Impact of provider mailings on medication adherence in Medicare Part D members

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Background

- Poor medication adherence is a major cause of hospitalization, poor health care outcomes and increased overall health care costs.[1]
- In the United States, the Centers for Medicare and Medicaid Services (CMS) started measuring adherence as part of their Medicare Part D and Medicare Advantage Star Rating program in 2011. For Medicare Part D, the three adherence measures are 28% of the overall Plan Star rating.[2]
- Medicare Part D – Prescription Drug Plans (PDPs) are incented both financially and through enhanced marketing opportunities to improve their Star ratings.
- Prime Therapeutics, a pharmacy benefits manager providing contracted Part D services for over one million members enrolled with Blue Cross Blue Shield PDPs, undertook a physician mailing program in the fourth quarter of 2011 and quarterly thereafter letters were mailed to prescribers of members non-adherent to the three Star metric drug categories. The letters requested the prescriber discuss potential adherence barriers with their patients to improve medication adherence.

Objective

Assess the impact of a prescriber mailing intervention on non-adherence, defined as proportion of days covered (PDC) < 80% during the 12 months period, among 802,355 continuously enrolled Medicare Part D members.

Methods

Study design

- The study design was a retrospective historic cohort analysis using administrative pharmacy claims and membership eligibility data from the Prime Therapeutics database of more than 800,000 Medicare Part members.
- Adherence measurement methods used in this analysis are the same as those used by CMS.[2]
- Members identified for intervention were those whose PDC in a 12-month baseline period, Oct. 1, 2010 through Sept. 30, 2011, was less than 80% within the three CMS Star metric adherence drug categories: Oral Diabetes Medications (Diabetes), Cholesterol (Statins), and Hypertension (Renin Angiotensin System [RAS] Antagonists).
- The analysis was further limited to members:
  - Age 18 years or older;
  - with a minimum of two fills of the medication was required both in the baseline and the follow-up periods;
  - continuously enrolled in the prescription drug plan during the baseline and follow-up periods, allowing one gap up to 30 days; and
  - in the Diabetes category only, members with an insulin claim were excluded.
- Post-mailing PDC was calculated during a 12-month follow-up, Oct. 20, 2011 through Oct. 19, 2012, defined as two weeks after the mailing date. **(Figure 1)**
- A historical comparison group was constructed using the same eligibility criteria as applied to the intervention group, however no letter was mailed to the prescribers. **(Figure 2)**
- The historical comparison used the entire 760,000 Medicare Part D membership database with the pre-period dates from Oct. 1, 2009 through Sept. 30, 2010 and a post period from Oct. 1, 2010 through Sept. 30, 2011.

Outcomes by drug category

- Adherence was reported as a dichotomous (Yes or No) variable, defined as a PDC ≥ 80% in the post-period.
- Adherence PDC was also reported as a continuous variable between 1% and 100%.

Statistical methods

- Baseline characteristics and demographics of members were reported separately for each of the three drug categories.
- Unadjusted bivariate adherence comparisons between intervention and control groups were conducted using t-test for continuous variables and chi-square test for categorical variables.
- Post-period adherence comparison between intervention and comparison groups are presented in a 2 by 2 table and the chi-square test was performed to test the differences.
- Multivariate logistic regression was used to model post-mailing adherence adjusting for age, gender, zip code level income, education, race, baseline PDC, pharmacy risk grouper (PRG)[3] a proxy for severity of illness, weighted claim counts, out-of-pocket cost, and adherence to the other two drug categories variables. Analyses were conducted Separately for each drug category.
- For the continuous PDC measure, a difference-in-difference (DID) estimate of the treatment effect of the mailing program was implemented through a multivariate linear regression model adjusting for the baseline confounding variables.

Results

- Final analyzable members included 21,044 (Intervention = 10,707; Control = 10,337) for Diabetes, 106,829 (Intervention = 53,957; Control = 52,872) for Statins, and 73,560 (Intervention = 36,706; Control = 36,854) for RAS antagonists. **(Figure 3)**
- In the Diabetes category, members in the comparison group were slightly older (74.7 vs. 74.1 years, p < 0.001) and had a higher mean PRG score (4.6 vs. 4.5, p = 0.031). No difference in pre-period adherence rates was found for diabetic medications (PDC = 61.4% for intervention and 61.1% for comparison group, p = 0.203). However, there were baseline differences in ZIP code level race, education, median household income, Statin medication use, RAS antagonist medication use, weighted claims count, and average out-of-pocket payment, between the Diabetes category intervention and comparison groups. Similar patterns of significant covariate baseline differences between the intervention and comparison groups were observed in the Statins and RAS antagonist drug categories.

Unadjusted post-period adherence (Table 1)

- *Diabetes category:* the adherence rate was an absolute 2.1 percentage points higher in the intervention group (38.6% vs. 36.5%, p = 0.002). The continuous adherence measure was 68.2% vs. 67.2%, p = 0.002 for the intervention and comparison groups, respectively.
- *Statins category:* the adherence rate was 3.0 percentage points higher in the intervention group (34.9 % vs. 31.9 %, %, p < 0.001). The continuous adherence measure was 66.2% versus 64.7%, p < 0.001 for the intervention and comparison groups, respectively.
- *RAS antagonists category:* the adherence rate was an absolute 1.5 percentage points higher in the intervention group (41.2% vs. 39.7%, p < 0.001). The continuous adherence measure was 69.6% versus 68.8%, p < 0.001 for the intervention and comparison groups, respectively.

Multivariable regression model

- The results from the logistic regression models show the probability of whether a member in each of 3 Star measure drug categories was adherent (PDC ≥ 80%) or not (PDC < 80%) in the post-intervention period found:
  - The odds of being adherent to oral diabetes medication were 11% higher for members in the intervention group versus the comparison group (Odds Ratio [OR] = 1.11; 95% Confidence Interval [CI] 1.05 to 1.18; p < 0.001).
  - Members in the Statins intervention group were 16% more likely to become adherent to Statin medication during the post-intervention period (OR = 1.16; 95% CI 1.13 to 1.19, p < 0.001).
  - The odds of being adherent to RAS antagonist medication were 7% higher for members in the intervention group versus the comparison group (OR = 1.07; 95% CI 1.03 to 1.10, p < 0.001).
- The difference-in-difference (DID) estimates indicate that the PDC values in the intervention group were larger by 1.27, 1.49 and 0.59 points respectively for members taking oral diabetes medications, Statins and RAS antagonists, with all differences statistically significant **(Figure 4)**.

Conclusions

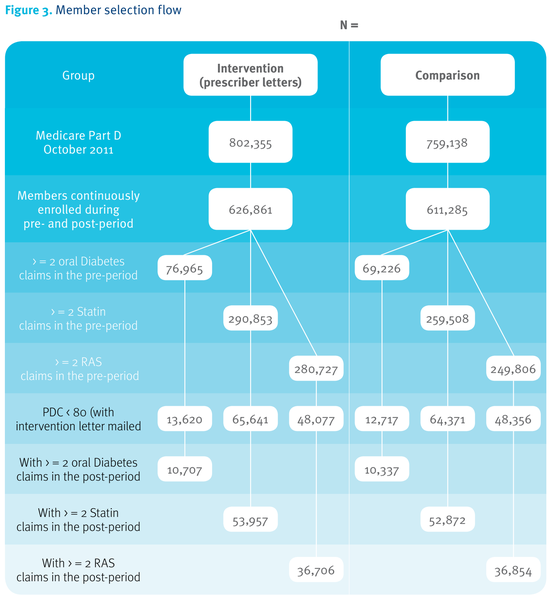
- For non-adherent members, prescriber letters were found to be associated with a significant adherence improvement in all three CMS Star rating drug categories as assessed by historical cohort comparison multivariate statistical modeling. Adherence (PDC ≥ 80%) was found to be:
  - 11% higher in the oral Diabetes medication category,
  - 16% higher in the Statins (cholesterol) category, and
  - 7% higher in the RAS antagonists (hypertension) category.
- Adherence improvements associated with prescriber letters were statistically significant higher using the alternative statistical comparison technique of PDC difference-in-difference analysis.
- A simple mailing to prescribers of the drug medications for non-adherent members was found to be associated with significant movement of members to meeting the CMS adherent (PDC ≥ 80%) definition. Health plans should consider prescriber mailings as a means to improve their CMS Star ratings.
- Further research is necessary to validate these findings and understand the impact of other interventions health plans may be using to improve CMS Star ratings, such as medication therapy management (MTM) patient counseling via face-to-face or telephonic.

Figure 1. Intervention group time line

*Index date was two weeks post mailing date to allow for prescribers to receive mailing.

Figure 2. Comparison group time line

Figure 3. Member selection flow



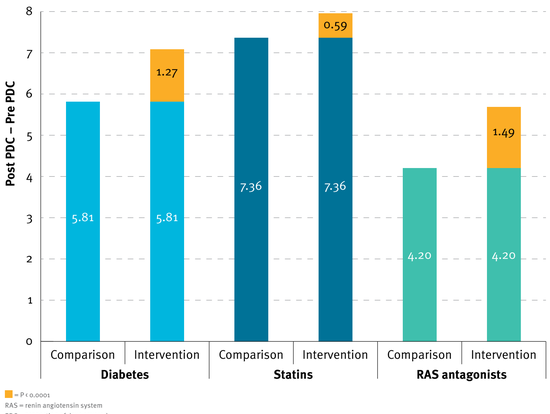
RAS = renin angiotensin system
PDC = proportion of days covered

Table 1. Unadjusted adherence measures

	Intervention†	Comparison	P-value
Diabetes			
N	10,707	10,337	
Pre PDC,* mean (SD)	61.4% (14.9%)	61.1% (14.8%)	0.203
Post adherent (PDC > = 80%), % (n)	38.6% (4,137)	36.5% (3,777)	0.002
Post PDC, mean (SD)	68.2% (23.9%)	67.2% (23.7%)	0.002
Statins			
N	53,957	52,872	
Pre PDC,* mean (SD)	60.5% (14.9%)	60.5% (14.8%)	0.809
Post adherent (PDC > = 80%), % (n)	34.9% (18,802)	31.9% (14,630)	< 0.001
Post PDC, mean (SD)	66.2% (23.6%)	64.7% (23.4%)	< 0.001
RAS antagonists			
N	36,706	36,854	
Pre PDC,* mean (SD)	61.5% (14.9%)	61.6% (14.8%)	0.143
Post adherent (PDC > = 80%), % (n)	41.2% (15,139)	39.7% (14,630)	< 0.001
Post PDC, mean (SD)	69.6% (23.9%)	68.8% (23.8%)	< 0.001

*NOTE: in the pre-period, all members were non-adherent (PDC < 80%)
† Intervention was a prescriber letter
PDC = proportion of days covered

Figure 4. Pre to post adherence difference-in-difference (DID) estimates*



■ = P < 0.0001
RAS = renin angiotensin system
PDC = proportion of days covered
NOTE: Intervention was a prescriber letter
*Difference-in-difference estimate comparisons between intervention and comparison groups were adjusted for age, gender, zip code level income, education, race, baseline PDC, pharmacy risk grouper (PRG)[3] a proxy for severity of illness, weighted claim counts, out-of-pocket cost, and adherence to the other two drug categories variables.

References

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