



RxFill: An Innovative Approach to Support Medication Adherence

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University of Wisconsin-Madison

NCPDP Integration:
WG11 | ePrescribing and Related Transactions
- SCRIPT Implementation Recommendations TG

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BACKGROUND AND NEED FOR INCREASED RxFILL IMPLEMENTATION



MEDICATION NON-ADHERENCE

- Over 129 million adults in the United States live with at least 1 chronic condition.¹
- 50% of these patients do not take their medications as prescribed.^{2, 3}
- Associated with poorer health outcomes, increased risk of hospitalization and death.³⁻⁵



CURRENT NON-ADHERENCE IDENTIFICATION METHODS

- Asking the patient is problematic because patients often overestimate their medication adherence, sometimes as much as 200%.^{2,3,24,25}
- Prescription refill data is limited due to the inability to indicate if the medication is being taken correctly.^{2,3,5,27}
- Prescription refill data is not often available in the EHR.



HEALTHCARE PROVIDERS CAN HAVE A POSITIVE IMPACT

- Prescribers can address non-adherence and promote correct medication use by developing trusting patient-prescriber relationships, engaging patients and caregivers, and prescribing affordable medications with easy-to-follow directions.^{2,3}
- Integrating pharmacists into primary care practices has demonstrated improved patient adherence and quality outcomes.¹⁶⁻¹⁹

GRANT GOALS

To demonstrate the value of RxFill and support its adoption by health systems, clinics, prescribers, and community pharmacies. The University of Wisconsin-Madison, funded by the NCPDP Foundation, conducted research to fulfill the grant goal. This research was based around 3 aims:

- Aim 1:** Examine how primary care prescribers use RxFill during simulated cases, identifying how prescribers integrate RxFill into clinical workflow and perceptions of RxFill usability and design.
- Aim 2:** Describe and compare how primary care prescribers and ambulatory care pharmacists use RxFill in clinical practice, 6 months after health system wide implementation.
- Aim 3:** Identify implementation best practices that maximize effectiveness (i.e., promoting patient outcomes) while minimizing prescriber burden.

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SIGNIFICANT THEMES IN FINDINGS

Aim 1

Examine how primary care prescribers use RxFill during simulated cases, identifying how prescribers integrate RxFill into clinical workflow and perceptions of RxFill usability and design.

Usefulness of RxFill Dispense Dates

While zero (0) participants were aware of RxFill prior to participation, a majority reported that the dispense dates within RxFill were useful. Dispense dates were reported as particularly useful for:

- Complex patients
- Specific disease states such as:
 - o Diabetes
 - o High cholesterol
- Comparison with other patient data such as:
 - o Vitals
 - o Lab results
 - o Therapy outcomes

Participants reported that RxFill would be helpful in practice; for the prescribers to gather adherence information and for staff in the event of a problem with the prescription at the pharmacy.

Intentions to Use RxFill in Practice

Most participants indicated that they could see themselves using RxFill and the dispense data in “some” capacity.

Participants reported RxFill data could be a resource when triggered by another source as an out-of-range vital, lab, or patient report.

Though RxFill was found to be useful and helpful in engaging patients, the limited inflow of data from community pharmacists and location of RxFill in the system led to a finding that RxFill was not likely to be used in practice.

Aim 2

Describe and compare how primary care prescribers and ambulatory care pharmacists use RxFill in clinical practice, 6 months after health system wide implementation.

Engaging Patients in Conversations Around Medication Adherence

Several participants utilized RxFill data prior to a patient encounter for the purpose of prioritizing topics to discuss with the patient.

Participants also referred to RxFill data during the patient encounter, especially when discordance occurred.

Comparing Prescriber and Pharmacist Use of RxFill

In general, during this study pharmacists utilized RxFill and adherence information in their patient encounters more often than the prescriber participants.

Prescribers are less likely to use RxFill, or any other adherence metric, in practice due to their prioritization of patient outcomes.

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RECOMMENDATIONS BASED ON SIGNIFICANT FINDINGS

Aim 3

Identify implementation best practices that maximize effectiveness (i.e., promoting patient outcomes) while minimizing prescriber burden.

RxFill is Helpful to Address in Real-Time During Patient Encounters

In considering best practices, RxFill may be most useful when in the room with the patient as a way to quickly and objectively assess medication adherence in real-time.

Prescribers should utilize RxFill as another source of information when patient outcomes or reports do not align with medication therapy.

RxFill Needs to be Easy and Intuitive to Access and Use

Organizations choosing to implement RxFill should consider an intuitive approach to the design that does not take additional time beyond current practices.

Organizations should utilize end-user input to determine how prescribers currently access medication information to tailor RxFill to best suit their prescribers' needs.

RxFill Use is Limited by Community Pharmacy Adoption

A major limitation to RxFill's actual use was the lack of adoption by community pharmacies. It is recommended that community pharmacies support sending RxFill data and transactions.

For RxFill adoption and implementation in community pharmacies, it must be adopted by healthcare systems, organizations, and prescribers.

RESEARCH CONCLUSIONS

This research demonstrated the value of RxFill: providing the right information to the right person at the right time. RxFill provides the "right information" by communicating accurate dispensing and medication fill information that can be utilized to inform patient adherence calculations, clinical decisions, and conversations with patients. RxFill provided this information to the "right person" by sharing information from the patient's pharmacy to providers. Finally, RxFill provided this information at the "right time"—within the EHR at the time of encounter before and during the appointment.

INTEGRATION WITHIN NCPDP

WG11

ePrescribing and Related Transactions

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Guidance on implementation of the RxFill transaction to improve medication adherence and get the right results.

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REFERENCES

1. Boersma P, Black LI, Ward BW. Prevalence of Multiple Chronic Conditions Among US Adults, 2018. *Prev Chronic Dis*. 2020;17:E106.
2. Brown MT, Bussell JK. Medication adherence: WHO cares? *Mayo Clin Proc*. 2011;86(4):304-314.
3. Brown MT, Bussell J, Dutta S, Davis K, Strong S, Mathew S. Medication Adherence: Truth and Consequences. *Am J Med Sci*. 2016;351(4):387-399.
4. Osterberg L, Blaschke T. Adherence to medication. *N Engl J Med*. 2005;353(5):487-497.
5. Heidenreich PA. Patient adherence: the next frontier in quality improvement. *Am J Med*. 2004;117(2):130-132.
16. Moore GD, Burns AL, Fish H, et al. The Report of the 2019-2020 Professional Affairs Standing Committee: Pharmacist Integration with Primary Care Practices. *Am J Pharm Educ*. 2020;84(10):ajpe8199.
17. Al-Omar LT, Anderson SL, Cizmic AD, Vlasimsky TB. Implementation of a Pharmacist-Led Diabetes Management Protocol. *Am Health Drug Benefits*. 2019;12(1):14-20.
18. Snyder ME, Earl TR, Gilchrist S, et al. Collaborative drug therapy management: case studies of three community-based models of care. *Prev Chronic Dis*. 2015;12:E39.
19. Epplen K, Dusing-Wiest M, Freedlund J, Harger N, Kathman S, Ivey MF. Stepwise approach to implementing ambulatory clinical pharmacy services. *Am J Health Syst Pharm*. 2007;64(9):945-951.
24. Hebel S, Kahn-Woods E, Malone-Thomas S, et al. Brief Report: Discrepancies Between Self-Reported Adherence and a Biomarker of Adherence in Real-World Settings. *J Acquir Immune Defic Syndr*. 2020;85(4):454-457.
25. Krueger KP, Berger BA, Felkey B. Medication adherence and persistence: a comprehensive review. *Adv Ther*. 2005;22(4):313-356.
27. Prieto-Merino D, Mulick A, Armstrong C, et al. Estimating proportion of days covered (PDC) using real-world online medicine suppliers' datasets. *J Pharm Policy Pract*. 2021;14(1):113.