important work they do in a unique narrative format with standardized collection that provides a wealth of information for review. The potential applications of the tool and the information it collects are multivarious and, with appropriate engagement, it can support improvements in access to care for patients to receive robust pharmacist-provided services.

Funding: This project was completed in collaboration with the South Dakota Department of Health, supported by the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services under grant # 1 NU58DP006526-01-11. The contents are those of the author(s) and do not necessarily represent the views of CDC or the U.S. Government.

Acknowledgements: Participating Lewis Drug pharmacists, the Community Practice Innovation Center team including faculty, support staff, and students, and Jacob Ford.

Disclaimer: The statements, opinions, and data contained in all publications are those of the authors.

References

- Boersma P, Black LI, Ward BW. Prevalence of multiple chronic conditions among US adults, 2018. *Prev Chronic Dis.* 2020;17:E106. doi:10.5888/pcd17.200130.
- About Chronic Diseases. National Center for Chronic Disease Prevention and Health Promotion. Centers for Disease Control and Prevention. May 15, 2024. Accessed July 19, 2024. <https://www.cdc.gov/chronic-disease/about>
- Raghupathi W, Raghupathi V. An empirical study of chronic diseases in the United States: A visual analytics approach. *Int J Environ Res Public Health.* 2018;15(3):431. doi:10.3390/ijerph15030431
- Lee JK, McCutcheon LRM, Fazel MT, Cooley JH, Slack MK. Assessment of interprofessional collaborative practices and outcomes in adults with diabetes and hypertension in primary care: A systematic review and meta-analysis [published correction appears in *JAMA Netw Open*]. 2021 Apr 1;4(4):e219114. doi: 10.1001/jamanetworkopen.2021.9114]. *JAMA Netw Open.* 2021;4(2):e2036725. doi:10.1001/jamanetworkopen.2020.36725
- Adekunle OA, Olson AW, Schommer JC, Brown LM. Investigation of predictors influencing patient-pharmacist relationship establishment. *J Am Pharm Assoc (2003).* 2023;63(3):853-862. doi:10.1016/j.japh.2022.12.024
- Naughton CA. Patient-centered communication. *Pharmacy (Basel).* 2018;6(1):18. doi:10.3390/pharmacy6010018
- Norton MC, Haftman ME, Buzzard LN. Impact of physician-pharmacist collaboration on diabetes outcomes and health care use. *J Am Board Fam Med.* 2020;33(5):745-753. doi:10.3122/jabfm.2020.05.200044
- Patti M, Colmenares EW, Abrahamson A, et al. Impact of pharmacist participation in the patient care team on value-based health measures. *Am J Health Syst Pharm.* 2022;79(19):1645-1651. doi:10.1093/ajhp/zxac175
- Ross LA, Bloodworth LS, Brown MA, et al. The Mississippi Delta Health Collaborative Medication Therapy Management Model: public health and pharmacy working together to improve population health in the Mississippi delta. *Prev Chronic Dis.* 2020;17:E108. doi:10.5888/pcd17.200063
- Berenbrok LA, Tang S, Gabriel N, et al. Access to community pharmacies: A nationwide geographic information systems cross-sectional analysis. *J Am Pharm Assoc (2003).* 2022;62(6):1816-1822.e2. doi:10.1016/j.japh.2022.07.003
- Pestka DL, Paterson NL, Brummel AR, Norman JA, White KM. Barriers and facilitators to implementing pharmacist-provided comprehensive medication management in primary care transformation. *Am J Health Syst Pharm.* 2022;79(15):1255-1265. doi:10.1093/ajhp/zxac104
- Ourth H, Shawn MM, Yost AP. Comprehensive medication management research gap areas: A call to action for clinical pharmacy researchers. *J Am Coll Clin Pharm.* 2021;4(10):1260-1262. doi: 10.1002/jac5.1476
- Snyder ME, Jaynes HA, Gernant SA, et al. Factors associated with comprehensive medication review completion rates: A national survey of community pharmacists. *Res Social Adm Pharm.* 2020;16(5):673-680. doi:10.1016/j.sapharm.2019.08.008
- Gobis B, Yu A, Reardon J, Nystrom M, Grindrod K, McCarthy L. Prioritizing intraprofessional collaboration for optimal patient care: A call to action. *Can Pharm J (Ott).* 2018;151(3):170-175. Doi:10.1177/1715163518765879
- Snyder ME, Adeoye-Olatunde OA, Gernant SA, et al. A user-centered evaluation of medication therapy management alerts for community pharmacists: Recommendations to improve usability and usefulness. *Res Social Adm Pharm.* 2021;17(8):1433-1443. doi:10.1016/j.sapharm.2020.10.015
- Hohmeier KC, Wheeler JS, Turner K, et al. Targeting adaptability to improve Medication Therapy Management (MTM) implementation in community pharmacy. *Implement Sci.* 2019;14(1):99. doi:10.1186/s13012-019-0946-7
- Chaudhri K, Caleres G, Saunders S, et al. Does Collaboration between general practitioners and pharmacists improve risk factors for cardiovascular disease and diabetes? A systematic review and meta-analysis. *Glob Heart.* 2023;18(1):7. doi:10.5334/gh.1184
- Mercer K, Neiterman E, Guirguis L, Burns C, Grindrod K. "My pharmacist": Creating and maintaining relationship between physicians and pharmacists in primary care settings. *Res Social Adm Pharm.* 2020;16(1):102-107. doi:10.1016/j.sapharm.2019.03.144
- Bush AA, Amechi M, Persky A. An exploration of pharmacy education researchers' perceptions and

- experiences conducting qualitative research. *Am J Pharm Educ.* 2020;84(3):ajpe7129. doi:10.5688/ajpe7129
20. Robinson R, Liday C, Burde A, et al. Practice transformation driven through academic partnerships. *Pharmacy (Basel).* 2020;8(3):120. doi:10.3390/pharmacy8030120
21. Rivera J, Shcherbakova N, Vala C, Capoccia K. Community pharmacists' interventions and documentation during medication therapy management encounters delivered face-to-face versus via telephone: The devil is in the details. *Res Social Adm Pharm.* 2020;16(10):1447-1451. doi:10.1016/j.sapharm.2019.12.020
22. Presley B, Groot W, Pavlova M. Pharmacy-led interventions to improve medication adherence among adults with diabetes: A systematic review and meta-analysis. *Res Social Adm Pharm.* 2019;15(9):1057-1067. doi:10.1016/j.sapharm.2018.09.021
23. Smith M, Vuernick E, Anderson D, Mulrooney M, Harel O, Allotey P. Pharmacist eConsult service for primary care medication optimization and safety. *J Am Pharm Assoc (2003).* 2021;61(3):351-359. doi:10.1016/j.japh.2021.01.006
24. Prudencio J, Cajudoy P, Waddell D. Optimization of medication regimens in patients with type 2 diabetes and clinical atherosclerotic cardiovascular disease. *Pharmacy (Basel).* 2021;9(4):186. doi:10.3390/pharmacy9040186
25. Watanabe JH. Pharmacist-directed care to optimize medication use: a healthcare imperative in the United States. *Expert Rev Pharmacoecon Outcomes Res.* 2020;20(5):419-421. doi:10.1080/14737167.2020.1820865
26. Lankford C, Dura J, Tran A, et al. Effect of clinical pharmacist interventions on cost in an integrated health system specialty pharmacy. *J Manag Care Spec Pharm.* 2021;27(3):379-384. doi:10.18553/jmcp.2021.27.3.379
27. Ilardo ML, Speciale A. The Community Pharmacist: Perceived Barriers and Patient-Centered Care Communication. *Int J Environ Res Public Health.* 2020;17(2):536. doi:10.3390/ijerph17020536
28. Ashcraft AM, Ponte CD, Farjo S, Dotson S, Murray PJ. The [underutilized] power of independent pharmacies to promote public health in rural communities: A call to action. *J Am Pharm Assoc (2003).* 2022;62(1):38-41. doi:10.1016/j.japh.2021.09.002.
29. Lage MJ, Boye KS. The relationship between HbA1c reduction and healthcare costs among patients with type 2 diabetes: evidence from a U.S. claims database. *Curr Med Res Opin.* 2020;36(9):1441-1447. doi:10.1080/03007995.2020.1787971
30. Smith ML, Zhong L, Lee S, Towne SD Jr, Ory MG. Effectiveness and economic impact of a diabetes education program among adults with type 2 diabetes in South Texas. *BMC Public Health.* 2021;21(1):1646. doi:10.1186/s12889-021-11632-9
31. Garjani A, Rahbar M, Ghafourian T, et al. Relationship of pharmacist interaction with patient knowledge of dispensed drugs and patient satisfaction. *East Mediterr Health J.* 2009;15(4):934-943.
32. CPESN USA. About CPESN USA. *CPESN.* Accessed Feb 26, 2024. <https://cpesn.com/index.php/about-cpesn-usa>
33. Flip the Pharmacy. About: What is Flip the Pharmacy? *Flip the Pharmacy.* Accessed Feb 12, 2024. <https://www.flipthepharmacy.com/about>

Table 1. Summary of Key Stories

Number	Intervention Type	Story Quotation
Story 1	General Patient Education <i>7 stories reported aligned with this intervention type.</i>	"This patient has been struggling mostly with her diabetes for several years. She wanted to have bariatric surgery but was told she couldn't have surgery until her A1c was under control. She had been to the emergency room and admitted to the hospital on multiple occasions for high blood sugars, but still couldn't get her diabetes controlled. I worked with her endocrinologist, and we started her on a continuous glucose monitor. I also spent an entire appointment talking about diet. Before this appointment, she didn't understand what a carbohydrate was and how it affected her blood sugars. After working with her for several months, her A1c has gone from 12.8% to 8.1% and she now qualifies for bariatric surgery. She is very excited about the progress she has made and is very motivated to continue working on her health."
Story 2	Medication Optimization <i>20 stories reported aligned with this intervention type.</i>	"The patient had presented to the clinic with an A1c of 13.8% (previously was 14.6% in October of 2020). I provided a recommendation to the doctor to place the patient on empagliflozin/metformin ER 25-1000 mg with directions of "1 tablet by mouth daily" I provided education on diet and lifestyle modifications. I also educated the patient on how to use a glucometer. I had set him up to share his blood sugars with the clinic using a new blood glucose meter with advanced data tracking capabilities. I provided him with a copay card for empagliflozin/metformin which brought this copay down to \$10 for a 3-month supply. I followed up periodically with him until his next appointment 3 months later. At his three-month appointment his A1c was 10.3%. I provided the doctor with another recommendation of increasing the patient's empagliflozin/metformin to 25-2000 mg daily and starting semaglutide 3 mg by mouth daily for 1 month then 7 mg by mouth daily. I provided medication education and assisted the patient with a copay card which brought copay down to \$10 a month. I followed up with the patient again until his next 3-month appointment. The patient's A1c came back on 09/25/21 at 6.8% (A1c reduction over 6 months of 7%!)"
Story 3	Cost Reduction <i>20 stories reported aligned with this intervention type.</i>	"A dad presented 5 min before closing time for an antibiotic just prescribed for his 1-year-old. We processed the prescription for amoxicillin/clavulanate 250mg/62.5mg/5mL suspension and found the copay was going to be \$168. After a discussion with the dad, he was willing to pay for this, but I explained that with a phone call to the doctor, we could definitely find something cheaper. By this time, the clinic was closed, but we were able get ahold of the provider by going through the hospital nurse's station. The provider gave us the okay to convert to different strength of amoxicillin/clavulanate with a co-pay of \$11. By taking the time to do our due diligence for the patient, we were able to save them over \$150 and still provide quality care for the child."

Appendix 1 – Pharmacist Intervention Patient Stories Tool (PSRT)

To highlight impactful pharmacist interventions, please complete the following form as thoroughly as possible, note that only * items are required. Use the "Describe the Intervention" section to give as much detail as possible, we may reach out to you for further info if needed.

1. Your Name*

2. Store Number*

3. Any other staff involved

4. Category of Clinical Impact*

Check all that apply:

Drug Interaction/Safety

Formulary/Cost Effective Alternative/Therapeutic Interchange

Lab Value/Disease State Improvement

Medication Therapy Management/Other Clinical Program

Patient Education

Prescriber Discussion

SmartPack/SmartSync/Adherence

Social Determinants of Health

Other: _____

5. Primary disease state(s) involved

Check all that apply:

Anticoagulation

Asthma/COPD

Behavioral Health (Depression, Anxiety, Mood Disorders)

Cardiology (post-MI, AF, CHF)

Dermatology

Diabetes

Dyslipidemia

- GI (GERD, PUD, NVDC {Nausea, Vomiting, Diarrhea, Constipation}, IBD)
- Gout
- Hypertension
- Immunization or Infectious Disease (Bacterial, Fungal, Viral)
- Neurological (Parkinson's, Alzheimer's, Seizures, RLS)
- Oncology
- Pain
- Smoking Cessation
- Other: _____

6. Describe the Intervention*

(Give as much detail as possible; describe how you identified the problem, what you did to resolve it, what outcomes the patient experienced, their perceptions, what follow-up was required, etc.)

7. Time Spent on the Intervention (in minutes)

Mark only one:

- Less than 5
- 5-10
- 10-20
- 20-30
- 30-40
- 40-50
- 50-60
- 60+

8. Would the same outcome have occurred/would patient have experienced the same level of care if pharmacist wasn't involved?*

Mark only one:

- Yes
- No

Unsure

9. How satisfied was the other party involved (patient/prescriber)?
(1 = not satisfied/indifferent; 5 = highly satisfied)

Mark only one:

1

2

3

4

5

10. Do you think that the patient would like to share their experience?

Mark only one:

Yes (IF Yes: Please ask patient to submit an anonymous summary of their experience using our separate pharmacy feedback survey link)

No