

# Impact of the 2016 Missed Refill Intervention Program on Medication Refill Rate and 2016 CMS Star Adherence for Medicare Populations

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## Background

- Adherence to medication can improve health outcomes and reduce health care costs.<sup>1</sup>
- Medication adherence is part of the Centers for Medicare and Medicaid Services (CMS) Star Rating quality measurement. The CMS Adherence Star metrics within the overall Star measure include three drug categories (cholesterol, diabetes and hypertension). Medicare insurers strive to increase adherence use within their Medicare population to improve their plan's Star Ratings.<sup>2,3</sup>
- The Prime Therapeutics Missed Refill Intervention Program is a Medicare member outreach designed to decrease members' drug supply gaps and increase overall adherence among CMS Star drug categories. The intervention encourages members with a gap in their drug supply to refill their cholesterol, diabetes and hypertension medication through a two-touch outreach.
- Little is known of the impact that plan sponsors' programs have on adherence.

## Objective

- To assess the impact of the GuidedHealth® 2016 Missed Refill Intervention Program on:
  - Post-intervention medication claim percentage (i.e., refill) and rate (refills per day);
  - Individual adherence improvement as measured by average proportion of days covered (PDC); and
  - 2016 CMS Star adherence ratings improvement (proportion adherent [i.e., PDC greater than or equal to 80%]) for cholesterol, diabetes and hypertension medications.

## Methods

- The Missed Refill Intervention Program ran weekly from Jan. 1, 2016 to Dec. 26, 2016 (51 weeks). Members were identified who: (Figure 1)
  - had at least a 7-day gap in medication supply in the Star drug categories users;
  - had at least two claims within the Star drug category, and
  - had a PDC of 25%–85% within the Star drug category during the prior 365 days.
- The drug supply gap identification was run for all Medicare contracts whether the contract implemented the Missed Refill Intervention Program or not; creating a concurrent control group.
- For those who received the missed refill intervention, an Interactive Voice Response (IVR) call was made three to five days after identification. If members did not have a medication claim within 10 days of identification, a member letter was sent 13 to 15 days after identification.
- We used administrative pharmacy claims and membership eligibility data for member opportunities in the Prime Therapeutics database.
- A total of 489,900 Medicare members whose plans were part of the Missed Refill Intervention Program throughout 2016 were compared to 578,776 Medicare members whose plans were not included in the Missed Refill Intervention Program.
- Analysis criteria for the average PDC improvement and CMS Star adherence metrics were:
  - continuous enrollment in 2016
  - contract restrictions (described below), and
  - gap in therapy on or before Nov. 14, 2016.
- PDC and CMS Star adherence analysis was limited to contracts included in the intervention for the entire year. Specific control contracts were excluded because of their participation in an external PDC program.

### Outcomes measurement

- A post-identification refill was defined as a drug claim within 70 days after identification.
- Each member's PDC and Star adherence percentages were calculated at 1) adherence gap identification (baseline, 365-day lookback) and 2) final year-end 2016 PDC.
  - PDC was calculated using 2016 CMS criteria that requires members have at least two claims with the same drug category (cholesterol, hypertension and diabetes) within the year.<sup>3,4,5</sup>
  - Star adherence percentage was also calculated for a 365-day period for cholesterol, diabetes and hypertension medication. Members who had a PDC greater than or equal to 80% were considered adherent, (yes/no, PDC greater than or equal to 80%).

### Statistical analysis

- SAS 9.4 (SAS Institute Inc., Cary, NC) was used for all analyses.
- A p-value of less than 0.05 was considered statistically significant for all analyses.
- All models were adjusted for gender, age, plan type, 30- or 90-day supply refill, baseline PDC, percentage of whites in ZIP Code, median ZIP Code household income, percentage of high school degree in ZIP Code and quarter of earliest identification.

### Refill rate & refill percentage, opportunity-level analysis (Comparison A)

- We compared the unadjusted overall refill percentages with a chi-square test and graphical comparisons of time to fill (Figure 2). The Missed Refill Intervention Program's impact on refill rate was assessed using an adjusted Cox proportional hazards regression model with hazard ratios (HR).

### Difference-in-difference, member-level analysis (Comparison B)

- A difference-in-difference statistical analysis was conducted.<sup>6</sup> We assessed the PDC change from the members who were identified for the Missed Refill Intervention Program compared to controls, using both the member's 365-day PDC at adherence gap identification (baseline) and final 2016 PDC. The intervention group's PDC difference was then compared to the control's PDC difference.
- We fit adjusted generalized linear models to estimate the difference in PDC and the difference in percentage adherence.
- A sub-analysis was also conducted that examined the association between intervention and adherence by the member's quarter of identification.

## Results

### Study population

- Among the 489,900 average monthly members in the Medicare contracts that participated in the Missed Refill Intervention Program, 95,690 (20%) of members (N=183,787 opportunities) were identified for a missed refill intervention. Note: a member could have more than one opportunity due to being identified in more than one adherence category.
  - 82,655 members of the 95,690 (86%) received an intervention.
- Among the 578,776 average monthly members whose contracts did not participate in the Missed Refill Intervention Program, 125,535 (22%) of members (N=244,781 opportunities) were identified with a gap in drug supply.
- There were 51 Medicare contracts, 24 of which participated in the Missed Refill Intervention Program and 27 that did not. 18 of the 24 implemented the Missed Refill Intervention Program throughout the entire year and comprise our intervention group for the PDC and adherence analysis.
- Of the 18 contracts, 14 were Medicare Advantage (MAPD) and four contracts that were from Part D-only Plans (PDP) and among the 27 control contracts, 13 were MAPD and 14 were from PDP.

### Comparison A: Overall identification population

- The overall refill percentage across all three drug categories was significantly higher in the intervention group compared to the controls (73.8% vs 72.3%; p<0.05). The individual categories showed similar patterns (data not shown).
- Frequency of refills spiked higher in the first week after identification corresponding with the call intervention and a smaller spike was seen in the fourth week corresponding with the letter intervention compared to controls (Figure 2).
- The intervention group had an adjusted statistically significant 8% higher refill rate compared to controls (Hazard ratio: 1.08 [95% confidence interval (CI): 1.06–1.11]).

### Comparison B: PDC analysis population

- 40,223 members in the intervention group and 41,325 members in the control group met PDC and adherence analysis criteria. This translated into 48,015 opportunities in the intervention group and 49,151 opportunities in the control group.
- Among the 40,223 members in the intervention identification group for our final PDC analytic sample, 35,529 (88.3%) of members received either a call or mailing.

### Generalized linear models—adjusted model (Table 1)

#### PDC

- A statistically significant, adjusted 0.5% point (95% CI: 0.2% to 0.9%) increase in PDC was found in members identified whose contracts implemented the Missed Refill Intervention Program compared to controls, adjusting for covariates.

- When examining individual drug categories, cholesterol revealed a statistically significant 0.5% (95% CI: 0.1% to 1.0%) increase in PDC compared the control group.

- Hypertension was approaching significance, p=0.07, 0.5% (95% CI: -0.1% to 1.1%).

- Diabetes was not statistically significant.

#### Percentage adherent

- We found an adjusted statistically significant, 0.9% (95% CI: 0.0% to 1.8%) increase in percentage adherent for all the Star drug categories adjusting for covariates.

- Cholesterol revealed a statistically significant 1.4% (95% CI: 0.1% to 2.6%) increase in adherence compared the control group.

- Diabetes and hypertension drug categories did not have a statistically significant improvement.

### Quarterly identification analysis and other findings

- Members identified in quarter 1 (January through March) had a statistically significant 2.4% higher average PDC compared to members identified in the fourth quarter. This was higher than any other subsequent quarter.

- Quarter 4 (October through December) identification did not show impact in percentage adherent, difference in difference, (-0.3%, p=0.87).

- Quarter 1–3 (January through September) identification was associated with improved adherence as analyzed by the difference-in-difference method, (1.1%, p<0.01).

- Members that had a 90-day supply refill claim after missed refill identification showed a 20% (95% CI: 19.7%, 20.3%) higher average PDC improvement compared to members that did not have a 90-day refill claim.

Figure 1. Example of 2016 Missed Refill Identification and Intervention Timeline

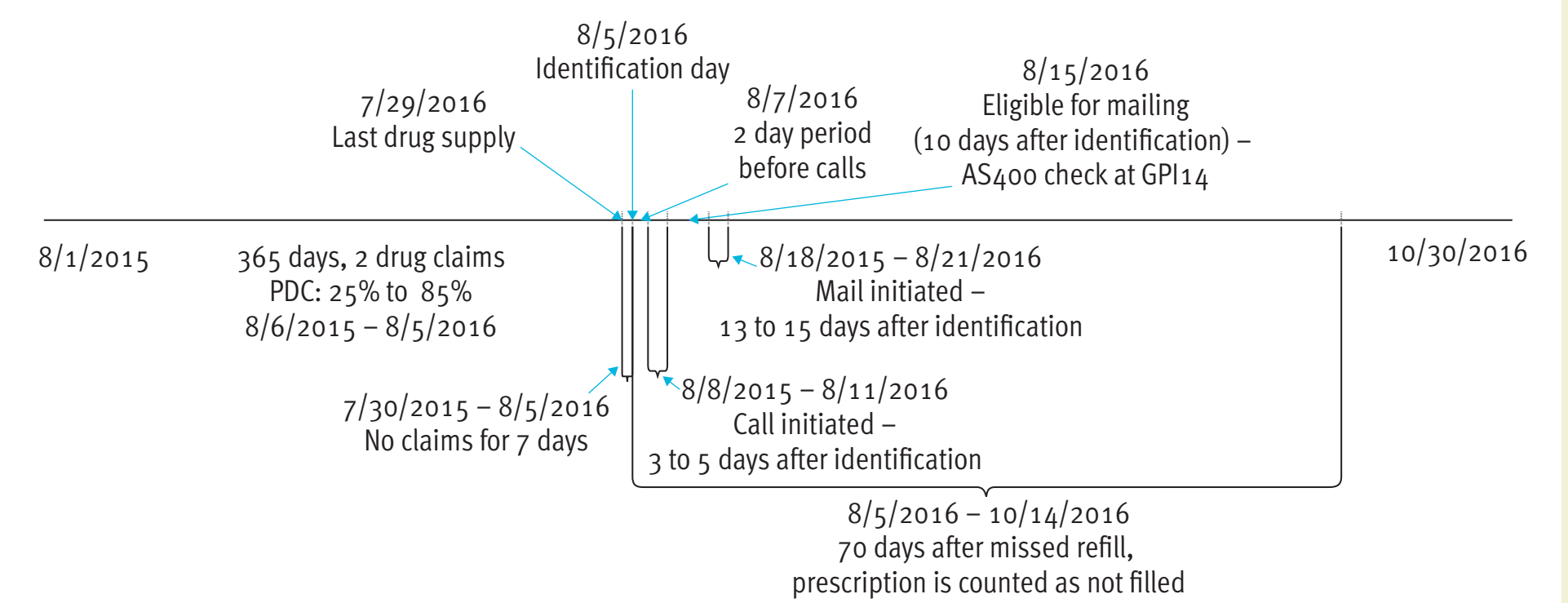


Figure 2. Difference in Refill Rate by Week after Identification for the Missed Refill Intervention Program Compared to Controls, 2016

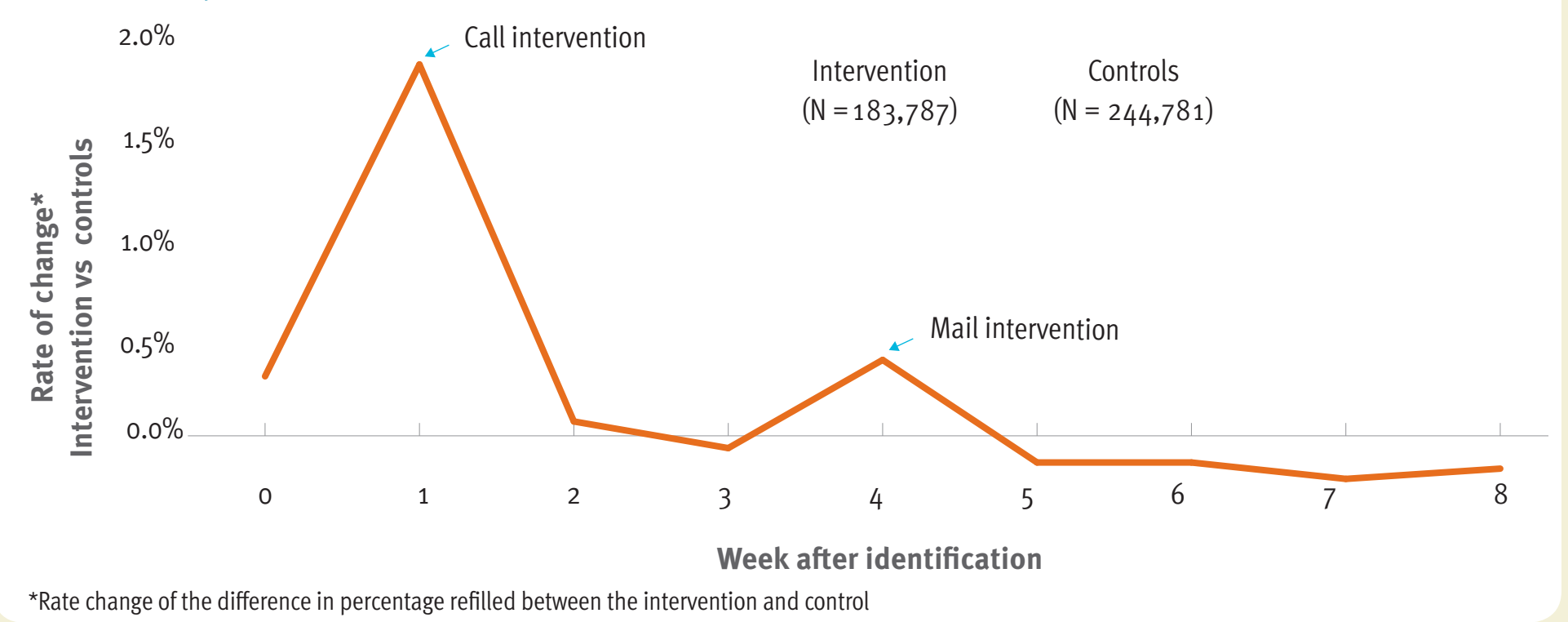


Table 1. Adjusted 2016 Missed Refill Percentage Point Change Estimates for PDC from Baseline to End of 2016, Intervention Versus Control: All Drug Categories, Generalized Linear Model, Overall

All drug categories		Unadjusted model % (95% CI) N = 97,166	Adjusted model % (95% CI) N = 94,926	Adjusted model % (95% CI) N = 94,926
Intervention	Intervention group	0.7 (0.4, 0.9)*	0.5 (0.2, 0.9)*	0.5 (0.2, 0.8)*
	Comparison group	(ref)	(ref)	(ref)
Quarterly identification	Q1	–	4.5 (4.1, 4.9)*	2.4 (2.0, 2.8)*
	Q2	–	0.8 (0.4, 1.2)*	-0.4 (-0.8, 0.0)
	Q3	–	1.1 (0.7, 1.6)*	0.8 (0.3, 1.2)*
	Q4	–	(ref)	(ref)
ZIP Code level factors	Percentage of HS deg	–	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
	Median HH income	–	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
	Percentage of whites	–	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
Age	–	0.1 (0.1, 0.1)*	0.1 (0.1, 0.1)*	0.1 (0.1, 0.1)*
Gender	Female	–	-0.3 (-0.5, 0.0)*	-0.2 (-0.4, 0.2)
	Male	–	(ref)	(ref)
Type of contract	MAPD	–	0.3 (0.0, 0.7)*	0.1 (-0.3, 0.4)
	PDP	–	(ref)	(ref)
Baseline PDC categories	25 – 30%	–	(ref)	(ref)
	30 – 40%	–	-4.2 (-5.4, -2.9)*	-5.2 (-6.3, -4.0)*
	40 – 50%	–	-9.3 (-10.5, -8.1)*	-11.3 (-12.4, -10.2)*
	50 – 60%	–	-11.6 (-12.8, -10.5)*	-14.6 (-15.6, -13.5)*
	60 – 70%	–	-17.4 (-18.5, -16.3)*	-20.3 (-21.4, -19.3)*
	70 – 80%	–	-21.8 (-22.9, -20.8)*	-26.1 (-27.1, -25.1)*
90-day fills	80 – 85%	–	-24.2 (-25.3, -23.1)*	-29.0 (-30.0, -28.0)*
	Did not ever fill	–	–	(ref)
	Filled but all less than 90	–	–	11.9 (11.6, 12.2)*
	Filled at least one 90	–	–	20.0 (19.7, 20.3)*

\*a statistically significant result, p<0.05  
Ref=reference group; deg=degrees; HH=household; 95% CI=95 percentage confidence interval

## Conclusions

- Our results suggest the Prime Therapeutics' Missed Refill Intervention Program improved the refill rate, average PDC and 2016 Star drug category adherence.
  - Intervene as quickly as possible after a gap in therapy is identified. We would recommend sending the letter quicker, particularly if a call is not feasible. A second call also may be helpful. In 2017, the Missed Refill Intervention Program began quicker after identification of the missed refill.
  - Intervene as early in the calendar year as possible.
  - Enhance the messaging to encourage 90-day supplies. Based on our findings, members who had a 90-day supply compared to a 30-day supply had a substantial increase in post intervention PDC and adherence.
- A substantial, 95,690 (20%) of monthly average Medicare members had at least a 7-day gap in therapy for one of the three CMS Star adherence drug categories, reinforcing the need for the Missed Refill Intervention Program.
- The earlier the member was identified for an intervention during the calendar year, the more likely an improvement was seen.
- This study provided valuable findings from which we recommend to:

## Limitations

- Other adherence interventions that may have occurred during the year could have impacted our results. We were unaware of other interventions. Control contracts were excluded from the analysis based on an external PDC and adherence intervention.
- Benefit designs for Star adherence drugs differed for each contract.
- Administrative pharmacy claims have the potential for miscoding and include assumptions of member actual drug use.

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