

Managing PBMs to Reduce Prescription Drug Costs  
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Pharmaceutical Benefits Managers (PBMs) are intermediaries between prescription drug makers and medical insurers who provide lists or formularies of drugs for which the insurers will pay. This decade, the PBM marketplace has consolidated into a 3-member oligopoly, consisting of OptumRx, Express Scripts, and Caremark. There are numerous questions about the role that PBMs play in affecting prescription drug prices. Some in the pharmaceutical industry point to examples in which negotiations with PBMs have led to higher drug list prices to account for substantial, confidential rebates that PBMs have sought.<sup>i</sup> In addition, some PBMs have been found to include over-priced medications in the formularies of the purchasers they represent, rather than more cost-effective options, driven by favored deals with certain drug manufacturers.<sup>ii</sup> But PBMs may also help reduce drug prices in some cases for purchasers by using their expertise and negotiating leverage.

In this report, we are going to consider two different pharmacy benefit manager (PBM) models and how they affect sponsors' drug costs. Before analyzing those models, we provide a literature review on the role of PBMs in our prescription drug supply and financing system; the ways PBMs can raise sponsors' costs; the weak constraints on mainstream PBMs; the extent to which PBMs have exercised their profit-maximizing options; and an alternative model to mainstream PBMs.

## **I. Prior literature on the role of PBMs**

### **A. Role of PBMs in our prescription drug supply and financing system**

Basically, there are seven interests in the U.S. flow of prescription drug supply and financing. There are three types of businesses on the supply side: (1) manufacturers, (2) wholesalers, and (3) pharmacies. Pharmacy business can be divided into retail, mail order, and specialty pharmacies. There are three types of interests on the payer side: (4) "sponsors", e.g., employer and union trust fund plans, (5) patients, and (6) insurers acting as these payers' agents. In between, there are (7) pharmacy benefit managers (PBMs).<sup>iii iv</sup>

As the intermediary in this flow, a PBM usually bundles all the sponsor's arrangements with the supply side. In this bundled arrangement, there is often a fundamental information asymmetry. PBMs can have extensive information on supply side prices; sponsors seldom do. Many of the terms of PBM contracts with the supply side are often unknown to the sponsors.<sup>v</sup> This information asymmetry provides bundled PBMs with numerous arbitrage opportunities, i.e., ways to take advantage of differing prices for the same asset.

On the payer side, sponsors can shift costs to patients in the form of high deductibles and high co-pays.<sup>vi vii viii</sup> Sponsors can impose high deductible plans even though research has shown that HDHPs tend to reduce use of medications for chronic illness, along with increasing financial burden for low-income and chronically ill.<sup>ix</sup> So, sponsors may have a weak incentive to investigate and counter how PBMs take advantage of arbitrage opportunities. Further, while sponsors' consultants may be in a position to advise them of PBM arbitrage, the ERISA Advisory Council found that, "it is common for consultants to receive indirect compensation... (creating) the potential for conflicts of interest that may be adverse to the plan sponsor. Sponsors of... health plans may or may not be informed of such indirect compensation."<sup>x</sup> Thus, bundled PBMs can face weak constraints on their ability to act on arbitrage opportunities.

Further, as amount of money flowing through the U.S. pharmaceutical system is approaching a half trillion dollars<sup>xi</sup>, PBMs have a strong incentive to take advantage of arbitrage opportunities, effectively collecting what economists call "rents" through the flow of prescription drug supply and financing.

## **B. Ways PBMs can raise sponsors' costs**

From the literature, we draw 5 ways PBMs can raise sponsors' costs.

### **1. High-cost drugs on formularies**

The first way is based on the power of PBMs to set up formularies, the lists of drugs for which sponsors' insurers will pay. Manufacturers often pay PBMs rebates and other considerations as incentives to place their drugs on the formularies. These payments and considerations can come in the form of direct and indirect remuneration (DIR) (e.g., rebates, discounts) and non-DIR (administrative fees).<sup>xii</sup> Generally, the higher the price of the drug, the higher the rebate.<sup>xiii</sup> So, PBMs have a strong incentive to put high-priced drugs on the formularies for which sponsors and patients ultimately pay.<sup>xiv</sup> The drugs that they put on the formularies may not be the most cost-effective.<sup>xv xvi xvii</sup>

### **2. Manufacturer payments retained by PBM**

A second way PBMs can raise sponsors' costs is to conceal from sponsors DIR and non-DIR payments from manufacturers paid PBMs to induce them to place their drugs on the formularies and to retain those payments.<sup>xviii</sup> While a PBM can use a sponsor's purchasing power to obtain DIR and non-DIR payments from manufacturers, it can often retain some of those manufacturer payments, that were effectively "earned" by the sponsor, without the sponsor's knowledge.<sup>xix</sup>

In response to proposals that federal regulations require PBM disclosure of those payments, the industry argues that they need to keep those payments confidential in order to raise rebates and reduce sponsors' costs. But, while federal law requires PBMs to disclose to Medicare insurers the DIR and non-DIR payments they receive in connection with the Medicare

Part D program, the Part D rebates have been steadily rising. So, evidence from the Part D program suggests that these payments can be disclosed without lowering rebates.<sup>xx xxi</sup>

### 3. Retail pharmacy spreads

A third way PBMs can raise sponsors' costs is based on their power to set up pharmacy networks, lists of pharmacies through which patients must pick up their drugs in order for insurers to cover them. PBMs can set the prices they pay pharmacies for drugs often without telling sponsors what those prices are. They can then charge another price that insurers and patients pay for those drugs, setting what is called a "spread", a difference that the PBMs can retain without the sponsors' knowledge.<sup>xxii</sup>

One common way of setting a spread is through the manipulation of prices for generic drugs. Generic drugs are priced with lists of maximum allowable cost ("MAC") that the PBMs establish. The PBMs may use multiple MAC lists to maximize spreads; for example, they can have one for pharmacies and another for sponsors. By having low prices on pharmacies' MAC lists and high prices on sponsors' MAC lists, PBMs can take rents from the supply chain by buying low and selling high.<sup>xxiii</sup> PBMs can also widen their spreads by retroactively charging pharmacies for failure to meet PBM performance standards. PBMs do not have to report these charges, even to Medicare.<sup>xxiv</sup>

PBMs can set a MAC price on a pharmacy's list so low that it is less than a patient's co-pay. In that case, the PBM could require that the pharmacy split the patient's overpayment with it. For example, if the MAC price were \$2 and the co-payment \$10, the PBM could allow the pharmacy to keep \$4 and "claw-back" the other \$4.<sup>xxv xxvi</sup>

### 4. Mail order spreads

A fourth way PBMs can raise sponsors' costs is to operate their own mail order pharmacies, as the three PBMs dominating the industry do. PBMs offer incentives to patients to use the mail order pharmacies via lower cost-sharing requirements. Some commercial plans require patients needing chronic medications to use mail order services, although Medicare prohibits such requirements.<sup>xxvii</sup>

Through those pharmacies, PBMs can directly know the generic drug wholesale costs. To the extent that sponsors pay similarly for retail and mail-order drugs, PBM can enlarge their spreads by making them the difference between wholesale and retail prices.<sup>xxviii</sup> PBMs can also use their pharmacies to get lower prices from wholesalers, giving PBMs a further way of widening their spreads.<sup>xxix</sup> According to the ERISA Advisory Council, PBM mail order pharmacies have, "become an increasingly important source of PBM revenue as generic share (of overall drug spend) has grown to over 80 percent of drugs dispensed."<sup>xxx</sup>

## 5. Retained specialty pharmacy rebates

A new type of drugs, specialty drugs, is rapidly expanding a fifth way for PBMs to take financial advantage of sponsors and patients. While there is no agreed-upon definition of specialty drugs <sup>xxxvi</sup>, they are generally medicines for complex conditions that have annual prices in the tens of thousands of dollars. In 2015, US annual costs of the top ten specialty drugs ranged from \$27,117 to \$92,847. <sup>xxxvii</sup>

In 2012, spending on specialty drugs in the United States was about \$87 billion. Estimates suggest that it could quadruple by 2020, reaching about \$400 billion, or 9.1 percent of national health spending. <sup>xxxviii</sup> The prices of these drugs makes revenues from concealing and retaining related DIR and non-DIR payments so large that they are becoming the main revenue source on which PBMs most rely. <sup>xxxix</sup>

In order to increase their revenue from specialty drugs, the big three PBMs have each established their own specialty pharmacies. <sup>xl</sup> Having their own specialty pharmacies gives PBMs the advantage that their specialty pharmacies do not have to report drug-maker rebates and fees received by them to Medicare. <sup>xli</sup> The PBMs are now actively reducing competing specialty pharmacies' share of the business. One way they do this is by instituting fees that discourage competing pharmacies from serving their sponsors' patients. <sup>xlii</sup> As a result, some smaller specialty pharmacies are expected to sell to PBM specialty pharmacies over time. <sup>xliii</sup>

### **C. Weakness of constraints on mainstream PBMs**

Given information asymmetry between bundled PBMs and sponsors, there are variety of ways to try to offset a bundled PBM's advantages. But they are problematic.

#### 1. Flexible price guarantees

Some sponsors' contracts with PBMs appear to guarantee that the price of a drug be measured as some percentage discount off of average wholesale price (AWP). But these contracts can include provisions allow leeway for PBMs if they fail to deliver on contractual price guarantees. For example, if a contract has a price guarantee, then another provision could give a PBM the ability to reclassify generic drugs as branded drugs so that it could use the price of a generic drug to claim it had delivered its guaranteed discount for a branded drug. <sup>xliiii</sup> PBM contracts can also exclude certain claim types in calculating PBM performance. <sup>xliiii</sup>

#### 2. Obstacles to audits

Over the years, sponsors have been advised to tighten contract provisions for auditing PBMs for retained rebates and other considerations from manufacturers. <sup>xliiii</sup> But PBMs have routinely inserted provisions into their contracts with sponsors that substantially impede audits. <sup>xliiii</sup> The ERISA Advisory Council's 2014 report provides a summary of those provisions:

- o The exclusion of auditors who the PBM believes hold hostile views.
- o On-site audits required at PBM headquarters.
- o Limits on the auditor’s transcribing notes on documents.
- o Confidentiality agreements that can be overly broad and put unnecessary burdens on the parties when they prohibit disclosure of information by an auditor to its client plan.
- o PBMs will not disclose documents requested by some auditors such as PBM contracts with retail pharmacies and drug manufacturers.
- o Access to claims data is restricted.
- o Audit rights restricted to limited periods (such as 2 years).
- o Some necessary data sources such as AWP pricing are not public and access is expensive (estimated at \$25,000 for Medi-Span AWP pricing) and disclosure is limited.
- o Plans with less than \$10 million in “spend” may be prohibited by some PBM contracts from conducting audits.<sup>xliii</sup>

Beyond the above impediments, auditors are often required to sign confidentiality agreements with PBMs. PBMs know that auditors rarely tell their clients about these confidentiality agreements, even though auditors know the agreements may undermine their audits’ effectiveness<sup>xliiv</sup>

### 3. Weak government oversight

Sponsors could look to the law to offset a bundled PBM’s advantage; but PBM regulation is difficult given the industry’s power over governors, state legislatures, and Congress. Further, the industry also has gotten significant help from the federal courts in overturning even modest attempts at regulation.<sup>xliv</sup>

#### **D. Extent to which PBMs have exercised their profit-maximizing options**

Using the above and other options, three PBMs (CVS/Caremark, Express Scripts and OptumRx) have grown powerful enough to turn the PBM industry into an oligopoly.<sup>xlvi</sup> These businesses, by 2015, had over 70% of the national PBM market. CVS/Caremark and Express Scripts alone control between 80-90% of the large employer market<sup>xlvii</sup>

These PBMs have grown so large that they are now casting a shadow over the entire health insurance industry. In 2016, the annual revenue increase of OptumRx was, by far, the largest of any component of United Health Group, a group that includes the country’s largest medical insurer, United Health.<sup>xlviii</sup> In 2018, Express Scripts and Cigna announced a planned merger.<sup>xlix</sup>

In the second half of 2018, the Department of Justice is expected to approve Caremark's acquisition of Aetna.<sup>i</sup> Aetna is the third largest medical insurer in the U.S.; Cigna is the fifth.<sup>ii</sup> All three of the big-three PBMs are listed in the top 25 of the Fortune 500.<sup>iii</sup>

#### **E. Alternative model to mainstream PBMs**

Given that progress in the political arena is likely to be slow and that contract provisions are highly problematic, some sponsors are addressing the problems of bundled PBM rent-seeking by at least partially bypassing them and unbundling their PBM services. An unbundled PBM directly links sponsors and some or all of the interests on the supply side of the pharmaceutical industry. So, for example, in an unbundled PBM a sponsor could do its own negotiating with manufacturers for inclusion on its preferred drug list. It could have its own contracts with retail pharmacies and/ or mail order pharmacies. It could still retain a PBM to perform tasks like eligibility determination, claims adjudication, formulary determination, implementation of step-therapies, and management of pre-authorizations and PBM compensation for performing those tasks would be solely through an administrative fee.<sup>iiii</sup> In various configurations, unbundling is practiced by TRICARE<sup>lv</sup>, the Department of Veterans Affairs<sup>lv</sup>, Kaiser<sup>lvi</sup>, and Caterpillar.<sup>lvii</sup> This is also the approach of Washington State's Uniform Medical Plan (UMP) for government workers and pensioners. UMP will be one of the subjects of this report's cost study. In this report's following cost study, we feature the costs and other data from two large state sponsors of PBMs, one bundled and one partially unbundled, to see how unbundling might affect a sponsor's drug costs.

## II. Overview of PBMs for California and Washington State Employees

To explore how the approaches of different PBM models might affect prescription drug use patterns and costs, we evaluated data from two major public sponsors. The sponsors whose plans we analyze are California’s CalPERS health benefits plan and Washington State’s Uniform Medical Plan (UMP), one of the sponsors using Washington State’s unbundled PBM approach. CalPERS is the main payer for California state workers and pensioners in many local California jurisdictions, and we obtained data for three of their PBMs: Caremark, Blue Cross Blue Shield of California (BCBSCA), and Kaiser. Uniform Medical Plan is the main payer for Washington state workers and pensioners and workers and pensioners in many local Washington jurisdictions.

The differences in the sponsors’ PBM models can be described as bundled and partially unbundled. For CalPERS, one of its major 2016 PBMs, Caremark, had bundled its formulary, its retail pharmacy network, its mail order pharmacy, and its specialty pharmacy all in one package. Although we do not have details of the 2016 BCBSCA and Kaiser PBM arrangements, we do have their 2018 arrangements. Anthem Blue Cross also has a fully bundled PBM with OptumRx.<sup>lviii</sup> Blue Shield has Caremark for its mail order and specialty pharmacy,<sup>lix</sup> but has its own pharmacy and therapeutics committee, which has been in operation since at least 2006,<sup>lx</sup> to design its formulary based on, “safety, effectiveness and overall value”.<sup>lxi</sup> Kaiser has its own pharmacy and therapeutics committee<sup>lxii</sup> and its own bricks-and-mortar and mail order pharmacies; it partially obtains specialty medicines through its own specialty pharmacy.<sup>lxiii</sup>

So, operating on the assumption that PBM arrangements for BCBSCA and Kaiser were the same in 2016 as in 2018, the PBMs we identified had the following approaches: Caremark had its formulary, its retail pharmacy network, its mail order pharmacy, and its specialty pharmacy all in one bundle; BCBSCA had unbundled to the extent it designs its own drug formulary; and Kaiser’s PBM was largely unbundled.

UMP used an unbundled PBM as follows:

	UMP
Drug formulary	UMP relied on Washington State Health Care Authority (HCA) clinical staff to design its core formulary. <sup>1</sup> For drug safety & effectiveness evaluation, the HCA staff relied on its P&T committee which, in turn, used the research of the Drug Effectiveness Review Project. For analysis of price bids, HCA staff used Milliman.  Its PBM, MedImpact, provided a “wrap-around” formulary. HCA staff reviewed “wrap-around” formulary.
Rebates	UMP pays administrative fee to administrator, Moda; no rebates from drug-makers to “wrap-around” PBM

<sup>1</sup> The core formulary is for 30 therapeutic classes of drugs and, at one time, covered 40% of UMP’s prescription drug spend.

Retail pharmacy network	UMP main retail pharmacy network is the Northwest Drug Consortium's MedImpact network. The consortium is a drug purchasing coalition based on the Washington Prescription Drug Program, of which the UMP is a subsidiary, and the Oregon Prescription Drug Program.
Mail order pharmacy	UMP contracted for its mail order service with Postal Prescription Services (owned by Fred Meyer).
Specialty pharmacy	UMP used the specialty pharmacy of the NW drug consortium, Ardon (Ardon is owned by the NW drug consortium administrator, Moda).

### A. CalPERS and UMP Prescription Per Member Per Month (PMPM) Costs (2016)

Unlike CalPERS, UMP does not provide group Medicare drug coverage; enrollees obtain it individually through the Part D program. So, only the non-Medicare PMPM drug costs of UMP and CalPERS can be compared. Both plans provide adequate data to break out their 2016 specialty drug costs from their other drug costs (in the case of CalPERS, a report shows that 99% of the prescriptions they covered were non-specialty drugs).

The respective prescription drug per member per month costs for UMP and CalPERS Caremark recipients are as follows:<sup>lxiv</sup>

2016 Per Member Per Month Prescription Drug Costs

	CalPERS (Caremark)	Uniform Medical Plan <sup>2</sup>
Non-Medicare non-specialty drugs	\$89	\$58
Non-Medicare specialty drugs	\$42	\$48
Total Non-Medicare drugs	\$131	\$106

The plan years are off by three months (CalPERS is January-December 2016 and UMP's is October 2015-September 2016); but prescription drug price increase from September 2016 to December 2016 was 1.4%; so the differences between Caremark and UMP would still be substantial. The specialty drug break-out is approximate because there is no precise definition of specialty drugs. Also confounding specialty drug cost measurement is the problem that, if specialty drugs were administered in the office, they would not show up as pharmacy specialty drug costs. Further, sponsors' policies for covering specialty drugs can vary: one could use adherence and other standards to deny coverage for a certain drug that another might not use. But, given those caveats, CalPERS Caremark non-Medicare, non-specialty drug PMPM was more than half again as much as UMP's. Below, we first discuss variables that may affect the sponsors' non-Medicare non-specialty drug costs. We return to the sponsors' non-Medicare specialty drug costs afterward.

<sup>2</sup> PBM administrative fees are included in the UMP PMPM.

## B. Non-PBM variables

First, we consider some non-PBM variables. Below are those that we were able to measure.

1. Copays: CalPERS average copay was \$9.11. UMP's average copay was \$13.27. So, lower copays may have slightly increased CalPERS patients' prescription utilization and costs.
2. Prescribing patterns: In 2017, annual per capita pharmacy prescription costs in California were \$840; in Washington, it was \$884, 5% more.<sup>lxv</sup> So, higher state-wide per capita Prescription costs may have slightly increased UMP Prescription costs.
3. Selection due to Kaiser options:<sup>3</sup> Kaiser had 41% of CalPERS enrollees.<sup>lxvi</sup> Kaiser/ Group Health had 31% of UMP enrollees. Enrollees' selection between Kaiser and non-Kaiser plans should have similar selection effects for the sponsors.

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<sup>3</sup> In 2016, Washington's "Kaiser" was mainly Group Health; Group Health was acquired by Kaiser in 2017.

### III. Evaluation of prescription drug spending data

#### A. Data sources:

We obtained aggregate medication purchasing data from CalPERS and Washington's UMP plan. The structure differed slightly between the two states, as described below:

##### 1. CalPERS:

Medication purchasing data from CalPERS were provided for the 3 PBMs serving CalPERS members: Blue Cross Blue Shield of California (BCBSCA), Caremark, and Kaiser. Data were organized by National Drug Code (NDC). The records for each NDC number included number of prescriptions filled, total days supplied, and total amount paid. We used the NDC numbers to match the prescription records with the First DataBank National Drug Data File (NDDF) which contains information for each NDC on the medication therapeutic class, generic vs brand status and other medication characteristics.

##### 2. Uniform Medical Plan:

Medication purchasing data for UMP were provided for several plans. Over 90% of prescriptions cluster in the "Classic" plan, with small proportions of medications in specific plans for selected sub-populations of patients, so only the "Classic" plan was included in these analyses. The Washington data were not organized by NDC number but by medication name, with an indicator for brand vs generic status for each record, which also included the number of prescriptions, the total days supplied of that medication, and the total paid. Therapeutic class was provided for each medication, but at a high level of aggregation (e.g. all antihypertensive medications combined into a single group rather than specific subgroups of antihypertensive agents). Accordingly, the UMP records could not be merged with the NDDF as was done for the CalPERS data.

#### B. Analytic approach

We examined the spending patterns for each PBM (3 for CalPERS and one for UMP). We focused on the distribution of spending within each therapeutic class and identified potential savings based on increased use of generic medications within a class and on the relative pricing of generic medications. The greater the potential savings, the higher the proportion of high-priced drugs on the formularies. We compared the per-day costs and the potential savings across commonly used medication classes for which large potential savings were identified.

##### 1. CalPERS analysis:

We organized data for each PBM by therapeutic class categories in the NDDF. Within each therapeutic class we grouped medications by branded and generics. For the generics we identified the average generic costs per day within each class, and the lowest generic costs per

day. Average generic cost per day was calculated by summing the total amount paid for all generic medications within the class and dividing it by the total days supplied for those same generic medications. Lowest cost was assigned based on the lowest daily cost for a specific medication within the class, provided that the individual medication accounted for at least 10% of the total prescriptions in the class (to avoid unrealistic calculations based on seldom-used medications).

For each medication we then calculated alternative spending for two scenarios: use of average generic cost within the therapeutic class and use of lowest generic cost within the therapeutic class. These values were obtained by multiplying the total number of days supplied for all medications in the class by the average and lowest generic costs. We compared these totals to the actual spending amounts within each therapeutic class and calculated the total potential savings and percentage savings for the branded medications and generic medications in a therapeutic class for each scenario. We then identified the 20 scenarios with the largest potential savings for each PBM, and also calculated the total potential savings for each PBM.

## 2. Uniform Medical Plan analyses:

Given the format in which the UMP data were provided, we were unable to use the NDC classifications to group the medications by therapeutic class or specific medication entity. The medication classes in the UMP data were too broad for substitution of medications within the class groups to be clinically plausible. Accordingly we developed a modification of the approach used for the CalPERS analyses to apply to the UMP data.

From the CalPERS data we identified, for each PBM, the 20 classes with the largest potential savings. The classes with the largest potential savings were not identical across the 3 CalPERS PBMs, so a total of 32 classes were included. Within each class we then matched the medication names provided in the UMP data with the medication names for agents in the relevant 32 therapeutic classes (based on CalPERS analyses) in the NDDF database. Multiple matches occurred in some scenarios; for example, some medications are available in both pill and topical forms. We identified all such situations and reviewed those records manually, using the medication class variable provided with the UMP data to ensure that the match had been to the appropriate medication from the NDDF database.

We then applied the same methods as used in the CalPERS analyses to medications from these 32 therapeutic classes, including calculating the average generic cost and lowest generic cost within each class, then calculating alternative spending for each scenario and identifying the total savings and percentage savings for each class and each scenario.

## 3. Cost comparisons:

We first compared the per-day costs for commonly used medication classes. We calculated these values within each class using the total amount spent and the days of medication supplied. We chose this method rather than spending per prescription since plans differed in

the extent to which 30 or 90 day prescriptions were used (based on the ratio of days supplied to prescriptions filled). We compared the per-day costs for 10 medication classes with high levels of potential savings and which were not specialty-type medications. We prepared detailed comparisons for potential savings for two commonly used medication classes (statins and proton-pump inhibitors) for both potential savings scenarios.

### C. Results of analyses

#### 1. Daily medication costs:

Table 1 shows the daily medication costs for 10 commonly used therapeutic classes. In general the costs per day were lowest for Kaiser among the CalPERS plans and the costs per day for UMP were lower than for the California plans. In several cases the daily costs for the other CalPERS PBMs were more than twice those for UMP or Kaiser, including for narcotic analgesics, anticonvulsants, SNRIs, and antipsychotics. Important utilization differences could also be observed in some classes. In particular, UMP rarely covers PPIs since many are available over the counter and so covered less than 1% as many days of PPI treatment as any of the California PBMs, even though the number of patients covered by UMP is of the same order of magnitude as those covered by Caremark or BCBSA, and lower than Kaiser. Similarly, the UMP plan paid for far fewer ADHD medications than any of the California plans.

**Table 1: Daily costs and days supplied for major medication classes**

Class	UMP		Kaiser		Caremark		BCBSA	
	Daily cost	Total days	Daily cost	Total days	Daily cost	Total days	Daily cost	Total days
PPI	\$ 1.83	35,664	\$ 0.67	4,336,388	\$ 1.29	5,776,118	\$ 0.84	4,296,664
Estrogens	\$ 1.12	1,560,339	\$ 0.96	1,173,595	\$ 2.43	2,288,461	\$ 2.13	1,083,796
Narcotics	\$ 1.69	2,550,407	\$ 3.79	822,744	\$ 5.89	1,557,879	\$ 4.89	1,041,436
Anticonvulsants	\$ 0.92	4,318,299	\$ 2.01	3,947,482	\$ 2.43	4,683,843	\$ 1.63	3,340,700
SNRIs	\$ 0.68	1,702,146	\$ 1.22	1,531,120	\$ 2.32	2,319,201	\$ 1.62	1,609,188
Antipsychotics	\$ 2.82	541,153	\$ 2.71	752,954	\$ 7.80	870,471	\$ 6.02	605,253
ADHD drugs	\$ 5.54	202,287	\$ 5.13	964,757	\$ 4.23	998,423	\$ 6.17	764,700
Statins	\$ 0.26	12,589,326	\$ 0.39	14,200,678	\$ 0.81	11,162,967	\$ 0.37	7,896,743
Other lipid drugs	\$ 1.57	820,680	\$ 2.02	743,458	\$ 3.40	2,132,501	\$ 2.03	1,258,456
IBD drugs	\$ 11.82	237,830	\$ 17.35	273,139	\$ 14.90	263,900	\$ 14.56	172,649

#### 2. Potential savings in selected therapeutic classes:

The daily costs for each therapeutic class reflect several factors, including the relative proportion of branded and generic medications used within each class and the prices obtained by the PBM for branded and generic medications. Tables listing the details of the potential savings identified for commonly used therapeutic classes are provided in the appendix. Due to the aggregate nature of the data, we have a limited ability to evaluate the appropriateness of

the mix of generic and branded medications for most therapeutic classes. For classes with multiple generic options available that are known to be highly effective, comparisons are possible, and these are presented here.

We assessed how the different formulary management approaches handled two of the most common medication classes. Statins, or HMG-coA reductase inhibitors, are among the most widely used medications for the primary and secondary prevention of cardiovascular disease. Many effective statins are available in generic form, although the costs are heterogeneous and some generic statins remain relatively costly compared to typical generic medications. Branded statins are still marketed, and rates of branded medication use for statins have remained higher than for some other therapeutic classes. Proton-pump inhibitors (PPIs) suppress gastric acid and can be used to treat peptic ulcer disease and related disorders, although these agents may be overused in patients with more mild gastrointestinal symptoms or patients for whom sensible lifestyle modification approaches have not yet been attempted. As with statins, the PPI class does include some branded medications as well as many generics, with some agents in the class still carrying a relatively high price. The PPI class has an additional important property: several medications in the group are available over-the-counter.

Table 2 shows the savings analyses for branded statins, including the number of branded statins covered, the percentage of total statins accounted for by branded versions, the potential savings if branded statins were replaced with generics at the average generic cost, and the percentage saved by use of generics. None of the plans pay for a large number of branded statins, but the proportion of statins accounted for by branded agents was larger for Caremark than for the other PBMs, while UMP and Kaiser had lower rates of branded statin use and BCBSCA branded use was at an intermediate level. UMP, in addition to including fewer branded statins, had much lower costs per branded statin prescription. Even this relatively small number of branded statins accounted for significant spending, as can be seen by comparison to Table 3 (see below).

**Table 2: Spending and potential savings for branded statins**

PBM	N brand	% brand	\$ brand	\$generic save	%generic save
Caremark	8,567	4%	\$3,793,250	\$3,532,914	93%
Kaiser	1,140	1%	\$619,346	\$588,524	95%
BCBSCA	3,158	2%	\$1,072,886	\$1,035,921	97%
UMP	1,568	1%	\$367,976	\$355,736	97%

Table 3 shows the savings analysis for generic statins, including the number of generic prescriptions, the total spending on generics, the potential savings if the lowest priced commonly used generic had been dispensed and the percentage saved by use of the lowest cost generic. The number of prescriptions for generic statins is, as expected, much larger for all the PBMs. A notable difference is seen, however, in the potential savings from use of the lowest cost generic agent. This measure gives a sense of the extent to which a PBM is able to channel use to the lowest cost agent, and it is notable that Caremark has much higher potential savings

by this measure while Kaiser's percentage is much lower. In this instance BCBSA and UMP both have much lower baseline spending on generic statins, likely reflecting the use of a higher proportion of lower-cost generic statins within the class.

**Table 3: Spending and potential savings for generic statins**

PBM	N generic	\$ generic	\$ savings lowest generic	% savings with lowest generic
Caremark	189,769	\$5,259,726	\$4,896,712	93%
Kaiser	155,984	\$4,852,092	\$1,482,228	31%
BCBSA	169,676	\$1,814,985	\$1,074,897	59%
UMP	185,841	\$1,712,659	\$1,008,047	59%

Spending on PPIs is shown in Tables 4 and 5. Table 4 shows branded PPIs and Table 5 shows generics. As was the case for statins, Kaiser has a strikingly lower rate of use of the branded agents, with correspondingly lower spending and also has much smaller potential savings from use of the lowest cost generic. The PPI class, however, shows another notable difference in formulary management approaches, most strikingly for UMP. Since PPIs are available over the counter, UMP pays for only a very small number annually, with the prescriptions in Tables 4 and 5 summing to only 1,000 total prescriptions. Kaiser shows a similar trend, with about half as many total PPI prescriptions covered as Caremark and BCBSA.

**Table 4: Spending and potential savings for branded PPIs**

PBM	N brand	% brand	\$ brand	\$generic save	%generic save
Caremark	5,604	5%	\$2,491,235	\$2,217,285	89%
Kaiser	458	1%	\$503,254	\$487,256	97%
BCBSA	7,571	7%	\$2,471,120	\$2,378,455	96%
UMP	329	33%	\$33,914	\$30,571	90%

**Table 5: Spending and potential savings for generic PPIs**

PBM	N generic	\$ generic	\$ savings lowest generic	% savings with lowest generic
Caremark	110,906	\$4,961,260	\$4,372,901	88%
Kaiser	58,329	\$2,382,913	\$166,964	7%
BCBSA	95,194	\$1,127,839	\$485,624	43%
UMP	671	\$7,759	\$4,222	54%

### 3. Aggregate analyses:

In 2016 the CalPERS data provided included a total of almost 9 million prescriptions, accounting for over 400 million days supply of therapy at a total amount paid of \$1.18 billion. Caremark was the largest plan with 3.9 million prescriptions and \$503 million in spending,

followed by Kaiser with 3.1 million prescriptions at \$373 million and BCBSCA with 2.9 million prescriptions at \$301 million.

Appendix tables 1-3 show the 20 therapeutic class and brand/generic scenarios with the largest potential savings for each of the 3 CalPERS PBMs. Large potential savings were identified for both branded and generic medications, with variability across classes as shown in the appendix tables.

Savings were possible on branded medications when a therapeutic class included both brand and generic agents – in this situation the replacement of the branded agents with the generic alternatives would yield lower costs per prescription and in aggregate for the class. In these scenarios the branded agents had modest total numbers of prescriptions and the potential savings were driven by the high per-unit cost differences between the branded and generic agents in the same therapeutic class. The potential savings in these scenarios were similar for either cost calculation approach: average generic cost per day or lowest generic cost per day.

Savings were possible on generic medications when there were multiple generic agents within a class and one of those agents offered a lower per-day cost. In these scenarios there were a large number of filled prescriptions in the classes and the savings were driven by smaller per-prescriptions costs over many filled prescriptions. By definition the calculation using average generic cost per day did not identify any savings in the situations (since the calculation approach simply yields the weighted mean across the generic entities within the class) and the potential savings were shown by the lowest generic cost approach.

Appendix Table 4 shows the summary for the potential savings by scenario across all medication classes for each of the three CalPERS PBMs.

Because of the data organizational issues noted above, UMP analyses were carried out for a selected subset of medication classes, as described in the methods. Appendix Table 5 shows the results for the 20 most common medication class and brand/generic scenarios.

#### **D. Limitations of quantitative analyses**

Interpretation of the results of these analyses must be considered in light of several important constraints on our data and analyses. We were not able to obtain information on rebates provided by pharmaceutical companies to PBMs and so are unable to comment on the impact of rebates on the costs for the state health plans, based on that information.

Most importantly, all of the analyses used aggregate data, representing combinations of many individual prescriptions. We did not have information on individual patient or prescriber characteristics that may have guided the choice of medications in specific scenarios. It is possible that some policies implemented by PBMs that reduced prescription spending may have imposed burdens on patients. For example, the UMP plan spent very little on prescription

PPIs. While many PPI prescriptions are likely to be unnecessary, it is possible that some patients covered by UMP with valid indications for PPI therapy were forced to purchase these agents over-the-counter and pay a small amount out of pocket.

## IV. Discussion

### A. Implications of empiric results

Our analyses demonstrated differences in the spending patterns between different PBM models. The UMP plan in Washington had notably lower costs per day of prescription drug therapy than the CalPERS Caremark and BCBSA plans, and among the CalPERS plans Kaiser had lower costs per day. The evaluation of potential savings showed similar trends, indicating greater unrealized savings for the CalPERS Caremark and BCBSA plans relative to the Kaiser and UMP plans. In this final section we will consider how the factors identified in the literature review might explain these results and what lessons can be drawn from the UMP approach.

#### 1. Cost factor #1: high-cost drugs on formulary

We examined the spending patterns of CalPERS PBM plans and Washington's UMP PBM model. We focused on the distribution of spending within each therapeutic class and identified potential savings based on increased use of generic medications within a class and on the relative pricing of generic medications. We found that potential savings were largest in the CalPERS Caremark and BCBSA plans, and significantly less so in UMP. So, it appears very likely that high-cost drugs on the formulary account for part of the gap between the UMP and CalPERS Caremark PMPMs.

#### 2. Cost factor #2: manufacturer payments retained by PBM

When retaining OptumRx in 2016, CalPERS reported that it was, "the first time CalPERS has negotiated and secured contractual agreements before the PBM contract was awarded". Further, they noted that, among the terms of those agreements, was a terms that would require, "transparency and full disclosure of the financial relationships between the PBM and drug manufacturers." This contract term apparently was effective as CalPERS OptumRx PMPM for the following year was \$115, a 12% drop the PMPM from the Caremark plan in the year before. In a 2016 analysis of PBMs, Bank of America estimates that rebates then contributed ~10-15% of PBMs net profits.<sup>lxvii</sup> So, given the 2017 drop in the Prescription PMPM from CalPERS Caremark to CalPERS OptumRx, the likelihood that the Caremark formulary included high-cost drugs generating larger rebates, and the Bank of America analysis, it appears that the Caremark model was more likely than the UMP model to have resulted in manufacturer payments retained by PBM.

#### 3. Cost factor #3: retail pharmacy spreads

We were not able to examine evidence that would indicate the size of these spreads. UMP used the Northwest Drug Consortium pharmacy network and the consortium contract with MedImpact provides that what sponsor pays for drug matches what MedImpact pays pharmacies. The 2016 Bank of American analysis of the PBM industry indicates that the PBM

margins on #3 is shrinking.<sup>lxviii</sup> While it is not clear the extent to which retail pharmacy spreads account for the difference, it may not have been large.

#### 4. Cost factor #4: Mail order spreads

We were not able to examine evidence that would indicate the size of these spreads. The 2016 Bank of American analysis of the PBM industry indicates that the PBM margins on #4 are substantial.<sup>lxix</sup> While we cannot see the spread of either CalPERS Caremark or UMP, it appears likely that mail order spreads that may account for part of the difference.

#### 5. Cost factor #5: Retained specialty drug rebates

As shown above, UMP's reported 2016 PMPM on specialty drugs is \$48 as opposed to CalPERS Caremark's reported \$42, 14% higher. So, it appears unlikely that retained specialty drug rebates account for much of the gap between the UMP and CalPERS Caremark Prescription PMPMs.

In short, more high-cost drugs on the CalPERS Caremark formulary appear very likely to account for part of the CalPERS Caremark-UMP difference in non-Medicare Prescription PMPMs; manufacturer payments retained by the CalPERS Caremark PBM appear likely to account for part of the difference; it is not clear the extent to which retail pharmacy spreads account for the difference; mail order spreads may contribute to that difference; and it is unlikely that retained specialty drug rebates account for much of the difference.

### **B. Applicability of UMP Model**

Combining the literature and our findings, it appears that unbundling PBMs could offer sponsors a cost-effective alternative to the mainstream PBM model. Below, we discuss considerations in applying the UMP model.

#### 1. The UMP model is still under development

The UMP model did not begin with all its current arrangements with supply side interests. By 2006, UMP was already using its P&T committee to develop a drug formulary. Its connection with the Northwest Prescription Drug Consortium was initiated then with its capacity to provide UMP with a retail pharmacy network. UMP has yet to deal directly with a drug supply side interests like wholesalers. Its leaders have attempted, in conjunction with Moda, to negotiate directly with them; but, at the time, their business was not large enough to generate wholesaler offers.

#### 2. Unbundling could prioritize interests other than those with which UMP has contracted

In his seminal piece on the unbundling concept, Henry Eickelberg recommended prioritizing separate contracts with retail pharmacy networks and mail order pharmacies. Given that the

Bank of America/ Merrill Lynch has found that an increasing portion of PBM profits were coming from their mail order pharmacies in 2015<sup>lxx</sup>, separate contracts for mail order could be a high priority for unbundling.

3. Accommodations would be needed for sponsors too small to afford unbundling costs

UMP spent approximately \$300 million on drugs in 2016 and can cost-effectively support clinical staff, a P&T committee, and other functions related to its oversight of drug spending. For sponsors that are interested in unbundling their PBM arrangement but do not have the resources to cost-effectively support their own PBM unbundling, they would need to find a way to pool the costs. The Northwest Drug Consortium, in which UMP participates, offers this kind of alternative for smaller sponsor in Washington and Oregon and it has small business members such as Associated Employers Trust, Inland Boatmen's Union, and Monaco Enterprises.<sup>lxxi</sup>

## **V. Conclusions**

Our assessment of medication use patterns for two major state employee plan sponsors reveals important areas for improvement. The findings are consistent with prior trends identified in the literature, suggesting that the approach taken by an individual PBM can have significant implications for the ability of sponsors to provide affordable prescription drugs for their populations. As noted in the preceding sections, the aggregate nature of the data available to us for these analyses do not allow for definitive conclusions about the proportion of the potential savings identified that could be achieved through modified formulary management approaches. Even so, the large number of prescriptions included across a wide range of medication classes allowed our analyses to identify suggestive trends in potential savings that are deserving of further analysis with more detailed data.

## APPENDIX TABLES OF POTENTIAL SAVINGS ANALYSES

Appendix Table 1: Caremark aggregate results for scenarios with highest potential savings

Therapeutic class	Generic or brand	Prescriptions	Amount paid	Potential savings average generic	Percent savings average generic	Potential savings lowest generic	Percent savings lowest generic
anticonvulsants	brand	13,004	\$ 8,929,387	\$ 8,619,673	97%	\$ 8,885,465	100%
analgesics, narcotics	brand	9,210	\$ 6,503,974	\$ 5,960,980	92%	\$ 6,475,094	100%
antipsychotic, atypical	brand	5,047	\$ 6,064,166	\$ 5,842,525	96%	\$ 6,027,882	99%
antihyperglycemic, biguanide type	generic	72,981	\$ 6,094,221	\$ 0	0%	\$ 5,888,273	97%
hmg coa reductase inhibitors	generic	189,769	\$ 5,259,726	\$ 0	0%	\$ 4,896,712	93%
proton-pump inhibitors	generic	110,906	\$ 4,961,260	\$ 0	0%	\$ 4,372,901	88%
topical antifungals	brand	5,932	\$ 4,282,270	\$ 3,938,834	92%	\$ 4,114,444	96%
lipotropics	brand	7,711	\$ 3,877,863	\$ 2,889,642	75%	\$ 3,781,325	98%
hmg coa reductase inhibitors	brand	8,567	\$ 3,793,250	\$ 3,532,914	93%	\$ 3,775,282	100%
contraceptives, oral	brand	110,288	\$ 4,200,409	\$ 2,073,877	49%	\$ 3,672,713	87%
chronic inflam. colon dx, 5-aminosalicylat	brand	3,991	\$ 3,772,141	\$ 3,451,294	91%	\$ 3,654,184	97%
antihyperglycemic, dpp-4 inhibitors	brand	11,682	\$ 7,302,111	\$ 3,481,599	48%	\$ 3,481,599	48%
androgenic agents	brand	4,971	\$ 3,739,926	\$ 2,914,241	78%	\$ 3,443,201	92%
estrogenic agents	brand	17,703	\$ 4,167,321	\$ 3,057,854	73%	\$ 3,107,540	75%
lipotropics	generic	28,988	\$ 3,362,693	\$ 0	0%	\$ 3,034,198	90%
adrenergics, aromatic, non-catecholamine	brand	9,752	\$ 2,858,318	\$ 2,191,572	77%	\$ 2,576,159	90%
analgesics, narcotics	generic	56,041	\$ 2,677,518	\$ 0	0%	\$ 2,535,110	95%
proton-pump inhibitors	brand	5,604	\$ 2,491,235	\$ 2,217,285	89%	\$ 2,458,748	99%
topical anti-inflammatory steroidal	generic	43,284	\$ 2,681,042	\$ 0	0%	\$ 2,413,630	90%
serotonin-norepinephrine reuptake-inhib	generic	46,267	\$ 3,216,273	\$ 0	0%	\$ 2,343,211	73%

Appendix Table 2: Kaiser aggregate results for scenarios with highest potential savings

Therapeutic class	Generic or brand	Prescriptions	Amount paid	Potential savings average generic	Percent savings average generic	Potential savings lowest generic	Percent savings lowest generic
attention deficit-hyperact(adhd)/narcolepsy	generic	11,324	\$ 5,628,370	\$ 0	0%	\$ 4,220,351	75%
topical anti-inflammatory steroidal	generic	68,040	\$ 5,586,718	\$ 0	0%	\$ 4,168,059	75%
chronic inflam. colon dx,5-aminosalicylat	brand	2,407	\$ 4,270,666	\$ 3,411,961	80%	\$ 3,903,143	91%
anticonvulsants	brand	2,630	\$ 3,510,882	\$ 3,323,989	95%	\$ 3,462,487	99%
anticonvulsants	generic	62,027	\$ 4,419,893	\$ 0	0%	\$ 3,275,369	74%
adrenergics, aromatic, non-catecholamine	brand	11,089	\$ 4,317,311	\$ 2,811,745	65%	\$ 3,259,126	75%
nsaids, cyclooxygenase inhibitor	generic	143,518	\$ 3,437,432	\$ 0	0%	\$ 2,530,268	74%
immunosuppressives	generic	4,701	\$ 2,394,328	\$ 0	0%	\$ 1,952,719	82%
beta-adrenergic agents, inhaled, short acting	brand	70,762	\$ 3,043,845	\$ 1,189,630	39%	\$ 1,708,482	56%
analgesics, narcotics	generic	40,957	\$ 2,305,366	\$ 0	0%	\$ 1,514,886	66%
hmg coa reductase inhibitors	generic	155,984	\$ 4,852,092	\$ 0	0%	\$ 1,482,228	31%
antineoplastic - antiandrogenic agents	brand	134	\$ 1,326,810	\$ 1,324,111	100%	\$ 1,324,191	100%
antipsoriatic agents,systemic	brand	214	\$ 1,453,769	\$ 1,256,478	86%	\$ 1,260,942	87%
antipsychotic,atypical,	brand	686	\$ 1,256,876	\$ 1,219,696	97%	\$ 1,239,986	99%
electrolyte depleters	brand	1,125	\$ 1,576,746	\$ 1,227,236	78%	\$ 1,224,489	78%
selective serotonin reuptake inhibitor (ssris)	generic	95,192	\$ 2,403,029	\$ 0	0%	\$ 1,106,025	46%
narcotic analgesic & non-salicylate comb	generic	151,659	\$ 6,367,465	\$ 0	0%	\$ 1,044,149	16%
beta-adrenergic blocking agents	generic	79,572	\$ 1,980,680	\$ 0	0%	\$ 909,624	46%
antivirals, general	generic	28,906	\$ 1,665,977	\$ 0	0%	\$ 904,023	54%
immunosuppressives	brand	572	\$ 894,808	\$ 615,966	69%	\$ 843,379	94%

Appendix Table 3: BCBCSA aggregate results for scenarios with highest potential savings

Therapeutic class	Generic or brand	Prescriptions	Amount paid	Potential savings average generic	Percent savings average generic	Potential savings lowest generic	Percent savings lowest generic
adrenergics, aromatic, non-catecholamine	brand	15,073	\$ 4,181,429	\$ 3,191,005	76%	\$ 3,471,394	83%
anticonvulsants	brand	4,993	\$ 3,415,571	\$ 3,273,208	96%	\$3,378,820	99%
androgenic agents	brand	4,694	\$ 3,373,140	\$ 2,673,790	79%	\$ 3,184,549	94%
antipsychotic,atypical,dopamine,serotonin antagnst	brand	3,194	\$ 3,079,125	\$ 2,929,295	95%	\$ 3,023,791	98%
analgesics, narcotics	generic	38,971	\$ 2,841,567	\$ 0	0%	\$ 2,640,789	93%
antihyperglycemic, dpp-4 inhibitors	brand	10,784	\$ 5,522,498	\$ 2,545,537	46%	\$ 2,545,537	46%
proton-pump inhibitors	brand	7,571	\$ 2,471,120	\$ 2,378,455	96%	\$2,418,355	98%
analgesics, narcotics	brand	2,872	\$ 2,255,506	\$ 2,002,415	89%	\$2,237,623	99%
drug tx-chronic inflam. colon dx,5-aminosalicylat	brand	2,298	\$ 2,297,228	\$ 1,875,895	82%	\$2,225,986	97%
antihyperglycemic, biguanide type	generic	67,580	\$ 2,333,431	\$ 0	0%	\$1,961,280	84%
topical anti-inflammatory steroidal	generic	29,703	\$ 2,159,825	\$ 0	0%	\$1,801,486	83%
antineoplastic systemic enzyme inhibitors	brand	1,035	\$ 10,054,006	\$ 1,547,763	15%	\$1,547,763	15%
contraceptives,oral	brand	87,105	\$ 2,809,354	\$ 751,817	27%	\$1,517,906	54%
anticonvulsants	generic	84,316	\$ 2,015,447	\$ 0	0%	\$1,495,162	74%
serotonin-norepinephrine reuptake-inhib (snris)	brand	3,786	\$ 1,572,883	\$ 1,450,030	92%	\$1,485,125	94%
beta-adrenergic agents, inhaled, short acting	brand	36,100	\$ 2,221,801	\$ 811,234	37%	\$1,434,286	65%
lipotropics	generic	24,500	\$ 1,731,252	\$ 0	0%	\$1,355,679	78%
tx for attention deficit-hyperact(adhd)/narcolepsy	generic	11,386	\$ 1,893,007	\$ 0	0%	\$1,326,402	70%
topical antineoplastic & premalignant lesion agnts	generic	1,873	\$ 1,843,748	\$ 0	0%	\$1,227,390	67%
pulm.anti-htn,sel.c-gmp phosphodiesterase t5 inhib	brand	292	\$ 1,178,698	\$ 1,149,335	98%	\$1,149,335	98%

Table 4: Potential savings for all medication classes across CalPERS PBMs

PBM	Baseline spend	Potential savings from average generic	Potential savings from lowest generic	Percentage savings from average generic	Percentage savings from lowest generic
Caremark	\$ 503,400,477	\$ 95,249,190	\$ 168,476,103	33%	19%
BCBSA	\$ 300,951,873	\$ 47,140,788	\$ 84,677,508	28%	16%
Kaiser	\$ 373,335,528	\$ 3,179,596	\$ 53,799,052	14%	1%

Appendix Table 5: UMP/Washington aggregate results for scenarios with highest potential savings

Therapeutic class	Generic or brand	Prescriptions	Amount paid	Potential savings average generic	Percent savings average generic	Potential savings lowest generic	Percent savings lowest generic
analgesics, narcotics	Generic	127,264	\$ 3,353,319	\$ 0	0%	\$ 2,725,418	81%
anticonvulsants	Brand	5,020	\$ 2,103,907	\$ 2,007,877	95%	\$ 2,076,194	99%
topical anti-inflammatory steroidal	Generic	51,985	\$ 2,318,494	\$ 0	0%	\$ 2,003,310	86%
anticonvulsants	Generic	107,571	\$ 2,273,147	\$ 0	0%	\$ 1,617,134	71%
analgesics, narcotics	Brand	5,020	\$ 1,295,183	\$ 1,096,426	85%	\$ 1,257,966	97%
colon dx,5-aminosalicylat	Brand	1,574	\$ 1,205,249	\$ 1,078,275	89%	\$ 1,144,786	95%
antipsychotic,atypical	Brand	1,139	\$ 1,149,881	\$ 1,123,163	98%	\$ 1,142,179	99%
attention deficit-hyperact(adhd)/narcolepsy	Generic	14,409	\$ 1,822,211	\$ 0	0%	\$ 1,035,824	57%
hmg coa reductase inhibitors	Generic	185,841	\$ 1,712,659	\$ 0	0%	\$ 1,008,047	59%
antihyperglycemic, dpp-4 inhibitors	Brand	4,495	\$ 1,704,720	\$ 915,064	54%	\$ 915,064	54%
beta-adrenergic blocking agents	Generic	62,906	\$ 1,122,019	\$ 0	0%	\$ 855,100	76%
lipotropics	Generic	10,916	\$ 965,019	\$ 0	0%	\$ 774,829	80%
nsaids, cyclooxygenase inhibitor -	Generic	51,172	\$ 875,863	\$ 0	0%	\$ 747,649	85%
estrogenic agents	Brand	7,164	\$ 873,294	\$ 548,213	63%	\$ 559,492	64%
angiotensin receptor antagonist	Generic	62,958	\$ 983,053	\$ 0	0%	\$ 487,634	50%
contraceptives,oral	Generic	27,887	\$ 1,188,292	\$ 0	0%	\$ 478,442	40%
electrolyte depleters	Brand	383	\$ 431,195	\$ 401,553	93%	\$ 404,371	94%
selective serotonin reuptake inhibitor	Generic	95,540	\$ 1,147,103	\$ 0	0%	\$ 385,841	34%
hmg coa reductase inhibitors	Brand	1,568	\$ 367,976	\$ 355,736	97%	\$ 362,940	99%
lipotropics	Brand	1,173	\$ 348,407	\$ 258,459	74%	\$ 330,680	95%

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