

COST OF DISPENSING PRESCRIPTION DRUGS TO MEDICAID RECIPIENTS — PHARMACY SURVEY REPORT STATE OF COLORADO

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Introduction

The State of Colorado (State) engaged Mercer Government Human Services Consulting (Mercer), a division of Mercer Health & Benefits LLC, to conduct a study to provide the Colorado Department of Health Care Policy and Financing (Department) with a cost analysis to determine the average cost of dispensing prescription medications to Medicaid recipients among various types of pharmacies within the State.

The objectives of the study included calculating the estimated average cost of dispensing (COD) a prescription for the following:

- Colorado pharmacy providers participating in the State Medicaid program.
- The existing COD volume-based tiers currently in place in the Department's outpatient pharmacy reimbursement policy.
- All rural and urban pharmacies.
- Rural and urban independent pharmacies.
- Self-identified long-term care pharmacies.

In addition, Mercer was asked to collect and report the average inventory turnover rates as reported by the COD survey respondents.

The survey was developed in conjunction with the Department and its stakeholders. It was based on the most recent audited fiscal year completed by the pharmacies, with the majority period of service being for calendar year 2012. A pharmacy's COD was calculated by dividing the prescription department's operational and labor costs by the number of prescriptions dispensed.

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COD Survey Results

At the Department’s request, Mercer conducted this survey as a follow up to the COD study conducted by Mercer in 2012 when Colorado moved from an ingredient cost reimbursement methodology based on average wholesale price (AWP) to an actual acquisition cost (AAC) based methodology. At that time, Colorado Medicaid implemented a tiered dispensing fee based on total annual prescription volume. At that time, \$11.67 best represented the estimated average cost to dispense a prescription across pharmacies within the State that participated in the COD survey.

The results of this survey will provide the Department with updated COD information for the existing prescription volume-based tier levels, as well as additional costs of dispensing by the various subsets of pharmacies as previously mentioned. Although still in the final rulemaking process by the Centers for Medicare and Medicaid Strategy (CMS) at the time of this publication, a proposed rule states that under the Affordable Care Act, states are required to ensure “professional dispensing fees” are established in conjunction with an AAC reimbursement model. In addition, the proposed rule requires states to include the COD in their State Plan, which must be approved by CMS.

The Colorado Medicaid program provides coverage for most prescription drugs. Under the Department’s fee-for-service pharmacy program, current cost of dispensing reimbursement for pharmacy services is as follows:

Total Prescription Volume	COD
0–59,999	\$13.40
60,000–89,999	\$11.49
90,000–109,999	\$10.25
110,000+ prescriptions	\$ 9.31
Rural pharmacies	\$14.14

Summary of Findings

Based on the analysis, Mercer believes that the weighted¹ winsorized² mean of \$8.06 represents the average COD of a prescription across pharmacies within the State that participated in the survey. This is a net decrease in the cost of dispensing a prescription of \$3.61 or a 31% overall decrease in cost associated with filling a prescription when compared to the overall results of the 2012 survey.

¹ Weighting is a frequent term in this document, so an explanation is in order. In the simplest case, weighting means duplicating an entry before the statistical operation is performed.

² A winsorization approach can be used to minimize the impact of outliers by setting the cost of dispensing that is below the 5th percentile to 5th percentile and those that were higher than 95th percentile to 95th percentile. This approach was used in previous COD reports.

Although the calculations used for the 2013 survey were identical to those used in the 2012 survey, response rates and the cost of dispensing for individual pharmacies responding to the survey can have a significant impact on the variation in COD from year to year. Survey participation was neither randomized nor required, both of which would likely lessen the spread of the differences year over year.

For the 2012 survey, there were 23 independent pharmacies weighted to represent the 192 pharmacies in the population (12.0%). For 2013, there were 52 independent pharmacies to represent 207 pharmacies in the population (25.1%). For the chain pharmacies in 2012, there were 283 weighted to represent 611 pharmacies in the population (46.3%). For 2013, there were 177 chain pharmacies weighted to represent 671 pharmacies in the population (26.35%).

It must be noted that the mix of respondents can impact the results of a survey regardless of an increased response rate from year to year. The level of response by the independent pharmacies in 2013 increased over 2012; however, the average COD of those participating was significantly less. For the chain pharmacies, the level of response rate decreased over the 2012 rate, but one of the large chains that contributed to a higher COD in 2012 is not represented in the 2013 results.

It is not possible to say whether the 2012 or 2013 sample is a better representation of the entire population, since neither sample was chosen through a randomization procedure nor was a response mandated to all pharmacies included in the survey COD distribution.

In a review of various sources of publicly available information regarding pharmacist salaries, including a national employee survey conducted by Mercer, statistics consistently show pharmacist salaries increasing from 2011 to 2012 both nationally as well as in the state of Colorado. Information on the pharmacist salary change from 2012 to 2013 was not as readily available at the time this report was produced. However, one source reporting pharmacy salaries for the first half of 2013 also showed an increase over the prior year. Given these sources are consistently reporting upward changes in pharmacist salaries and the results of this 2013 COD survey are reporting decreases, the limitations of the survey must again be emphasized and taken into consideration when reading this report.

As previously mentioned, specific costs of dispensing among different provider types and geographic locations were calculated and are shown below:

Including Long Term Care (LTC) Pharmacies:		COD
All		\$8.06
Rural		\$12.72
Urban		\$7.94
Rural — chain		\$12.14
Rural — independent		\$12.75
Long-term care		\$12.57
Excluding LTC Pharmacies:		COD
All		\$7.91
Rural		\$12.67
Urban		\$7.80

Including Long Term Care (LTC) Pharmacies:	COD
Rural — chain	\$12.14
Rural — independent	\$12.70

COD by Current Prescription Volume Tier Levels

Based on the analysis of the survey results, an across the board decrease was observed in the winsorized mean of the cost of dispensing prescription drugs as compared to the 2012 COD study.

Total Prescription Volume (Including LTC)	Number of Pharmacies	COD	Change From 2012 Survey
0–59,999	113	\$10.29	-\$3.11 or -23.3%
60,000–89,999 and	76	\$ 6.32	-\$5.17 or -45.0%
90,000–109,000 and	21	\$ 5.67	-\$4.58 or -44.6%
110,000+ prescriptions	19	\$ 5.73	-\$3.58 or -38.5%

Total Prescription Volume (Excluding LTC)	Number of Pharmacies	COD	Change From 2012 Survey *
0–59,999	109	\$10.20	-
60,000–89,999 and	75	\$ 6.22	-
90,000–109,000 and	20	\$ 5.38	-
110,000+ prescriptions	18	\$ 5.20	-

* COD excluding LTC was not calculated in the 2012 survey.

Urban and Rural Pharmacies

Based on responses provided, the winsorized mean for rural pharmacies was \$12.72 and \$7.94 for urban pharmacies. The analysis tested variances in the COD for independent and chain affiliated pharmacies in rural areas.

Location	Number of Pharmacies	Cost of Dispensing
Rural	11	\$12.72
Urban	218	\$7.94

LTC Pharmacies

For pharmacies that identified at least 25% of their business as serving LTC facilities, the survey asked a series of questions unique to their line of business in an effort to provide the Department with information to better understand specific costs associated with serving LTC residents and facilities. The additional questions addressed credits and returns, packaging type (unit dose or modified unit dose) requirements, policies based on facility type served, patient counseling, and pharmacy/facility relationships. A summary of these responses is attached in Appendix A.

Based on their responses, the winsorized mean for the cost of dispensing for the self-identified LTC pharmacies was \$12.57.

Rural Chain and Independent Pharmacy Variances

The winsorized mean for independent rural pharmacies was calculated as \$12.75 and the actual COD of the sole rural chain respondent was \$12.14. These results minimize the impact of outlier costs and reflect the mix of the pharmacies in the sample to be more representative of those in the study population. Mercer received a list of 21 pharmacies identified by the Department’s policy definition of rural providers which led to a 52% response rate.

Rural by Affiliation	Number of Pharmacies	Cost of Dispensing
Chain	1	\$12.14
Independent	10	\$12.75

Inventory Turnover

Based on stakeholder input, Mercer was asked by the Department to explore the relationship that inventory turnover has on the cost of dispensing. Respondents were asked the question, “What is your inventory turnover for the period being reported (cost of goods sold/average inventory)?”

Of 229 survey responses, 48 pharmacies (21%) responded to this question. All responses came from independently owned pharmacies. Three responses were excluded from the analysis as significant outliers. Analysis of the data produced three distinct bands as shown below.

Inventory Turnover Rate	Number of Pharmacies	Cost of Dispensing
0–10.3 times	27	\$14.32
>10.3–21.0 times	15	\$12.96
>21.0	3	\$12.06

It was hypothesized by stakeholders that carrying inventory longer, in order to ensure stock on hand would be available for patients without delay, could be associated with a higher COD. Responses indicate that pharmacies that turn over their inventory and re-order inventory more frequently have a lower cost of dispensing than those that keep inventory on hand.

Variances in cost associated with dispensing and inventory turnover may be exacerbated by a number of different factors, not limited to mix of respondents in the survey sample, membership in purchasing pools or collectives, total annual prescription volume, payer mix, and other variables.

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COD Survey Design & Methodology

Methodology

The study methodology includes the following tasks:

- Hold a project kick-off meeting with the Department to review the survey objectives, tools, and identified timelines to complete the survey and a final report.
- Develop and update the survey tool based on the project objectives and feedback from the kick-off meeting.
- Request a list of pharmacy providers from the Department, to be included in the survey, including pharmacy contact and address information and identify the universe of pharmacies (study population) in the State to be surveyed.
- Distribute the survey tool, instructions, survey, and a letter from the Department to in-state pharmacies included in the study population. The Department's letter was used as an introduction to the respective pharmacies to highlight the importance of the survey and submission of the requested information for the dispensing fee analysis. An Excel version of the survey was distributed to the large chain pharmacies to aide in the ease of completion for multiple entities.
- Receive completed surveys from pharmacies and send multiple follow-up reminder letters (email, fax) to pharmacies that had not submitted the survey by the due date.
- Screen survey responses for completeness of the data.
- Import and/or enter data into a central database and perform initial cost analysis of the data.
- Conduct a statistical analysis of the cost data to determine an average cost and percentile distribution of COD a prescription to Medicaid recipients within the State.
- Prepare the draft report for the Department.
- Review the draft report with the Department.
- Finalize the report.

Survey Instrument Development

The 2013 Colorado Medicaid COD survey focused on collecting the actual costs incurred by pharmacies within the State that provide prescription drugs to Medicaid recipients. The survey was drafted to target both independent and chain pharmacies, as well as to allow pharmacies to self-identify themselves as LTC pharmacies based on their level of service to LTC members and facilities.

In addition, based on stakeholder input, the survey also collected the inventory turnover rates in order to assess variances for pharmacies relative to dispensing environments in urban and rural areas.

The State survey tool was designed to be relatively consistent with the survey used in the 2012 COD Survey and to follow dispensing fee surveys conducted both at the national and individual state levels. In addition, the tool was based on the specific needs identified by the Department and suggestions provided from the Colorado Pharmacy Stakeholders.

Development and receipt of the survey tools included:

- Developed survey tool and instructions for completion and submission alternatives.
- Created an online web-based survey.
- Created an Excel-based spreadsheet to accommodate retail pharmacy chains that submitted surveys for multiple locations.
- Established a confidential and secure fax site.
- Established an email support mailbox and a toll-free provider help line.

Survey Population

A list of in-state Medicaid enrolled pharmacies obtained from the Department served as the data source to identify the study population.

The COD study population includes 878 in-state Medicaid-enrolled pharmacies, of which 671 (76.4%) are chain (as provided by the State and self-reported as four or more units nationally), and 207 (23.6%) are independent pharmacy providers. Federally Qualified Health Center (FQHC) pharmacies, hospital based pharmacies, and pharmacies participating in the federal 340B program were excluded from the study population.

There are 21 pharmacies in rural areas based on the Department's policy definition for a rural pharmacy³. There are seven pharmacies that self-reported as primarily servicing long-term care individuals and/or facilities.

Survey Distribution and Follow-Up

A pre-communication fax was sent to all independent pharmacies included in the study population. For the nine chain pharmacies representing 647 locations, the communication information was consolidated and sent via email to one centralized location for each chain.

For independent pharmacies, instructions explaining how to log onto the online web site to access the survey and survey instruction documents were sent to providers. The instructions requested providers to go online to enter the survey or to download a copy to be completed and submitted via a confidential and secure fax number.

For the chain pharmacies, nine contacts were sent an email notification, including the survey, instructions, and an Excel template for use in submitting multiple entity information. Two reminder faxes and two email reminders were sent to the list of chain pharmacy contacts. The deadline for survey submission was October 31, 2013 with an extension to November 8, 2013 granted to one large provider.

³ 10 CCR 2505-10, section 8.800.13.F. Any pharmacy, except a Mail Order Pharmacy, that is the only pharmacy within a twenty mile radius may submit a letter to the Department requesting to become a Rural Pharmacy.

Survey Response Rate and Non-Response Bias

Of the 878 pharmacies in the study population, 336 responded, representing a total response rate of 38.2%. Usable responses were received for 177 of 671 chain pharmacies and 52 of 207 independent pharmacies, representing a usable response rate of 68.2%. Of the unusable responses, one was received each for hospital, outpatient, and specialty pharmacies. Eleven (52.4%) of all rural pharmacies responded to the survey. Only one rural respondent was a chain pharmacy. Seven pharmacies self-identified as long-term care pharmacies and comprised 3.1% of all usable surveys submitted.

Usable responses were defined as responses that provided data on all the following survey items or data that allowed these items to be calculated:

- Prescription area square footage.
- Total square footage.
- Total number of prescriptions.
- Total sales.
- Prescription department payroll.
- Total prescription department costs.
- Total facility costs.
- Total other store/location costs.
- Pharmacy was not an independent or chain pharmacy.

Of the chain and independent pharmacies providing usable responses to the survey, 177 (77.3%) were classified as chain (four or more units nationally) and 52 (22.7%) classified as independent pharmacies.

To determine whether the distributions of the responding sample by location (rural/urban) and affiliation (chain/independent) differed from those observed in the study population, Chi-square analysis was performed. The results were statistically significant ($p < 0.05$), indicating that the proportions of pharmacies in the sample were different than in the population.

In order to generalize the results to the study population, given the disproportionately high responses from rural relative to urban pharmacies, we attempted to account for the non-response bias by adjusting survey weights in the calculation of the dispensing cost. The final survey weight is the product of the sampling weight and the response weight and summed to the number of pharmacies in the study population of 878.

This approach adjusted for the under-representation of independent pharmacies and was used to generalize to the population of 878 pharmacies. The approach yielded a higher survey weight for the responses received from independent pharmacies to create a mix in the sample that is representative of the pharmacy type observed in the population. Table 1 shows the characteristics of the survey population, usable respondents, and respondents weighted by response probability.

Table 1: Weighting of Sample Due to Differences in Response Rates

	Chain	Independent	Total
Population			
Rural	1	20	21
Urban	670	187	857
Total	671	207	878
Sample			
Rural	1	10	11
Urban	176	42	218
Total	177	52	229
Response Rate			
Rural	100.0%	50.0%	52.4%
Urban	26.3%	22.5%	25.4%
Weighting			
Rural	1.00	2.00	1.91
Urban	3.81	4.45	3.93

Costs and Expenses Elements

The expenses included in the COD calculation are classified as:

- Salary expenses.
- Pharmacy or prescription department expenses.
- Facility expenses.
- Other expenses.

The expenses related to filling a prescription need to be identified and allocated to the prescription department relative to the rest of the pharmacy areas. The allocation can be made based on area ratio, sales ratio, or at 100% for direct prescription department expenses. Area ratio is calculated by dividing the prescription department square footage by total square footage. Sales ratio is calculated by dividing prescription sales, including prescription over the counter sales, by total sales for the reporting period.

Salary expenses included in the COD calculation are those related to prescription department payroll, including compensation, benefits, and payroll taxes. These payroll expenses are allocated at 100% to the prescription department.

Prescription department expenses, allocated at 100% include:

- Prescription containers, label, and other pharmacy supplies.
- Professional liability insurance for pharmacists.
- Prescription department licenses, permits, and fees.
- Dues, subscriptions, and continuing education for the prescription department.
- Delivery expenses (only prescription-related).
- Computer systems (related only to the prescription department).
- Transaction fees.

- Other prescription department-specific costs not identified elsewhere.

Facility expenses allocated based on area ratio include:

- Rent.
- Building mortgage.
- Utilities (gas, electric, water, and sewer).
- Real estate taxes.
- Facility insurance.
- Maintenance and cleaning.
- Depreciation.
- Other facility-specific costs not identified elsewhere.

Other expenses allocated based on sales ratio include:

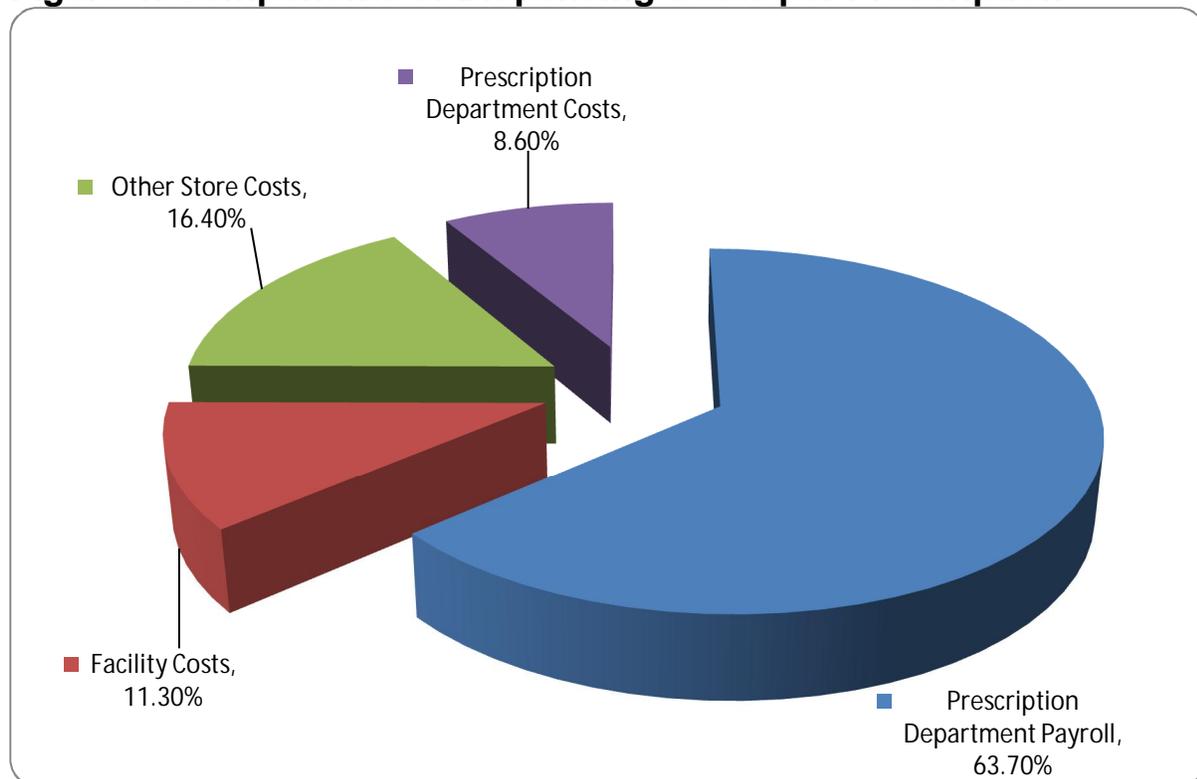
- Professional services (for example, accounting, legal, consulting).
- Telephone and data communication.
- Computer system and support.
- Other depreciation and amortization.
- Office supplies.
- Other insurance.
- Franchise fees.
- Other interests.
- Other costs not included elsewhere.

Total pharmacy operational expenses, including overhead and labor costs, are obtained by summing salary expenses, prescription, pharmacy department expenses, facility expenses, and other store expenses allocated to the prescription department. COD a prescription is obtained by dividing the total pharmacy operational expenses by total number of prescriptions reported in the time period.

While data was collected related to bad debts and marketing/advertising expenses, they were not included in the calculation of the COD based on our interpretation of the CMS definition of dispensing fee cost and consistent with Medicare cost reporting principles (CMS Pub.15-1).

Of the average COD observed, 63.7% of costs are accounted for by prescription department payroll, 16.4% by other store costs, 11.3% by facility-related costs, and 8.6% by prescription department costs.

Figure 1. Components of Dispensing Costs per Prescription



Inflation Adjustments

The Consumer Price Index (CPI) published by Bureau of Labor Statistics was used to standardize total pharmacy operational expenses, including overhead and labor costs to the same time period ending on, for all urban consumers. Fiscal year (FY) end dates reported by pharmacies ranged from FY 2012 to FY 2013.

Table 2 shows the FY end date, mid-point CPI index, terminal month CPI index, inflation factor, and number of pharmacies with the corresponding year end date included in the analysis.

Table 2: Inflation Factors Used to Standardize Costs

FY	FY CPI	Terminal CPI (1st Half 2013)	Inflation Factor	Number of Pharmacies
2009	213.139	232.366	1.0902	1
2012	228.850	232.366	1.0154	53
2013	232.366	232.366	1.0000	175

Analysis and Findings

Descriptive statistics and measures of central tendency, namely means and medians, are used to determine an average COD a prescription in the State. Table 3 presents means and medians weighted by:

- Response probability (urban/rural).
- Response probability among rural pharmacies (independent/chain).

- Response probability of self-identifying as long-term care pharmacy.
- Total number of prescriptions.

The means and medians represent an average cost per prescription for all pharmacies in the sample.

Means and medians weighted by response probability allow the measures to be generalized to the population of 878 pharmacies and denote an average cost per prescription for all pharmacies meeting the study criteria across the State. For example, rural independent pharmacies responded to the COD survey at a higher rate (response probability) than other pharmacies (See Table 1). There are 187 urban independent pharmacies in the state, but there were only 42 usable responses. There are 20 rural independent pharmacies in the state, but there were only 10 usable responses. There are 670 urban chain locations but only 176 usable responses. There is one rural chain location and it responded. See Table 1 for the number of times a response of each type of pharmacy was duplicated to receive the same weight that type of pharmacy has in the population.

Alternatively, means and medians weighted by total number of prescriptions or number of Medicaid prescriptions are used to determine an average cost for all prescriptions in the sample, rather than the average cost per prescription across all pharmacies. This method is equivalent to summing all of the total pharmacy operational costs in the sample divided by the total of all prescriptions in the sample. This approach gives a higher weight to pharmacies with a high volume relative to pharmacies with a low volume.

Furthermore, to minimize the impact of low or high outliers in the calculation of average costs, a winsorization approach was used by setting the COD that was below the 5th percentile to the 5th percentile and those that were higher than the 95th percentile to the 95th percentile prior to calculating the statewide average costs. The calculated COD for each pharmacy ranged from \$2.14 to \$49.77. The 5th and 95th percentiles were \$4.34 and \$18.66, respectively. Utilizing this approach will substitute the 5th and 95th percentile COD values (\$4.34 and \$18.66 for any COD value found to be less than \$4.34 or greater than \$18.66). The winsorized means are shown in Table 3.

Table 3: Means, Medians, and Percentile Distribution of COD

Method	Mean	Winsorized Mean*	Median	25th Percentile	75th Percentile
Unweighted	\$8.44	\$8.04	\$6.13	\$5.13	\$10.18
Weighted by response probability (independent/chain)	\$8.44	\$8.06	\$6.13	\$5.13	\$10.18
Weighted by total prescription volume	\$7.01	\$6.84	\$5.41	\$4.80	\$7.17
Weighted by Medicaid prescription volume	\$7.26	\$7.14	\$5.32	\$4.68	\$9.38

* Winsorization approach was used to minimize the impact of outliers by setting the COD that was below the 5th percentile to 5th percentile and those that were higher than 95th percentile to 95th percentile.

In addition to calculating the COD a prescription on a statewide basis, the study determines an average COD by various pharmacy characteristics noted below.

Analysis of Specific Pharmacy Characteristics Summary

Table 4 below summarizes the COD across all pharmacy types including total prescription volume, break-outs of rural providers by ownership type, and LTC pharmacy specific costs weighted by the various factors. Table 5 summarizes COD of independent pharmacies by inventory turnover rate.

Table 4: Numbers, Percentages, and Winsorized Mean CODs Weighted by Response Probability, Rx Volume, and Medicaid Rx Volume Including and Excluding LTC Pharmacies

Characteristics Including LTC Pharmacies	Number	Percent	Unweighted	Winsorized Means Weighted by:		
				Response Probability	Total Rx Volume	Medicaid Rx Volume
Urban	218	95.2%	\$7.80	\$7.94	\$6.70	\$7.03
Rural	11	4.8%	\$12.70	\$12.72	\$11.50	\$12.30
Rural independent	10	4.4%	\$12.75	\$12.75	\$11.46	\$12.30
Rural chain	1	0.4%	\$12.14	\$12.14	\$12.14	\$12.14
LTC Pharmacy	7	3.1%	\$12.60	\$12.57	\$12.57	\$11.42
Total prescription volume:						
0 - 59,999	113	49.3%	\$10.32	\$10.29	\$9.23	\$9.76
60,000 - 89,999 and	76	33.2%	\$5.93	\$6.32	\$6.19	\$6.36
90,000 - 109,999	21	9.2%	\$5.58	\$5.67	\$5.62	\$7.24
110,000+ prescriptions	19	8.3%	\$5.60	\$5.73	\$5.95	\$5.95
Excluding LTC Pharmacies						
Urban	212	95.5%	\$7.67	\$7.80	\$6.46	\$6.62
Rural	10	4.5%	\$12.64	\$12.67	\$11.43	\$12.29
Rural independent	9	4.1%	\$12.70	\$12.70	\$11.39	\$12.29
Rural chain	1	0.5%	\$12.14	\$12.14	\$12.14	\$12.14
Total prescription volume:						
0 - 59,999	109	49.1%	\$10.23	\$10.20	\$9.17	\$9.73
60,000 - 89,999 and	75	33.8%	\$5.84	\$6.22	\$6.09	\$6.07
90,000 - 109,999	20	9.0%	\$5.32	\$5.38	\$5.34	\$6.13
110,000+ prescriptions	18	8.1%	\$5.13	\$5.20	\$5.09	\$5.09

Table 5: COD by Inventory Turnover Rate for Independent Pharmacies

Turnover Band (Mean Turnover)*	Number	Percent	Unweighted	Winsorized Means Weighted by:		
				Response Probability	Total Rx Volume	Medicaid Rx Volume
0 - 10.3 (6.8)	27	60.0%	\$14.49	\$14.32	\$13.25	\$12.35
10.4 - 21 (14.5)	15	33.3%	\$12.91	\$12.96	\$12.45	\$12.12
21+ (31.3)	3	6.7%	\$12.06	\$12.06	\$13.58	\$13.01

* Differences of CODs between turnover bands are not statistically significant.

Limitations

All estimates in this analysis rest on obtaining a randomized sample. The sample, however, was not random in three distinct aspects:

- The sample relied on a voluntary survey rather than a sample chosen through a randomization procedure. It was therefore subject to self-selection bias.
- A higher proportion of rural pharmacies participated in the survey than urban pharmacies.
- Although there were many more chain than independent pharmacy locations in the sample, the vast majority of these were from a single large chain.

All results should therefore be regarded with these limitations in mind.



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