

Community Pharmacy and Mail Order Cost and Utilization for 90-Day Maintenance Medication Prescriptions

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ABSTRACT

BACKGROUND: Pharmacy benefit management (PBM) companies promote mail order programs that typically dispense 90-day quantities of maintenance medications, marketing this feature as a key cost containment strategy to address plan sponsors' rising prescription drug expenditures. In recent years, community pharmacies have introduced 90-day programs that provide similar cost advantages, while allowing these prescriptions to be dispensed at the same pharmacies that patients frequent for 30-day quantities.

OBJECTIVE: To compare utilization rates and corresponding costs associated with obtaining 90-day prescriptions at community and mail order pharmacies for payers that offer equivalent benefits in different 90-day dispensing channels.

METHODS: We performed a retrospective, cross-sectional investigation using pharmacy claims and eligibility data from employer group clients of a large PBM between January 2008 and September 2010. We excluded the following client types: government, third-party administrators, schools, hospitals, 340B (federal drug pricing), employers in Puerto Rico, and miscellaneous clients for which the PBM provided billing services (e.g., the pharmacy's loyalty card program members). All employer groups in the sample offered 90-day community pharmacy and mail order dispensing and received benefits management services, such as formulary management and mail order pharmacy, from the PBM. We further limited the sample to employer groups that offered equivalent benefits for community pharmacy and mail order, defined as groups in which the mean and median copayments per claim for community and mail order pharmacy, by tier, differed by no more than 5%. Enrollees in the sample were required to have a minimum of 6 months of eligibility in each calendar year but were not required to have filled a prescription in any year. We evaluated pharmacy costs and utilization for a market basket of 14 frequently dispensed therapeutic classes of maintenance medications. The proportional share of claims for each therapeutic class in the mail order channel was used to weight the results for the community pharmacy channel. Using ordinary least squares regression models, we controlled for differences between channel users with respect to the following confounding factors: age, gender, presence or absence of each of the top 11 drug-inferred conditions (e.g., asthma/chronic obstructive pulmonary disease, cardiovascular disease), drug mix, and calendar year. We calculated estimated predicted means holding all covariates at their mean values. For both 90-day dispensing channels, we calculated number of 90-day claims per member per year (PMPY) and cost per pharmacy claim, with all claims counts adjusted to 30-day equivalents (i.e., number of 90-day claims \times 3). Differences were compared using t-tests for statistical significance.

RESULTS: Of 355 PBM clients prior to exclusions, 72 unique employers covering 644,071 unique members (range of approximately 100 to more than 100,000 members per employer) were included in the analysis. On an unadjusted basis, community pharmacies represented 80.8% of 90-day market basket claims (in 30-day equivalents: 3.97 claims PMPY vs. 0.95 in mail

order) and 77.2% of total allowed charges. After adjustments for therapeutic group mix and patient characteristics, predicted mean pharmacy claim counts PMPY were 4.09 for community pharmacy compared with 0.85 for mail order ($P < 0.001$). Predicted mean allowed charges per claim for community and mail order pharmacies did not significantly differ (\$49.03 vs. \$50.04, respectively, $P = 0.202$).

CONCLUSIONS: When offered maintenance medications through community and mail order pharmacies on a benefit-equivalent basis, commercially insured employees and their dependents utilized the community pharmacy channel more frequently by a margin of more than 4 to 1 in terms of claims PMPY. Overall allowed charges per claim for community and mail order pharmacy did not significantly differ.

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What is already known about this subject

- Promoting mail order pharmacy use is a core component of the business model for PBMs that own mail order pharmacies, and PBMs typically encourage mail order dispensing of 90-day quantities of maintenance medications as a cost containment strategy.
- Of 62 employer members responding to a National Business Group on Health survey during spring/summer of 2010, 47% reported that their benefit designs included mandatory mail order for maintenance medications. In a survey of 274 employers conducted from April to May 2011, 90% reported offering mail order pharmacy to dispense maintenance medications; 18% reported requiring mail order dispensing for maintenance medications; and 60% reported using community pharmacies to dispense 90-day medication supplies.
- Published comparisons of medication adherence for patients utilizing mail order and community pharmacy have produced mixed results. Duru et al. (2010) found that the average adherence for diabetic patients using mail order was 84.7% compared with 76.9% for community pharmacy. Khandelwal et al. (2011) found adherence to be slightly higher for patients using community pharmacy (77.0%) compared with mail order (76.0%) for maintenance medications.
- Community pharmacies have introduced 90-day community programs as an alternative to mail order. However, there has been little investigation of patient preference for one dispensing channel over another for filling their 90-day supplies of maintenance medication prescriptions.

What this study adds

- This study investigated member choice of dispensing channel in the absence of mandates or incentives for mail order and found that for a standard market basket of maintenance drugs, commercially insured employees and their dependents used the community pharmacy channel more often than they utilized mail order to fill 90-day quantities of maintenance medications (predicted means of 4.09 vs. 0.85 or 83% of total claims per patient per year adjusted to 30-day equivalents, $P < 0.001$).
- After adjusting for independent variables that may affect patient choice of channel, the overall allowed charge per pharmacy claim for the market basket drugs, adjusted to 30-day quantities, was not statistically different between community pharmacy and mail order (\$49.03 vs. \$50.04 per claim, $P = 0.202$). The percentage of an employer's total net drug expenditure in the community pharmacy channel (82.4% of the total expenditure after deducting beneficiary cost-sharing amount) was consistent with the percentage of prescriptions filled in that channel.

From the 1990s through the early 2000s, expenditures for prescription drugs grew more quickly than most other components of national health care spending. Since 2000, the contribution of prescription drugs to overall growth in health spending has lessened, but because U.S. prescription drug spending is projected to almost double from 2008 through 2019, cost containment remains an important focus for payers.¹

Pharmacy benefit management (PBM) companies promote mail order programs to manage clients' rising prescription drug expenditures. This promotion is often coupled with copayment incentives and sometimes with benefit mandates for use of mail order pharmacy. For most major PBMs, mail order is an important component of the business model and represents a significant portion of overall profitability.²

Although mail order dispensing of prescription drugs has existed in the United States for more than a century, significant growth has occurred primarily since the 1980s.³ In 1997, mail order accounted for about 12.7% of U.S. prescription sales dollars,² increasing in 2009 to 17.0%, or \$51.5 billion.⁴ Drivers of this growth include perceived favorable pricing to third-party payers, reduced patient copayments compared with community pharmacy, mail order mandates, and increased convenience for some patients, such as those whose age or disabilities make travel difficult or who are without access to a nearby community pharmacy.^{3,5}

Pharmacy benefit designs may incentivize and/or mandate use of mail order. Of 62 employer members of the National Business Group on Health responding to a survey during spring/summer of 2010, 47% reported the use of mandatory mail order for maintenance medications.⁶ In another survey

of 274 employers (5.2 million members) conducted by the Pharmacy Benefit Management Institute between April and May 2011, 90% of employers reported offering mail order dispensing of maintenance medications, 18% required maintenance medications to be dispensed by mail order, 60% permitted community pharmacies to dispense 90-day maintenance supplies of medications, and 43% restricted maintenance dispensing to certain pharmacies.⁵

A recent study by Liberman et al. (2011) found that patients who are new to therapy and mandated to use mail order had lower adherence in the first year of drug therapy compared with a matched patient cohort with voluntary mail order, across all drug classes (median medication possession ratio [MPR] 49.2% vs. 57.4%, $P < 0.001$).⁷ The authors hypothesized that the substantial drop in adherence for the mandatory mail cohort, beginning between days 60 and 90 after the initial pharmacy claim, indicates potential barriers to access related to transfer of the prescription from the community pharmacy to a mail order pharmacy.

A study by Duru et al. (2010) of Kaiser-Permanente patients who were new to therapy compared those using mail order for diabetes-related (antiglycemic, antihypertensive, and lipid-lowering) medication with patients who used their local Kaiser pharmacy to obtain refills in person.⁸ The authors found that the percentage of patients reaching a threshold rate of adherence of 80% or more was 7.8 percentage points higher for mail order than community pharmacy across all studied drug classes (84.7% vs. 76.9%, respectively, $P < 0.001$). Mail order pharmacy users in the study by Duru et al. were more likely than local community pharmacy users to have a financial incentive to fill their prescriptions by mail (49.6% vs. 23.0%), although there is no indication that patients were subject to a mandatory mail order benefit design.

Devine et al. (2010) performed a retrospective analysis of commercially insured patients receiving oral antidiabetic medications who obtained fills at a community pharmacy for at least 6 months (baseline), comparing MPRs for those who subsequently (for at least 12 months) continued to receive fills through a community pharmacy versus those who switched to mail order.⁹ The study found that while the baseline MPRs in the 2 pharmacy settings were similar (68.8% community pharmacy only group vs. 70.0% mail order group, propensity-score adjusted), the MPR for the cohort that switched to mail order increased after the switch (63.4% community pharmacy only group vs. 84.8% for the mail order group, adjusted for propensity score and pre-switch MPR.) A required 6-month baseline time frame for community pharmacy was used to eliminate patients subject to mandatory mail order benefit designs because these typically require conversion to mail after 2 fills in community pharmacy. It was not known whether patients receiving prescriptions via mail order were subject to automatic refill programs, which would have increased the post-switch MPR for the mail order group.

Recent research by the authors of the present study (Khandelwal et al., 2011) examined adherence levels of patients with equivalent benefits filling 90-day supplies of medication at retail pharmacies compared with those using mail order.¹⁰ Results showed that patients using retail pharmacies had a statistically significantly higher mean MPR than those using mail order (77.0% vs. 76.0%, $P=0.007$).

The literature is equivocal regarding whether mail order is more cost-effective than community pharmacy from the perspective of the third-party payer, that is, inclusive of contractual prescription drug pricing and beneficiary cost sharing but not including rebates, if any. Using several PBMs' claims data from 2002 to 2003, the Federal Trade Commission found that mail order pharmacies offer lower prices to plan sponsors and to their members.² However, the appropriateness of the unit of comparison and samples selected for this analysis have been challenged.¹¹ Other studies, such as those of Carroll et al. (2005),¹² Clark et al. (2009),¹³ and Johnsrud et al. (2007),¹⁴ have found that while mail order may be less expensive in terms of ingredient cost, the reduction in cost sharing offered by payers to incentivize the use of mail order partially or completely offsets the cost advantage of this channel.

Community pharmacies have introduced 90-day programs that provide payers (and in some cases, patients) similar pricing to mail order, coupled with the traditional benefit of the community pharmacy.^{15,16} An important advantage that community pharmacies offer patients is convenient access and the opportunity to establish a personal relationship with a pharmacist through face-to-face interaction.^{17,18} Several published studies have demonstrated positive health outcomes and health care cost savings as a result of community pharmacists' direct involvement with patient care.¹⁹⁻²²

Although several studies have compared community pharmacy and mail order with respect to cost containment and patient satisfaction, there was variation in benefit design; few have investigated patient choice of distribution channel for filling 90-day supplies of maintenance medications when benefits are equivalent. In a recently published retrospective cohort study of revealed pharmacy preference, Liberman et al. (2011) found that when patients were given a choice between mail service and community pharmacy for 90-day supply dispensing, 44% of patients new to therapy chose community pharmacy, and 32% of those previously mandated to use mail chose community pharmacy.²³ Furthermore, the majority of previous mail order pharmacy users continued to use mail order, and the majority of community pharmacy users continued to use the community pharmacy, leading the authors to conclude that both channels are preferred.²³

The objective of the current study was to compare utilization rates and corresponding costs associated with obtaining 90-day prescriptions at community pharmacies with those obtained via mail order fulfillment for payers that offer equivalent benefits in different 90-day dispensing channels.

Methods

Pharmacy claims and eligibility data were examined for Walgreens Health Initiatives (WHI), a large PBM, for the 33-month period from January 2008 through September 2010. A cross-sectional study design was employed. During the study time frame, the PBM managed prescription benefit plans for 355 clients. The PBM communicated to patients the availability of 90-day supplies at community pharmacies but overall promoted member choice. Mail order pharmacy use was not promoted by the PBM (e.g., with flyers or telephone calls). No information about employers' promotional activities is available to the study investigators.

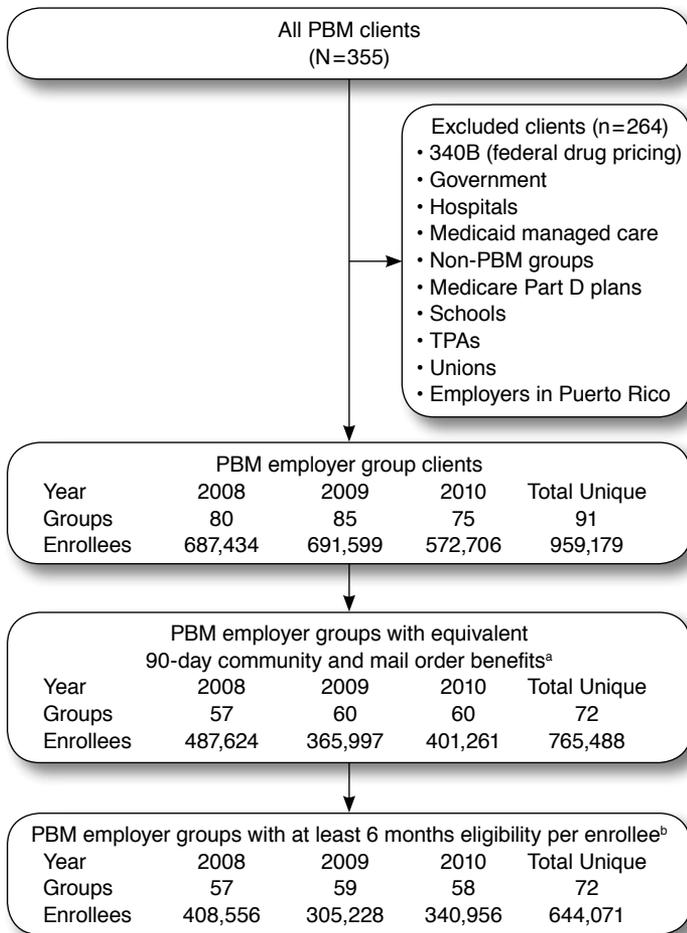
For the purpose of this analysis, we chose to only include commercial employer groups in order to minimize variability in benefit design. Therefore, the following client types were excluded: 340B (federal drug pricing) plans, government plans, hospitals, Medicaid managed care plans, non-PBM plans (plans for which WHI provided claims payment services but not PBM services), Medicare Part D plans, employer groups in Puerto Rico, schools, third-party administrators, and unions. Of the 355 clients (employer groups), 91 groups covering 959,179 unique members met this client-type criterion (Figure 1).

The following inclusion and exclusion criteria were applied at the employer group and individual member levels:

- Only employers that covered 90-day fills at community pharmacy and mail order channels with approximately equivalent benefit designs were selected. Since benefits may change from year to year, an employer's inclusion in the group was re-assessed annually. Equivalence of benefits was determined by calculating the mean, median, minimum, and maximum of beneficiary cost-sharing amounts by employer group, distribution channel, and drug tier. (No plans had deductibles.) We excluded claims in which the beneficiary payment was equal to the drug cost because, in such cases, cost sharing is not determined by the benefit structure and therefore provides no insight into determining the level of benefits or the equivalence between mail and community pharmacy benefits. If there was less than a 5% variation in the median and mean copayments for generic, preferred, and nonpreferred brand between mail order and community pharmacy claims, benefits were deemed equivalent. If the variation exceeded 5%, the employer group was not included in the study for that year.
- Because members (enrollees eligible for pharmacy benefits) were required to have at least 6 months eligibility in a given calendar year to be included in the analyses for that year, a few employers were excluded because none of their members had at least 6 months of eligibility in a given year ($n=1$ in 2009 and $n=2$ in 2010).

After application of these criteria, 72 employer groups covering 644,071 unique members were included in the study. Of those, 55 employers offered copayment-only plans, 7

FIGURE 1 Sample Selection Flowchart



^aEquivalence of benefits was determined by calculating the mean, median, maximum, and minimum of beneficiary cost-sharing amounts by employer group, distribution channel, and drug tier. If there was less than a 5% variation in the median and average copayment for generic, preferred, and nonpreferred brand between mail order and community pharmacies, benefits were deemed equivalent.

^bExclusions for noncontinuous eligibility were made at the enrollee level. For 1 employer group in 2009 and 2 employer groups in 2010, no enrollees met the 6-month eligibility criteria; thus, these groups were excluded.

PBM = pharmacy benefits management company; TPA = third-party administrator.

employers offered coinsurance-only plans, and the remaining 10 employers offered a mix of coinsurance and copayment plans. On average, the employer groups had been contracted with the PBM for 3 years at the start of this study, with a range of 0-15 years.

The analysis was limited to pharmacy claims with a range of 84 to 100 days supply (which were considered to be 90-day fills). The study was additionally limited to a market basket of 14 therapeutic groups based on categorization using the first 2 digits of the Medi-Span (Indianapolis, IN) generic product

identifier (GPI) for maintenance medications that are frequently dispensed through both community pharmacy and mail order channels. All 14 therapeutic groups had at least 10,000 claims in each dispensing channel. As shown in Table 1, limiting the study to these therapeutic groups reduced the overall number of claims by approximately 14% from 5,271,996 to 4,531,737. Specialty medications (identified via Medi-Span's specialty drug list) were excluded from the analysis (see Appendix 1 for a list of excluded medications). Only the endocrine and metabolic agents group (GPI-2 = 30) was identified as having specialty medications. This requirement resulted in an exclusion of 17,904 out of 3,659,553 claims.

To calculate adjusted measures, we applied a 3-step adjustment process, as follows:

1. We converted all 90-day prescriptions to 30-day equivalents (i.e., we multiplied the number of 90-day claims by 3).
2. We derived predicted values of key measures using each employer and year as a unit of observation and applying ordinary least squares regression analysis. Specifically, because differences in population characteristics between members that choose different channels to fill their maintenance prescriptions potentially affect outcomes, we controlled for differences between channel users with respect to confounding factors including age, gender, condition prevalence, drug mix, and calendar year by developing ordinary least squares regression models separately for each tier and therapeutic group. We then replaced actual outcome measures (allowed charge, copayment, and claims counts) with predicted mean values (also known as estimated marginal means or least-square means) by applying the β -weights to average values of the independent variables (i.e., holding covariates at their mean values).
3. We calculated normalized community pharmacy measures by applying the mail order claims distribution of the 14 therapeutic groups to the key community pharmacy measures. Specifically, because differences in therapeutic group mix also potentially affect the measures for mail order and community pharmacy for each tier, we normalized the predicted values for community pharmacy by applying the proportion of claims for each therapeutic group in the mail order channel to the community pharmacy channel claims for each tier and therapeutic group.

For each of 3 drug tiers (generic, preferred brand, and nonpreferred brand) and for drugs overall, we compared normalized predicted values for community pharmacy with mail order channels. Outcome measures (predicted means) included claims per member per year (PMPY), allowed charge per claim, and copayment per claim.

The t-test was used to assess the significance of the difference between predicted mean values depending on channel (mail vs. community pharmacy). All statistical analyses were performed with SAS statistical software, version 9.1.3 (SAS

TABLE 1 Claim Counts for 90-Day Supplies by Channel and Drug Tier, Overall and for Market Basket of 14 Therapeutic Groups (2008-2010)

		Claims Counts Expressed as 30-Day Equivalents ^a		
		All Drugs	Market Basket Drugs ^b	Market Basket Drugs as Percentage of Total (%) ^c
Mail order pharmacy	Generic	603,027	527,130	87.4
	Preferred	365,199	301,905	82.7
	Nonpreferred	53,085	43,149	81.3
	All	1,021,311	872,184	85.4
Community pharmacies	Generic	2,822,208	2,485,260	88.1
	Preferred	1,284,417	1,052,463	81.9
	Nonpreferred	144,060	121,830	84.6
	All	4,250,685	3,659,553	86.1
Total	Generic	3,425,235	3,012,390	88.0
	Preferred	1,649,616	1,354,368	82.1
	Nonpreferred	197,145	164,979	83.7
	All	5,271,996	4,531,737	86.0

^aAll pharmacy claims counts have been converted to 30-day equivalents; thus, the counts shown in the table represent the number of 90-day claims multiplied by 3.

^bTherapeutic groups (GPI-2 codes) in the market basket were estrogens (24), contraceptives (25), antidiabetics (27), thyroid agents (28), endocrine and metabolic agents (30), beta blockers (33), calcium channel blockers (34), antihypertensives (36), diuretics (37), antihyperlipidemics (39), antiasthmatic and bronchodilator agents (44), ulcer drugs (49), antidepressants (58), and anticonvulsants (72). Specialty drugs were excluded (endocrine and metabolic agent group).

^cTotal number of 90-day claims for market basket drugs expressed as a proportion of total number of 90-day claims for all drugs.

GPI=generic product identifier.

Institute Inc, Cary, NC) at an *a priori* statistical significance level of 0.05.

Results

Table 1 shows the claims counts by channel and by tier, for both the entire dataset and the 14-therapeutic group market basket that was used in the analysis. The subset of market basket claims represented 86.0% of all pharmacy claims for the study period. The majority of these claims (66.5%) were for generic medications. On an unadjusted basis, 80.8% of prescriptions overall were dispensed through the community pharmacy channel, a ratio of more than 4 to 1.

Table 2 shows the unadjusted measures (pharmacy claims, allowed charges, patient cost sharing, and employer net cost) by tier and channel. Claims counts PMPY for 90-day supplies, adjusted to 30-day equivalents, were 3.97 and 0.95 for community and mail order pharmacies, respectively. A community pharmacy was used for 82.5%, 77.7%, and 73.8% of generic, preferred brand, and nonpreferred brand claims, respectively. Community pharmacy claims accounted for 77.2% of both allowed charges and net employer cost.

The results after regression adjustment and weighting for drug mix are shown in Table 3. Predicted mean pharmacy claims counts PMPY were 4.09 for community pharmacy compared with 0.85 for mail order ($P<0.001$), representing an estimated 82.8% of prescriptions filled in community pharmacies. For generics, preferred brand, and nonpreferred brand drugs, community pharmacy represented 83.6%, 81.6%, and 77.8% of pharmacy claims, respectively. The overall average allowed charge per claim in community pharmacy was \$49.03, compared with \$50.04 for mail order, a nonsignificant difference ($P=0.202$). However, differences in allowed charge per claim were significant between community pharmacy and mail order channels at the tier level, at \$17.38 versus \$24.24, \$106.83 versus \$98.23, and \$103.41 versus \$92.24 for generic, preferred brand, and nonpreferred brand drugs, respectively (all differences significant at $P<0.001$). Overall after accounting for patient cost-sharing amounts, employers paid significantly less per claim for prescriptions filled through community pharmacy than for mail order (\$39.05 vs. \$40.14, respectively, $P=0.003$). On a tier level, employers paid less for community pharmacy claims for generic drugs (\$12.59 vs. \$19.11, $P<0.001$) but more for nonpreferred brand drugs (\$72.91 vs. \$62.78, $P=0.003$). No significant difference was observed for net preferred brand drug cost.

Discussion

Findings from this analysis show first that when employers offer equivalent benefits to commercially insured employees, a significantly greater percentage of 90-day prescriptions are filled through community pharmacies compared with mail order (83% vs. 17%, respectively, after adjustment for drug mix and covariates). Second, the analysis shows that allowed charges per claim (adjusted to a 30-day equivalent basis) for prescriptions filled at community and mail order pharmacies do not significantly differ (\$49.03 vs. \$50.04 per claim, respectively).

Community pharmacies that fill prescriptions for 90-day supplies are direct competitors to mail order pharmacies that provide 90-day maintenance fills. However, community pharmacies offer several advantages. Patients have the ability to receive all their prescriptions, whether 30- or 90-day quantities, from the same pharmacy simultaneously. Patients utilizing community pharmacies also have the opportunity for face-to-face pharmacist consultation, which may help improve a patient's adherence to his or her medication.^{24,25}

The very high level of utilization of community pharmacies for 90-day quantities of a market basket of frequently dispensed maintenance drugs when the employer's benefit plan does not incentivize or mandate mail order pharmacy use suggests that commercially insured employees and their dependents value community pharmacy for dispensing 90-day

Community Pharmacy and Mail Order Cost and Utilization for 90-Day Maintenance Medication Prescriptions

TABLE 2 Unadjusted Utilization and Cost by Channel and Drug Tier: Pharmacy Claims for 90-Day Supplies for a Market Basket of 14 Therapeutic Groups^a

	2008	2009	2010	All Years		2008	2009	2010	All Years
Total members ^b	408,556	305,228	340,956	1,054,740	Member cost share (total \$)^f				
Total member-months ^b	4,643,969	3,411,861	3,005,237	11,061,067	Mail order				
Pharmacy utilization (count of 90-day claims × 3)^c					Generic	884,880	854,855	875,274	2,615,009
Mail order					Preferred brand	2,064,954	1,608,748	1,560,367	5,234,069
Generic	207,666	157,494	161,970	527,130	Nonpreferred brand	568,444	367,712	375,291	1,311,447
Preferred brand	125,166	92,319	84,420	301,905	All tiers	3,518,278	2,831,315	2,810,932	9,160,525
Nonpreferred brand	20,493	11,799	10,857	43,149	Community pharmacy				
All tiers	353,325	261,612	257,247	872,184	Generic	3,255,964	3,176,033	3,053,152	9,485,149
Community pharmacy					Preferred brand	8,317,552	5,118,642	4,372,511	17,808,705
Generic	1,242,357	648,219	594,588	2,485,164	Nonpreferred brand	1,528,553	1,132,715	956,793	3,618,061
Preferred brand	535,356	287,517	229,377	1,052,250	All tiers	13,102,069	9,427,390	8,382,456	30,911,915
Nonpreferred brand	52,773	38,568	30,489	121,830	Member cost share per claim (\$)^{c,f}				
All tiers	1,830,486	974,304	854,454	3,659,244	Mail order				
Pharmacy utilization (claims PMPY)^{c,d}					Generic	4.26	5.43	5.40	4.96
Mail order					Preferred brand	16.50	17.43	18.48	17.34
Generic	0.54	0.55	0.65	0.57	Nonpreferred brand	27.74	31.16	34.57	30.39
Preferred brand	0.32	0.32	0.34	0.33	All tiers	9.96	10.82	10.93	10.50
Nonpreferred brand	0.05	0.04	0.04	0.05	Community pharmacy				
All tiers	0.91	0.92	1.03	0.95	Generic	2.62	4.90	5.13	3.82
Community pharmacy					Preferred brand	15.54	17.80	19.06	16.92
Generic	3.21	2.28	2.37	2.70	Nonpreferred brand	28.96	29.37	31.38	29.70
Preferred brand	1.38	1.01	0.92	1.14	All tiers	7.16	9.68	9.81	8.45
Nonpreferred brand	0.14	0.14	0.12	0.13	Employer net cost (total)^g				
All tiers	4.73	3.43	3.41	3.97	Mail order				
Allowed charge (total \$)^e					Generic	3,868,918	2,888,120	2,921,461	9,678,499
Mail order					Preferred brand	9,940,572	7,978,149	7,821,145	25,739,866
Generic	4,753,798	3,742,975	3,796,735	12,293,508	Nonpreferred brand	1,366,493	832,146	749,067	2,947,706
Preferred brand	12,005,526	9,586,897	9,381,512	30,973,935	All tiers	15,175,983	11,698,415	11,491,673	38,366,071
Nonpreferred brand	1,934,937	1,199,858	1,124,358	4,259,152	Community pharmacy				
All tiers	18,694,261	14,529,729	14,302,605	47,526,595	Generic	16,041,815	7,864,281	7,178,975	31,085,071
Community pharmacy					Preferred brand	44,877,985	24,836,032	20,846,442	90,560,459
Generic	19,297,779	11,040,314	10,232,127	40,570,221	Nonpreferred brand	3,514,340	2,601,108	1,980,315	8,095,763
Preferred brand	53,195,537	29,954,674	25,218,953	108,369,164	All tiers	64,434,140	35,301,421	30,005,732	129,741,293
Nonpreferred brand	5,042,893	3,733,823	2,937,108	11,713,824	Employer net cost per claim (\$)^{c,g}				
All tiers	77,536,209	44,728,812	38,388,188	160,653,209	Mail order				
Allowed charge per claim (\$)^{c,e}					Generic	18.63	18.34	18.04	18.36
Mail order					Preferred brand	79.42	86.42	92.65	85.26
Generic	22.89	23.77	23.44	23.32	Nonpreferred brand	66.68	70.53	68.99	68.31
Preferred brand	95.92	103.85	111.13	102.59	All tiers	42.95	44.72	44.67	43.99
Nonpreferred brand	94.42	101.69	103.56	98.71	Community pharmacy				
All tiers	52.91	55.54	55.60	54.49	Generic	12.91	12.13	12.07	12.51
Community pharmacy					Preferred brand	83.83	86.38	90.88	86.06
Generic	15.53	17.03	17.21	16.32	Nonpreferred brand	66.59	67.44	64.95	66.45
Preferred brand	99.36	104.18	109.95	102.99	All tiers	35.20	36.23	35.12	35.46
Nonpreferred brand	95.56	96.81	96.33	96.15					
All tiers	42.36	45.91	44.93	43.90					

^aTherapeutic groups (GPI-2 codes) in the market basket were estrogens (24), contraceptives (25), antidiabetics (27), thyroid agents (28), endocrine and metabolic agents (30), beta blockers (33), calcium channel blockers (34), antihypertensives (36), diuretics (37), antihyperlipidemics (39), antiasthmatic and bronchodilator agents (44), ulcer drugs (49), antidepressants (58), and anticonvulsants (72). Specialty drugs were excluded (endocrine and metabolic agent group). Numbers may not sum to the totals shown due to rounding.

^bMembers are enrollees eligible for pharmacy benefits with at least 6 months of eligibility. Member-months are the total months in which members were eligible for pharmacy benefits within a given year. All member and member-month counts for the 3 years were used for the 3-year average ratios.

^cAll pharmacy claim counts have been converted to 30-day equivalents; thus, the counts shown in the table represent the number of 90-day claims multiplied by 3.

^dPMPY values calculated as PMPM values multiplied by 12.

^eAllowed charge is the sum of total dollars spent by members and employers, before rebates, if any.

^fTotal cost share (either copayment, coinsurance, or both) is total dollars spent by members.

^gMeasured as allowed charge minus member cost-sharing amount (including coordination of benefits and other disallowed amounts), before rebates, if any.

GPI=generic product identifier; PMPM=per member per month; PMPY=per member per year.

TABLE 3 Ordinary Least Squares Regression Analysis: Predicted Means^a by Channel and Drug Tier for a Market Basket^b of 14 Therapeutic Groups

Drug Tier	Channel	Pharmacy Utilization (Claims PMPY) ^c	Percent of Claims (%)	Allowed Charge Per Claim (\$)	Average Member Cost Share Per Claim (\$)	Employer Net Paid Per Claim (\$)
Overall	Mail order pharmacy	0.85	17.2	50.04	9.90	40.14
	Community pharmacy	4.09	82.8	49.03	9.98	39.05
		<i>P</i> <0.001		<i>P</i> =0.202	<i>P</i> =0.431	<i>P</i> =0.003
Generic	Mail order pharmacy	0.54	16.4	24.24	5.13	19.11
	Community pharmacy	2.75	83.6	17.38	4.79	12.59
		<i>P</i> <0.001		<i>P</i> <0.001	<i>P</i> <0.001	<i>P</i> <0.001
Preferred	Mail order pharmacy	0.27	18.4	98.23	17.10	81.13
	Community pharmacy	1.20	81.6	106.83	17.92	88.91
		<i>P</i> <0.001		<i>P</i> <0.001	<i>P</i> <0.001	<i>P</i> =0.203
Nonpreferred	Mail order pharmacy	0.04	22.2	92.24	29.46	62.78
	Community pharmacy	0.14	77.8	103.41	30.50	72.91
		<i>P</i> <0.001		<i>P</i> <0.001	<i>P</i> <0.001	<i>P</i> =0.003

^aTable shows predicted mean values (also sometimes called estimated marginal means or least-square means) from ordinary least squares regression analyses calculated separately for each tier and for drugs overall, holding covariates (age, gender, condition prevalence, drug mix, and calendar year) at their mean values. Results were weighted by applying the proportion of claims for each therapeutic group in the mail order channel to the community pharmacy channel claims for each tier and therapeutic group. Pharmacy claims PMPY were calculated using member-months as the weights but following the same adjustment process described above. The *P* values and *t*-test were used to assess the significance of the difference between predicted mean values depending on channel (mail vs. community pharmacy).

^bTherapeutic groups (GPI-2 codes) in the market basket were estrogens (24), contraceptives (25), antidiabetics (27), thyroid agents (28), endocrine and metabolic agents (30), beta blockers (33), calcium channel blockers (34), antihypertensives (36), diuretics (37), antihyperlipidemics (39), antiasthmatic and bronchodilator agents (44), ulcer drugs (49), antidepressants (58), and anticonvulsants (72). Specialty drugs were excluded (endocrine and metabolic agent group).

^cAll pharmacy claim counts have been converted to 30-day equivalents; thus, the counts shown in the tables represent the number of 90-day claims multiplied by 3.

P values calculated using *t*-test for mail versus community pharmacy.

GPI=generic product identifier; PMPY=per member per year.

quantities of maintenance prescriptions. Contrary to industry perception that community pharmacy is more expensive than mail order, we found that the overall cost per claim in community pharmacy is not significantly higher than that in mail order. Because mandatory mail order impedes employee preference, when community pharmacies are able to offer the employer comparable pricing to that obtained through mail order, employees and dependents of commercially insured employers reveal a preference for filling 90-day quantities in community pharmacy settings.

As noted earlier, Liberman et al. demonstrated mixed results for pharmacy preference, whereas our study clearly indicated greater utilization for community pharmacy.²³ We believe the differing conclusions can be attributed to several factors. First, while Liberman et al. studied a “commercially insured” population, they did not indicate exclusions of client types from their sample, whereas this study focused solely on commercial employers. Furthermore, this study was performed at the claim level, whereas the study by Liberman et al. was at the patient level. Second, Liberman et al. stratified patients by previous fulfillment channel and by those new to therapy. The present study did not consider any of these factors. Finally, our study considered only plans that did not financially incentivize or mandate mail order.

Limitations

First, this study was limited to employees and dependents who were commercially insured through employers. Results may not generalize to the excluded groups, including Medicare Part D beneficiaries and those insured by employment in the government, schools, hospitals, or unions. Second, this study was designed to explore revealed preference for 90-day prescription utilization and cost of community pharmacy versus mail order under the condition of equivalent benefits but was not designed to assess causality. We did not survey members regarding their preference for or satisfaction with community pharmacy or mail order for dispensing of 90-day fills. Third, data on certain member characteristics, such as annual income or driving distance to the nearest community pharmacy, which may have influenced choice of distribution channel, were not available. Fourth, claims data available for this analysis did not include prescriptions that patients may have paid for on a cash basis at the community pharmacy (outside of an insurance plan). Finally, pharmaceutical manufacturer rebate data were also not available for this analysis.

Conclusions

When offered maintenance medications through community pharmacies and mail order on a benefit-equivalent basis,

commercially insured employers and their dependents utilized the community pharmacy channel more frequently by a margin of more than 4 to 1 in terms of claims PMPY. By implementing 90-day community pharmacy benefits for maintenance medications, employers can provide their employees with additional options for prescription fulfillment without increasing overall cost to the plan sponsor.

Authors

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DISCLOSURES

This study was sponsored by Walgreen Co. Khandelwal and Pegus were employees of Walgreen Co. at the time of the study, and Duncan is currently a Walgreen Co. employee. Rubinstein and Ahmed are consultants to Walgreen Co.

Concept and design were performed primarily by Pegus, Ahmed, Khandelwal, and Duncan. Data were collected by Ahmed and Khandelwal, and data were interpreted primarily by Khandelwal, Ahmed, DuChane, and Rubinstein. The manuscript was written by Ahmed, Rubinstein, Duncan, and Khandelwal and revised primarily by Duncan, Khandelwal, Rubinstein, DuChane, and Murphy.

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APPENDIX Excluded Specialty Medications

Generic Name
Agalsidase beta
Alglucosidase alfa
Cinacalcet HCl
Denosumab
Desmopressin acetate
Gallium nitrate
Galsulfase
Ibandronate sodium
Idursulfase
Laronidase
Pamidronate disodium
Sapropterin dihydrochloride
Somatropin
Somatropin (nonrefrigerated)
Teriparatide (recombinant)
Zoledronic acid