Outcomes of Health Plan-Initiated Text-Based Medication Refill Reminders in Medicare Patients

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Background

- Medication adherence is a critical aspect of healthcare and is an ongoing issue that fails to meet measures for optimal therapeutic benefits.¹
- The World Health Organization (WHO) estimates the medication adherence value of chronic medications in developed countries around 50%.²
- With the technology we have today, electronic modes of intervention are rapidly becoming a promising method of increasing medication adherence.
- Studies have shown that indirect methods of intervention have similar efficacy to direct, in-person models.³
- Strong correlations have been particularly demonstrated between mobile phone interventions and increased medication adherence and health outcomes.⁴⁻⁷

Objective

• Analyze claims data and determine whether plan-initiated text message refill reminders increase prescription refill rates of chronic medications among Medicare patients.

Methods

- Historical cohort study that analyzed claims data from October 23, 2018 to April 23, 2019 for a total study period of six months.
- The study population was selected from a cohort of members enrolled under Magellan Health's Medicare Prescription D Plan (PDP).
- The data was pulled and collected on site at the Magellan Health Inc. office in Salt Lake City, Utah on May 1, 2019.
- Three study arms:
- o Patients who got at least 1 successful text message.
- o Patients who opted out initially after receiving welcome message.
- o Patients who never got a medication refill text message.
- The primary outcome of this study was medication refill rates.
- The secondary outcomes were PDC and proportion of patients with PDC values ≥ 80%.
- The study will be based on an intention-to-treat analysis with a study significance level of ≤ 0.05.
- The ANOVA test will be used to detect statistical significance (≤ 0.05), and the multivariable linear regression analysis will be performed for robustness.

Medicare patients actively engaged in a program for text-based medication refill reminders see an increase in medication adherence.

Table 1.

	≥ 1 text message (N = 5,287)	Opted out (N = 1,098)	No text message (N = 28,707)
Demographics			
Mean age (years)	66	66	68
Female (%)	58%	61%	59%
LISª (%)	61%	60%	81%
Geography No., (%)			
New York	1,638 (31%)	350 (32%)	14,111 (49%)
Virginia	1,955 (37%)	389 (35%)	8,738 (30%)
East ^b	1,086 (21%)	204 (19%)	3,267 (11%)
Arizona	608 (11%)	155 (14%)	2,591 (9%)
Mean refill rate (days)			
Hyperlipidemia	-0.1	-0.14	0.19
Type 2 diabetes	-0.06	-0.25	0.21
Hypertension	-0.03	-0.08	0.2
Mean PDCc (%)			
Hyperlipidemia	87%	87%	85%
Type 2 diabetes	88%	90%	87%
Hypertension	88%	88%	85%
Proportion > 80% PDC (%	6)		
Hyperlipidemia	78%	78%	74%
Type 2 diabetes	78%	83%	77%
Hypertension	79%	81%	74%

^aLIS= Low Income Subsidy; ^bEast= Delaware, District of Columbia, and Maryland; ^cPDC= Proportion of days covered

Inclusion Criteria

- Active member of Magellan's Medicare Prescription Drug Plan (PDP).
- Use of at least one drug that is included in the following list:
 - o Diabetes (oral medications only): metformin, thiazolidinediones, sulfonylureas, SGLT-2 inhibitors, DPP4 inhibitors
- o Hypertension: RAS-antagonists (ACE-Is and ARBs), thiazide diuretics, calcium channel blockers, beta blockers
- Hyperlipidemia: HMG-CoA inhibitors and ezetimibe
- Ownership and possession of a mobile cell phone.
- Ability to receive and reply to SMS text messages in English.

Discussion/Conclusion

- Study was sufficiently powered with large sample size.
- Study population was predominantly placed in the east coast.
- Crude data shows the cohort of patients who opted out of the program to have slightly higher refill rates and PDC values than the cohort who received ≥ 1 text message and the cohort who did not receive any text messages.
- The cohort who did not receive any medication refill reminder text messages had the lowest refill rates and PDC values.
- Patients who actively refused the refill reminder assistance program seems to be more adherent to their medications.
- We have yet to run the ANOVA analysis to test for statistical significance, and the multivariable linear regression analysis to test for robustness.
- Statistical significance of this study would help confirm the utility of electronic interventions in addressing medication nonadherence.
- It will also further develop electronic methods of patient intervention that health plans and pharmacy benefit managers (PBMs) can utilize to better optimize the medication adherence of their members without relying on outpatient pharmacies.
- The significant increase in the medication adherence of members may ultimately decrease the costs of health care for patients and decrease costs for health plans and PBMs.
- Additional studies are needed on the west coast and mid west populations, and people under the age
 of 65 for improved generalizability.

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