

# Is Compliance Really Better in Home Delivery? Evidence Across Three Chronic Therapy Classes



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08-08689

## Background

Home delivery pharmacy has been touted as a cost-effective and convenient method for receiving chronic medications. At the prevailing market penetration for home delivery, it was estimated that from 2006 to 2015, home delivery would save the healthcare system \$78.9 billion. Compared to retail pharmacy, the convenience and savings of the home delivery channel is of great value to many members. In addition to savings and convenience, the need for less frequent reordering of medication could lead to greater compliance with chronic medication. However, evaluating this presents methodological challenges due to channel bias — the fact that members can choose to opt into home delivery and those that do likely have intentions to be more compliant, which would bias results in favor of home delivery. This potential bias has been difficult to control for statistically since individual intentions are not easily measured using pharmacy-claims data.

This study attempts to reduce these biases by evaluating compliance between retail pharmacy and home delivery using two plan sponsors with exclusive channel arrangements — retail only and home delivery only — for their maintenance medications.

## Methods

This study used a quasi-experimental case and comparison research design with the case group representing members enrolled in a plan with an exclusive home delivery arrangement. This program allows members to obtain two initial fills from a retail pharmacy before coverage is limited to home delivery. The comparison group members were enrolled in a plan with a retail-only benefit — no home delivery option was available to these members either through Express Scripts or another home delivery pharmacy.

Both case and comparison plan sponsors had a three-tier flat-dollar retail benefit of

\$10 generic and \$25 preferred brand copayments. The case group had a \$40 retail nonpreferred brand copayment while comparison group members had a 20% coinsurance with a \$40 minimum and \$100 maximum copayment for nonpreferred brand drugs. Home delivery copayments were two times the retail copayment (\$20/\$50/\$80). Members in the home delivery study arm were required to have both their index claim and their final claim in the home delivery channel. The retail study arm did not allow a 90-day retail benefit; however, members could obtain greater than a 30-day's supply of medication by paying out of pocket. Less than 5% of claims in the retail study arm had greater than a 30-day's supply.

Compliance was measured using the medication possession ratio (MPR) for three therapy classes: antihyperlipidemics, antidiabetics and antihypertensives. Patients filling a medication in any one of these three therapy classes in Q1 2007 (index window) were followed for 270 days from the first claim in the index window. MPR values were averaged for those patients in the antidiabetic and antihypertensive therapy classes taking more than one medication class in the index period.

Additional inclusion criteria required that members be continuously eligible for the entire follow-up period and be 18 years of age or older as of Jan. 1, 2007. To increase the comparability between the retail and home delivery study arms, those in the retail study arm were required to have at least a 90-day's supply of medication during the follow-up period for any one of their medications. Compliance was categorized into compliant (MPR  $\geq$  80%) or noncompliant (MPR  $<$ 80%).

Bivariate descriptive and multivariate logistic regression were used to estimate the relationship between channel and compliance controlling for patient demographics, prevalent or incident user (defined as no therapy in the 180 days prior to the index

<sup>1</sup>Mail-Service Pharmacy Savings: A Ten-Year Outlook for Public and Private Purchasers. The Lewin Group. Prepared for: Pharmaceutical Care Management Association August 2, 2005. Available at: [http://www.pcmnet.org/assets/2008-03-25\\_Research\\_Lewin%20Mail-Service%20Pharmacy%20Savings%20%20Cost%20Limitations%20091306.pdf](http://www.pcmnet.org/assets/2008-03-25_Research_Lewin%20Mail-Service%20Pharmacy%20Savings%20%20Cost%20Limitations%20091306.pdf). Accessed May 30, 2008.

prescription), total number of unique maintenance medications, total number of different therapy subclasses within the therapy class, and percentage of all claims that were generic.

## Results

Across all three therapy classes, there were no significant differences between channels in the percentage new to therapy; and, for

antihyperlipidemic and antidiabetic medication users, there was no significant difference between channels in the total number of medications (often a proxy for disease severity) [Table 1].

The groups did differ significantly across channels on patient demographics, drug mix (percentage generic), percentage compliant at 80% or higher and, average 30-day adjusted per prescription copayment.



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**Table 1: Demographic Profile and Drug-Use Patterns by Therapy Class and Across Channels**

	Antihyperlipidemics		Antihypertensives		Antidiabetics	
	Home Delivery (n=16,424)	Retail (n=9,664)	Home Delivery (n=23,276)	Retail (n=14,444)	Home Delivery (n=4,537)	Retail (n=2,960)
<b>Demographics</b>						
Average age (SD)	69.2 (11.3)*	63.4 (10.8)	70.5 (11.8)*	62.9 (12.2)	69.6 (11.1)*	62.6 (11.9)
Percentage female	45.2	40.3	51.2*	54.5	42.0*	47.5
<b>Drug Use</b>						
% New to therapy	7.7	7.0	5.2	5.2	7.8	7.2
% Generic	33.4*	40.3	62.9*	64.6	66.4*	70.9
% Compliant at ≥ 80%	81.0*	73.0	78.5*	69.3	70.9*	60.7
Average MPR (SD)	90.1 (15.6)	86.0 (18.4)	88.6 (16.6)	84.4 (18.7)	85.3 (19.2)	80.4 (20.3)
Per prescription copayment (SD)	\$16.81* (7.04)	\$20.44 (9.35)	\$12.35* (6.66)	\$16.22 (8.53)	\$11.31* (5.28)	\$14.37 (6.89)
Total number of medications	6.07 (3.47)	6.06 (3.73)	10.28 (9.20)*	9.74 (9.39)	12.6 (9.20)	12.7 (9.70)
Total number of unique therapy medications (SD)	na	na	1.57 (0.73)*	1.52 (0.71)	1.46 (0.65)*	1.48 (0.66)

SD=standard deviation; \*differences between home delivery and retail significant at p<0.001

Controlling for patient demographic and drug-use behaviors, the adjusted compliance rates were significantly higher in home delivery compared to retail for all three

therapy classes evaluated (Table 2). On an adjusted basis, the percentage compliant in home delivery was up to 8 percentage points higher than in retail.

**Table 2: Adjusted Compliance Rates\* by Therapy Class and Channel**

	Antihyperlipidemics (n=26,088)	Antihypertensives (n=37,720)	Antidiabetics (n=7,497)
Home Delivery	81.8%**	78.6%**	71.1%**
Retail	74.9%	70.8%	62.7%

\*Percent MPR ≥ 80%; \*\*Differences between home delivery and retail significant at p<0.001



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*Members receiving their maintenance medications in home delivery had significantly higher compliance rates compared to their retail counterparts after controlling for patient demographics and utilization.*

### Limitations

The quasi-experimental design does not completely remove all bias. That said, the selection of a plan sponsor with an exclusive home delivery channel for maintenance medications together with the selection of a retail-only plan sponsor as the comparison group — with the added requirement of a 90-day's supply for retail users — help to substantially mitigate selection bias that might occur due to patients' preference leading to a more compliant home-delivery population.

### Implications

Members receiving their maintenance medications in home delivery had significantly higher compliance rates compared to their retail counterparts after controlling for patient demographics and utilization. This finding was consistent across all three chronic therapy classes evaluated. While it is recognized that lower copayments (in this study, it was a savings of one retail copayment every 90 days) is a contributing factor to the more favorable compliance rates in home delivery, other factors inherent within this channel also favor greater compliance. These factors include convenient reordering processes, refill reminders and the need for less frequent reordering, which could reduce gaps in therapy. Taken together, these findings suggest that the value of home delivery lies not only in the cost savings of this channel but also, equally important, potentially improved quality of care through increased adherence.