OHIO'S MEDICAID MANAGED CARE PHARMACY SERVICES

AUDITOR OF STATE REPORT

AUGUST 16, 2018

Dave Yost • Auditor of State

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EXECUTIVE SUMMARY

Overview of Pharmacy Benefit Managers

The Ohio Department of Medicaid (Department) requires Managed Care Plans (Plans) to offer prescription drug benefits. However, these Plans contract third party service organizations, known as Pharmacy Benefit Managers (PBMs), to manage prescription drug benefits on their behalf. PBMs offer a variety of services, including but not limited to: claim adjudications; customer service or call centers; clinical services such as prior authorizations; drug utilization reviews; and mail-order and specialty pharmacies. While Plans outsource these services to PBMs, the Plans remain responsible for the compliance and accuracy of the services a PBM performs pursuant to the Plans' agreements with the Department.

PBMs provide cost-cutting measures to the insurance plans by establishing pharmacy networks. These networks give PBMs purchasing power, allowing them to negotiate deeply-discounted prescription coverage for the insurance plans and their customers. PBMs can also negotiate manufacturer rebates directly with the pharmaceutical company to further reduce prescription drug costs. These services allow PBMs to generate revenue through administration and service fees charged to insurance plan sponsors for processing prescriptions; through operation of their own mail-order and specialty pharmacies; and on the margin between the amount charged to insurance plan sponsors and the amount paid out to pharmacies for a prescription (also referred to as "spread pricing").

PBMs were originally designed to reduce administrative costs in administering a prescription drug benefit program. However, PBMs have grown and now have substantial profitmaking ability through price spreading and rebates, which are payments negotiated directly with pharmaceutical manufacturers. Also, many pharmacy owners maintain that PBMs have a conflict of interest since they can require customers to obtain prescriptions only from mail-order and specialty pharmacies they own.

Amid growing concerns about declining reimbursements to independent community pharmacies, members of the Ohio General Assembly asked the Auditor of State to independently analyze the following issues:

1) Lack of transparent data on pharmacy services;

2) Disconnect between pharmacy reimbursement and overall costs to the Medicaid program (spread pricing);

3) Potential conflict of interest related to a retail pharmacy chain that is affiliated with one of the Medicaid PBMs and reported reductions in pharmacy reimbursements; and

4) Impact of reductions in pharmacy reimbursement on access to care, particularly in rural communities.

In response to this request, the Auditor's office reviewed pharmacy payment data related to the State's Medicaid managed care program and performed analyses of price spreading, the reimbursements to pharmacies and the amounts paid to PBMs.

Data Transparency

While the Department requires Plans to adhere to the terms and conditions of the Medicaid program, it is difficult for the Department and the Plans to oversee compliance with prescription benefit programs outsourced to PBMs in part because they are not subject to industry-wide regulation. Exact terms of the financial arrangements for pharmacy services are hidden in part by the sheer number of entities involved in every transaction including managed care plans, PBMs, pharmacies, wholesalers, and manufacturers –

and by the contract provisions that keep nearly all of the details of these transactions confidential. These issues result in a lack of transparency in expenditure of Ohio's Medicaid dollars. Conversely, PBMs maintain that disclosure and transparency in their industry will lead to increased prescription drug prices because of reduced competition and increased overhead costs.

Disconnect Between Pharmacy Reimbursement and Medicaid Program Costs

The Plans reimburse PBMs on a pricing model that is based on a publically available price (the average wholesale price). PBMs reimburse pharmacies using different pricing models based on applicable contracts. As result, the amount reimbursed to a pharmacy by a PBM does not correlate to the amount paid to the PBM by the managed care plan for the same transaction. In other words, pharmacy reimbursements, and any increase or decrease to those reimbursements, has no impact on the overall Medicaid program's costs as those are based only on the payment from the Plans to the PBMs.

PBMs provide a range of administrative functions on behalf of Plans and, in lieu of being paid a set fee for these functions; the PBM retains the difference between the Plan's payment and the amount paid to the pharmacy – the spread. The Auditor's office obtained and analyzed the difference between the payment from the Plan to the PBM and the PBM's payment to the pharmacy (the price spread data). Below is a summary of our analysis and illustrates the price spread significance and profitmaking potential for PBMs.

Average Spread by Quarter and by Drug Type from April 1, 2017 through March 31, 2018

	Average Spread			
Quarter	**Brand**	**Generic**	**Specialty**	**Total Average Spread for All Claims**
4/1/2017-6/30/2017	$2.11	$5.39	$30.12	$5.09
7/1/2017-9/30/2017	$2.03	$5.71	$31.91	$5.35
10/1/2017-12/31/2017	$1.57	$7.10	$31.24	$6.47
1/1/2018-3/31/2018	$1.62	$6.48	$46.04	$6.01
Yearly Total	**$1.85**	**$6.14**	**$33.49**	**$5.71**
	Brand	**Generic**	**Specialty**	**Totals**
Number of Prescriptions	**5,268,144**	**33,913,042**	**197,408**	**39,378,594**
Percentage of Claims	**13.4%**	**86.1%**	**0.50%**	**100%**
Amount Paid by Plans (millions)	**$1,246.1**	**$662.7**	**$617.6**	**$2,526.5**
Total Spread (millions)	**$9.8**	**$208.4**	**$6.6**	**$224.8**
Spread Relative to Total Paid Amount by Drug Type	**0.8%**	**31.4%**	**1.1%**	**8.9%**

Potential Conflict of Interest

We further compared the spread resulting from payments from CaremarkPCS Health, L.L.C. (CVS Caremark) and OptumRx to CVS pharmacies and independent community pharmacies due to allegations of preferential treatment for CVS pharmacies. For this analysis, we grouped pharmacies into regions.

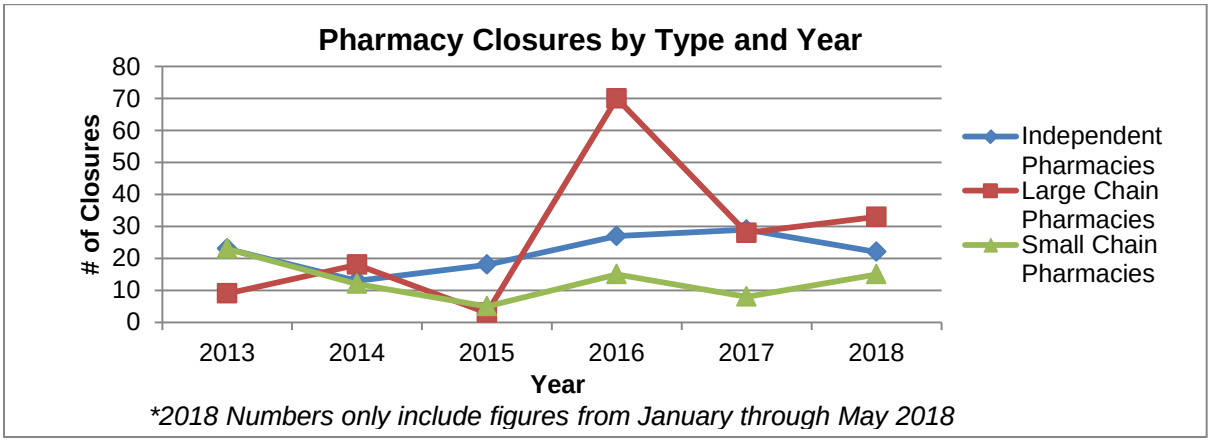
Spread Analysis by Region and Pharmacy Type

	CVS Pharmacies			Independent Pharmacies		
Region	**Brand**	**Generic**	**Specialty**	**Brand**	**Generic**	**Specialty**
Metro	$2.04	$5.49	$57.02	$1.67	$5.50	$43.67
Central	$1.60	$5.83	$66.58	$1.80	$5.11	$24.21
Northeast	$2.51	$5.60	$50.68	$3.55	$6.71	$39.14
Northwest	$4.85	$7.13	$43.50	$3.71	$6.69	$25.32
Southeast	$1.91	$5.58	$62.92	$1.88	$4.90	$43.28
Southwest	$2.06	$5.57	$50.19	$1.77	$5.27	$31.32
Overall Average Without Metro	**$2.37**	**$5.74**	**$53.42**	**$2.57**	**$5.80**	**$35.19**
Overall Average All	**$2.22**	**$5.63**	**$55.09**	**$2.10**	**$5.66**	**$39.08**

Based on this data, the difference between the Plan's payment to the PBM and the amount paid to the pharmacy (the spread) is similar for brand and generic drugs between CVS pharmacies and independent pharmacies. In comparison the spread is greater with CVS pharmacies for specialty drugs; however, caution should be used with this analysis as it does not reflect all transactions that occur between a pharmacy and a PBM. For example, the spread analysis does not include the direct and indirect remuneration (DIR) fee[1] paid by the pharmacy to the PBM or other contractual arrangements that could impact final payments. According to the PBMs, the unit cost reimbursement is not driven by region, and the maximum allowable cost reimbursement is the same for all independents by drug across all regions.

Impact of Reductions in Pharmacy Reimbursement on Access to Care

According to data maintained by the Ohio Board of Pharmacy[2], 132 independent community pharmacies, 78 small chain pharmacies and 161 large chain pharmacies have closed in Ohio since 2013.



**2018 Numbers only include figures from January through May 2018*

[1] DIR fee is the terminology used to categorize certain pharmacy network participation fees and the reconciliation of certain contractual terms with actual reimbursement.

[2] The Board considers an independent community pharmacy as one outlet, a small chain pharmacy as having two to 11 outlets and a large chain pharmacy as having 12 or more outlets. The Pharmacy Board licenses other terminal distributers of dangerous drugs such as veterinary clinics, hospitals, physician (prescriber) offices, and nursing homes. This data in this report did not include these other types of terminal distributers.

Conclusions

- The Auditor of State's office obtained data on Plans' payments to the PBMs and the PBMs' payments to pharmacies and determined that the data was sufficiently reliable for the calculation of spread pricing. The overall average spread of $5.71 is consistent with the average reported by the Department; however, the Auditor of State's analysis noted that the spread was higher ($6.14) for generic drugs which constituted over 86 percent of prescriptions. The Department recently contracted with an independent vendor to analyze the Medicaid pharmacy spread. Based on this vendor's market intelligence, the costs for the administrative fees covered by the spread would be from $0.95 to $1.90[3] per prescription, which is one-third of the pharmacy spread passed down in Ohio's Medicaid managed care program. According to the Plans, these administrative fees may vary based on other pricing considerations. Although this figure may not include all of services performed by a PBM, it suggests Ohio's current spread may be excessive and warrants the State taking further action to mitigate the impact on the Medicaid program.

- Data on pharmacy closures coincides with concerns expressed by pharmacists regarding reductions in reimbursements. However, this data does not show causality and does not include data on pharmacy openings. Further research is needed to determine the factors that led to these closures. While the Auditor of State's analysis shows differences in the spread by region, the spread analysis completed for this report was for a limited time frame. Representatives from the Plans indicated no access issues at this time.

- While much attention has been focused on the spread, it does not provide a complete picture of pharmacy costs and PBM compensation. There are a number of additional factors that impact PBM revenues and pharmacy reimbursements that were outside of the scope of this report, such as rebates, additional Plan fees, and pharmacy fees. The Ohio Legislature should take steps to mandate the reporting of additional statistical and financial data that would provide a more complete understanding.

- Additional concerns regarding pharmacy services were expressed by stakeholders or identified in industry publications which included rebates and rebate audits, automatic refills and impact of spread contracting on the medical loss ratio requirement for managed care organizations. In addition, the Auditor of State noted that the PBM contracts do not include any provision prohibiting the sale of de-identified data by a PBM to a third party. In addition, various practices were identified as indications of potential conflicts of interest that could impact pharmacy services in the Medicaid program and other publically funded health care. These concerns were outside of the scope of this review and are noted as issues for further study.

Recommendations

The Auditor of State offers the following recommendations for the Ohio Legislature. Additional recommendations for the Ohio Department of Medicaid can be found on page 18.

1. **ADDITIONAL AUDIT REQUIREMENT -** The State should require that the Department engage an independent audit entity to perform periodic compliance audits of each PBM that contracts with a managed care plan. The Department should establish the scope of the compliance examinations. The compliance audits should provide greater assurance about the PBMs' compliance with State requirements. The Department should develop, document, and implement a monitoring process to ensure that the Plans correct any findings from those audits.

2. **ADDITIONAL STATISTICAL AND FINANCIAL REPORTING REQUIREMENTS -** The State should go beyond monitoring the spread and obtain statistics and financial information that include transactions that occur outside of claims adjudication. This would give a more accurate picture of actual reimbursement to pharmacies for services rendered. We recommend that the Department require the Plans to report financial terms and payment arrangements they have with its PBM and

[3] This estimate of fees has not been independently verified by the Auditor of State.

prescription drug manufacturers, or labelers, including formulary management, drug-switch programs, educational support, claims processing, pharmacy network fees, data sales fees, and all other fees. The Department should also include language ensuring that it has the right to audit this data at any time. The confidentiality of the information disclosed by the Plans should be maintained, to the extent that the information is protected under state or federal law.

3. **ANALYSIS OF ALTERNATE CONTRACT MODEL -** The State should perform an analysis to identify the costs and benefits of requiring pass through contracting for its pharmacy services and report on those results including a detail of the methodology used for the analysis. In pass through contracting, the PBM charges the Plan a flat administrative fee per claim or per member and then passes the exact price paid to the pharmacy through to the Plan. In the interim, the Department should work with its Plans and the PBMs to ensure that reimbursement methodologies reflect reasonable costs associated with providing the service.

   In addition, the State should engage an independent third party to conduct a complete analysis of the impact of moving pharmacy services to a fee-for-service model similar to the change implemented in West Virginia. The HealthPlan Data Solutions (HDS) executive summary contains a fee-for-service comparison; however, notes that the comparison is incomplete and recommends a follow-up analysis that incorporates the impact of rebates. The Auditor of State requested a copy of the full report developed by HDS but the full report is not yet available. Without the detailed methodology of the analysis performed by HDS, the Auditor of State cannot comment on or evaluate its fee-for-service pricing comparison.

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OHIO'S MEDICAID MANAGED CARE PHARMACY SERVICES

AUDITOR OF STATE REPORT

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BACKGROUND

Based on requests from State legislators, the Auditor of State reviewed data regarding payment for pharmacy services under the State's Medicaid managed care program. Legislative concerns have been raised related to reimbursements to pharmacies and the amounts paid to pharmacy benefit managers (PBMs) by managed care plans (Plans or MCPs). The objective of this report is to increase the transparency surrounding the reimbursement of pharmacy services.

State auditors conducted research on pharmacy-related topics, reviewed contracts and analyzed relevant data. We interviewed external entities, including the Ohio Department of Medicaid (Department); Ohio's five Medicaid managed care plans[4]; CaremarkPCS Health, L.L.C. (CVS Caremark) and OptumRx; representatives of the Ohio Pharmacists Association; individual pharmacists; MeridianRx, a Michigan-based PBM; and the Independent Pharmacy Cooperative. In addition, we spoke with representatives of other state Medicaid agencies which have implemented changes to address similar concerns regarding payment for pharmacy services.

We selectively tested pharmacy services under the State's Medicaid managed care program under the authority of Ohio Revised Code § 117.11(B). However, our objective is not to opine on any aspect of these services. This report includes a compilation of non-audited information from multiple sources. Observations have been drawn from the Auditor of State analysis of independently obtained, non-audited information.

Terminology and Abbreviations Used in the Report

Abbreviation	Terminology	Definition
AWP	Average Wholesale Price	A publically available benchmark used for the pricing and reimbursement of drugs which does not include discounts or rebates. Described as the "sticker price."
Brand	Brand-name Drug	A drug originally discovered and developed by a pharmaceutical company and marketed under a proprietary, trademark-protected name.
Encounter	Encounter Data	Encounter data are the records of services delivered to Medicaid beneficiaries enrolled in managed care plans that receive a capitated, per-member-per-month payment. These records allow the Medicaid agency to track the services received by members enrolled in managed care. Encounter data typically come from billed claims that providers submit to managed care plans to be paid for their services.
FFS	Fee-For-Service	Payment method in which providers are paid for each covered service such as an office visit, test, or procedure according to rates set by the state.
Generic	Generic Drug	A drug that is identical to a traditional brand-name drug in dosage, safety, strength, route of administrations, quality, performance characteristics and intended use.
MCP	Managed Care Plan	Medicaid managed care provides for the delivery of Medicaid health benefits and additional services through contracted arrangements between state Medicaid agencies and managed care organizations that accept a set per member per month (capitation) payment for these services.

[4] Buckeye Community Health Plan, CareSource, Molina Healthcare, Paramount Advantage and United Healthcare Community Plan
We also reviewed pharmacy claims from Ohio's sixth managed care plan, Aetna, and confirmed that the principle payer for those services was the Medicare program.

Abbreviation	Terminology	Definition
MAC	Maximum Allowable Cost	A pharmacy reimbursement limit, established by the PBM, for a particular strength and dosage of a generic drug that is available from multiple manufacturers with potentially different list prices.
NADAC	National Average Drug Acquisition Cost	The average price pharmacies pay to acquire a drug from a wholesaler or manufacturer. It is calculated from the Centers for Medicare & Medicaid Services (CMS) monthly survey of pharmacies and includes only discounts received by pharmacies at a drug's acquisition.
PBM	Pharmacy Benefit Manager	A third-party administrator of prescription drug programs for insurance companies. Duties generally include processing pharmacy benefit claims, developing formularies and negotiating drug prices with drug manufacturers.
PSAO	Pharmacy Service Administrative Organization	These organizations negotiate and enter into contracts with third-party payers on behalf of member pharmacies. PSAO services are intended to achieve contract and payment efficiencies for both independent pharmacies and third-party payers or their PBMs.
PDL	Preferred Drug List	A list of drugs designated as preferred based on formulary review of efficacy, safety and cost considerations.
Prior Auth.	Prior Authorization	An evaluation of the drug treatment before the treatment starts and typically requires action from the physician, pharmacist or patient to obtain coverage.
Specialty	Specialty Drug	Drugs that treat chronic, complex or life-threatening conditions, are typically costly, and require intensive clinical monitoring, complex patient actions and/or special handling by the pharmacy.
Spread	Spread Pricing	A type of contracting in which the amount paid by the managed care plan to the PBM for a specific prescription is different than the amount paid by the PBM to the pharmacy for the same prescription.
Wholesaler	Wholesaler	An entity engaged in wide distribution of prescription drugs from manufacturers, usually to retail community pharmacies, distributors and others responsible for distributing pharmaceuticals.

Ohio Medicaid Pharmacy Costs

Table 1 shows the number of Medicaid prescriptions and the corresponding amount paid for calendar years 2016 and 2017 along with the amount of rebates collected and discounts. It should be noted that the rebates and discounts shown are not directly tied to the amount paid by year due to differences in timing and processing of rebates and discounts.

The data shows that the total amount paid increased by 12 percent from 2016 to 2017. According to the State Drug Utilization Data - National Totals reported by the Center for Medicare and Medicaid Services, the average increase in drug spending reported by all states was 4.4 percent. Ohio's Medicaid increase in costs is almost three times this national average; however, the data also shows that the increase in the number of Medicaid prescriptions in Ohio increased by almost five times the national average. The Department's caseload reports indicate a two percent decrease in Medicaid eligibles between December 2016 and December 2017.

Table 1: Medicaid Pharmacy Costs

	2016	2017	Percent Change
Number of Prescriptions	58,535,755	62,789,010	7.3%
Amount Paid	$3,633,495,190	$4,074,728,913	12.1%
Rebates/Discounts	($1,796,102,667)	($1,977,937,618)	10.1%
Total Net Paid	$1,837,392,523	$2,096,791,295	14.1%

[1] Providers can bill Medicaid program for up to 365 days after service delivery (see Ohio Admin Code § 5160-1-19) so data for 2017 is still subject to change.
[2] Data is from the Medicaid Information Technology System (Fund Group: Drugs), the OAKS BI REV-0004 Revenue Accounting Entries Report and the five MCPs. The statistics include both managed care (encounter) and fee-for-service data.

Ohio's Medicaid Pharmacy Services - Fee-For-Service

In October 2011, the Plans became responsible for drug coverage to Ohio Medicaid enrollees. While the majority of Ohio's Medicaid services are provided through the Plans, there remain some services paid directly by the Department on a fee-for-service basis. The Department contracts with a third party administrator, Change Healthcare Pharmacy Solutions, Inc., for administrative and claims services for pharmacy benefits reimbursed on the fee-for-service basis. One key service, monitored by the Department and performed by this third party administrator is the processing and collection of rebates. In the State of Ohio Single Audit for the fiscal year ended June 30, 2017[5], the Auditor of State recommended that the Department strengthen current internal control procedures over drug rebate contract monitoring and identified four specific improvement areas. In addition, the recommendation noted that monitoring procedures performed should be documented and should be updated on a regular basis to address any changes in contractual requirements.

Ohio's Medicaid Pharmacy Services - Managed Care

The Department pays a capitated payment[6] (a per member/per month payment) to the Plans for the delivery of Medicaid health benefits, including pharmacy benefits. In turn, each of the Plans contract with a PBM to manage its delivery of pharmacy services. United Healthcare Community Plan of Ohio contracts with OptumRx, a UnitedHealth Group company. The remaining four Plans contract with CVS Caremark. The contracts identify similar types of services and responsibilities associated with the Plans and PBMs as summarized in **Table 2**. PBMs in turn contract with pharmacies, either directly or through a pharmacy service administration organization (PSAO), which negotiate and enter into contracts with third-party payers on behalf of member pharmacies.

Table 2: Services and Responsibilities of Managed Care Plans and Pharmacy Benefit Managers

	General Services/Responsibilities
MCP	Provides eligibility information, formulary management, coordination of benefits, and claims and rebate audits
PBM	Provides claims processing, drug utilization review, pharmacy network management maximum allowable cost list reporting, call center, rebate reporting, monitoring/auditing its pharmacy network, clinical services, prior authorization management, communication materials and operating mail order and specialty pharmacies.

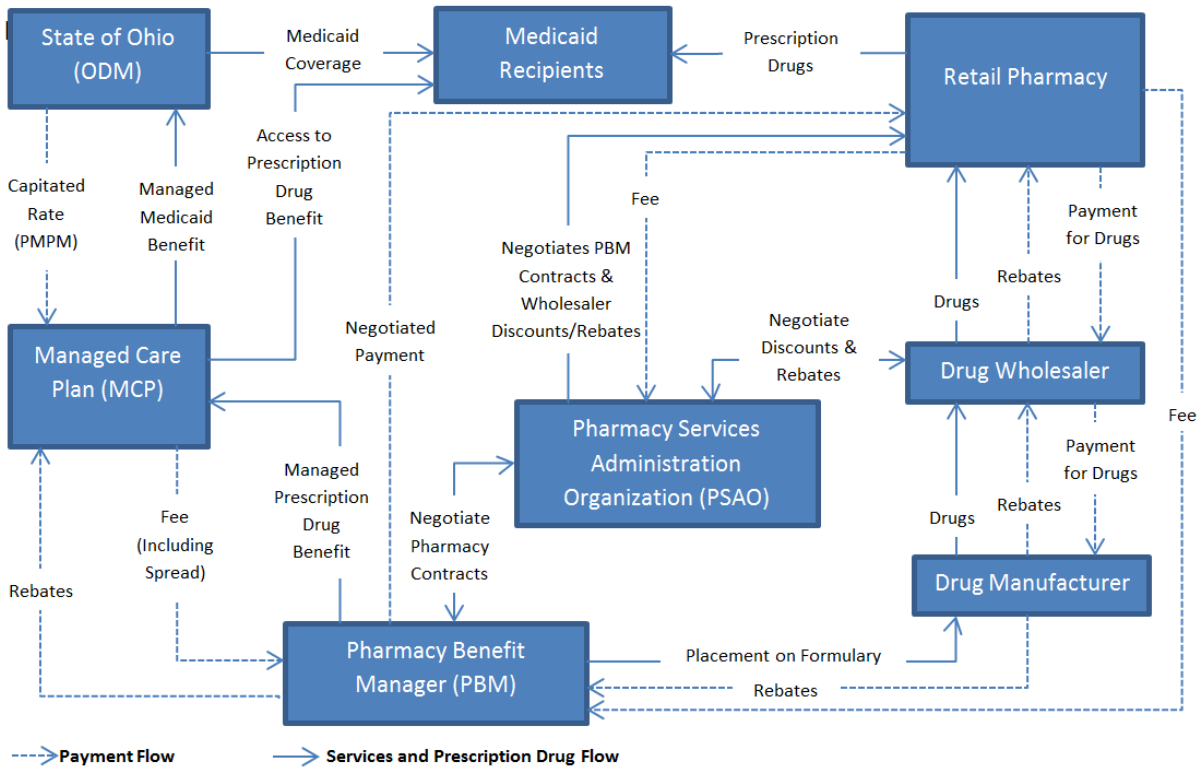
[1] Summary of Information in Plan contracts with PBMs in effect during calendar years 2016 and 2017.

[5] Full report found at https://ohioauditor.gov/auditsearch/detail.aspx?ReportID=136353 - see pages 77 to 79.
[6] Capitated payments are fixed, pre-arranged monthly payments**.** In developing the per member/per month payment, the actuarial firm reduces retail pharmacy expenditures by the supplemental rebate percentage and for uncollected co-pays.

Pharmacies generally purchase drugs from wholesalers who purchase the drugs from manufacturers and receive rebates that originate from the manufacturer. Some pharmacies purchase drugs through a group purchasing organization.

Chart 1 is an illustration of Ohio's Medicaid Managed Care Program and provides an overview of the multiple entities involved in pharmacy transactions and the interactions between these entities.

Chart 1: Ohio's Medicaid Managed Care System



DATA TRANSPARENCY

One concern expressed by state lawmakers is that payment for pharmacy services is convoluted and secretive because pricing and reimbursement methodologies are confidential and proprietary. **Chart 1** shows the many entities that touch a pharmacy transaction, most of which add expense, even though their specific costs are often unknown. For example, while we were able to obtain information on payments made by CVS Caremark to pharmacies, the Plans that paid CVS Caremark were not permitted by this PBM to see this information.

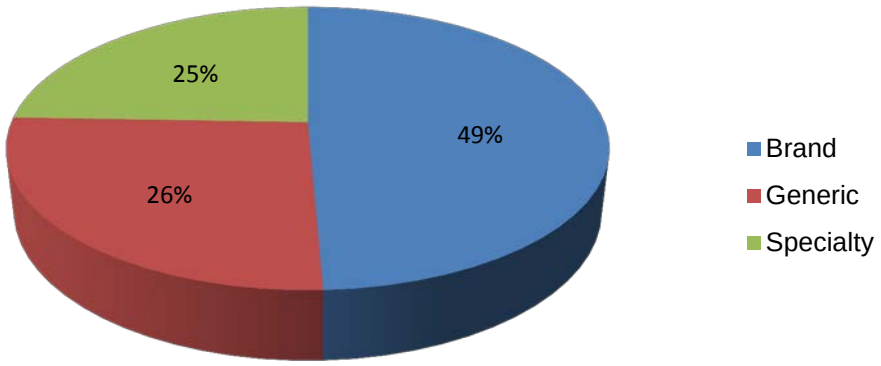
Ohio Medicaid reimburses fee-for-service pharmacy services (not covered by managed care) based on a two-part formula consisting of the ingredient cost of the drug and a dispensing fee. The Department uses the National Average Drug Acquisition Cost (NADAC) to set the ingredient cost. NADAC is published monthly by the Centers for Medicare & Medicaid Services[7]. The Department's dispensing fee varies between $8.30 and $13.64 depending on the volume of prescriptions reported by the pharmacy.

[7] Federal regulations allow states the flexibility to determine reimbursement amounts, although there is an upper limit that cannot be exceeded.

In contrast, managed care plans contract with PBMs to provide pharmacy services and the contracts specify the payment structure for brand, generic and specialty drugs. The negotiated rate represents an annual guaranteed rate and does not reflect the amount paid for a specific prescription on a given date. Additional fees, priced separately, are also paid by the Plans to the PBMs for various services, such as dispensing fees, special reports, manual claims processing and drug utilization review.

During the period reviewed, the Plans paid more than $2.5 billion to their PBMs. **Chart 2** shows this amount broken down by drug type. The highest percentage of dollars paid to PBMs was for brand drugs, followed by generic and specialty drugs. While brand drugs are prescribed less often than generics, their cost is much higher.

Chart 2: MCP Payments to PBMs by Drug Type



PBMs also pay pharmacies based on a two-part formula consisting of the ingredient cost of the drug and a dispensing fee. One method used by PBMs to set the pricing for the ingredient cost uses a maximum allowable cost[8] which is developed by a PBM based on its industry research and analysis. The maximum allowable cost list is a compilation of drugs with prices and their effective dates. The PBMs reported that they develop different lists to meet their contractual annual guarantees and the market characteristic of their pharmacy networks such as volume and predicted acquisition costs. This results in pharmacies being paid different amounts by the PBMs for the same drug on the same day. The Auditor of State's office obtained the maximum allowable cost lists used to price Ohio Medicaid pharmacy services from CVS Caremark and OptumRx for one week in November 2017. We noted that both CVS Caremark and OptumRx had multiple MAC lists which included different prices for the same drug across the lists. See **Appendix A** for additional information of the lists.

In addition to the ingredient cost, the PBM pays the pharmacy a dispensing fee. Both PBMs indicated their dispensing fees are set by contract.

[8] According to CVS Caremark, depending on the contract, the pharmacy will be paid the lessor of several pricing models such as usual and customary, a percentage discount applied to average wholesale price or maximum allowable cost. It is possible that the maximum allowable cost may not be the lowest.

DISCONNECT BETWEEN PHARMACY REIMBURSEMENT AND MEDICAID PROGRAM COSTS

As requested by members of the Legislature, we calculated the pharmacy spread in the state's Medicaid managed care program. Spread pricing refers to a type of contracting in which the amount paid by the Plan to the PBM for a specific prescription is different than the amount paid by the PBM to the pharmacy for the same prescription. In lieu of the Plans paying for certain services, such as drug utilization review or claims processing, the PBM retains the spread amount. Both CVS Caremark and OptumRx indicated that the spread pricing contract model best supports cost containment.

While much attention has been focused on the spread, it does not provide a complete picture of pharmacy costs and PBM compensation. There are a number of financial transactions that occur outside of the claims payment process that impact pharmacy costs and PBM revenues. For example, there are additional fees paid by the Plans to the PBMs and there are fees paid by pharmacies to the PBMs, including transaction fees, quality fees and fees related to contract performance. None of these fees are included in the spread. Other states have taken steps to go beyond a focus on the spread to look at a broader array of statistical and financial data (see Recommendation 3).

The Auditor of State's office received pharmacy data and performed the analysis shown in **Table 3** for the period of April 1, 2017 through March 31, 2018. Auditors elected to use the same period selected by the Department to facilitate timely analysis for this report and comparability. It should be noted that the period selected by the Department is an open billing period[9], meaning the data is subject to change. (Note: This period includes increased reimbursements made by PBMs to pharmacies for certain drugs in January 2018, at the request of the Department.)

We reviewed 39.3 million drug claims and determined the average spread by quarter, by drug type and the percentage of claims by drug type. This analysis[10] found the following:

- **Brand:** Average spread per claim decreased by 23 percent from the 1st to last quarter.
- **Generic:** Average spread per claim increased by 20 percent from the 1st to last quarter.
- **Specialty:** Average spread per claim increased by 53 percent from the 1st to last quarter.[11]
- **Combined:** Average spread per claim increased by 18 percent (see Appendix B for Minimum and Maximum Spread, Appendix C for spread by county and Appendix D for spread by managed care plan).

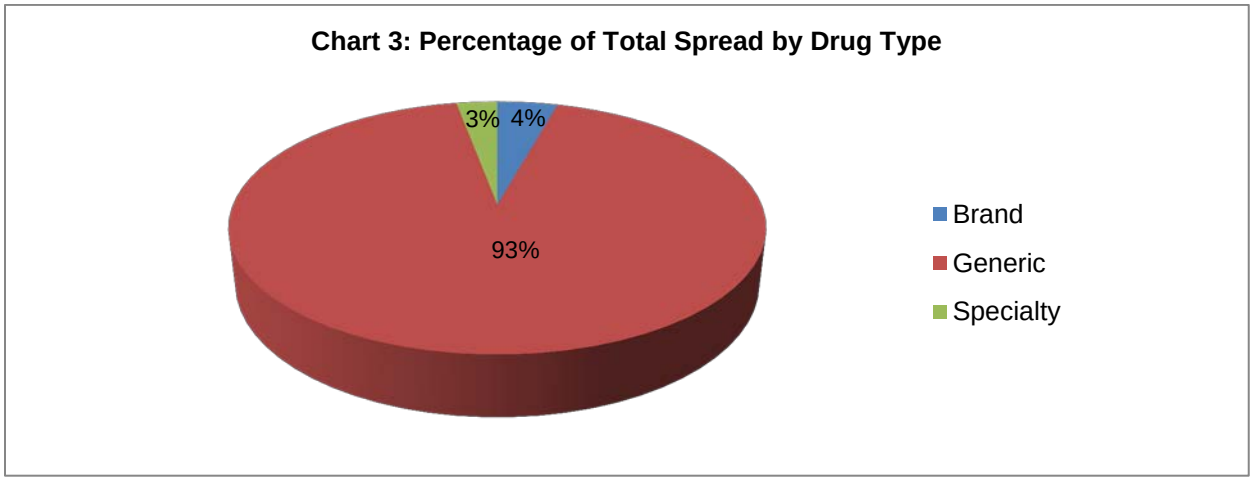
[9] Providers can bill Medicaid program for up to 365 days after service delivery (see Ohio Admin Code § 5160-1-19).
[10] The scope of this report did not include a detailed analysis as to the causality of these variances.
[11] Per contracts, many specialty drugs are filled by CVS Caremark's specialty pharmacy.

Table 3: Average Spread by Quarter and by Drug Type

Quarter	Average Spread			
	Brand	Generic	Specialty	Total Average Spread for All Claims
4/1/2017-6/30/2017	$2.11	$5.39	$30.12	$5.09
7/1/2017-9/30/2017	$2.03	$5.71	$31.91	$5.35
10/1/2017-12/31/2017	$1.57	$7.10	$31.24	$6.47
1/1/2018-3/31/2018	$1.62	$6.48	$46.04	$6.01
Yearly Total[4]	**$1.85**	**$6.14**	**$33.49**	**$5.71**
	Brand	**Generic**	**Specialty**	**Totals**
Number of Prescriptions	**5,268,144**	**33,913,042**	**197,408**	**39,378,594**
Percentage of Claims	**13.4%**	**86.1%**	**0.50%**	**100%**
Amount Paid by Plans (millions)	**$1,246.1**	**$662.7**	**$617.6**	**$2,526.5**
Total Spread (millions)	**$9.8**	**$208.4**	**$6.6**	**$224.8**
Spread Relative to Total Paid Amount by Drug Type	**0.8%**	**31.4%**	**1.1%**	**8.9%**

[1] Source: Data provided by CVS Caremark and OptumRx
[2] Based on the period of April 1, 2017 through March 31, 2018
[3] We matched the spread data with the Medicaid Information Technology System using the pharmacy provider number. We found 334,475 services (0.8 percent) with no matching provider identification and removed those services for the purpose of this analysis.
[4] Yearly totals are not an average and are weighted based on total records and amount paid.

Chart 3 shows the total spread by drug type and highlights that 93 percent of the total spread was from generic drugs. This is to be expected because the overall spend is so much higher for this drug type.



POTENTIAL CONFLICT OF INTEREST

Auditors further broke down the PBM data by region in order to examine concerns regarding independent community pharmacies being targeted with lower reimbursements. **Table 4** contains the spread analysis by region and includes a comparison of CVS pharmacies vs. independent community pharmacies within each specific region (see Appendix E for description of regions). Based on this data, the difference between the Plan's payment to the PBM and the amount paid to the pharmacy (the spread) is similar for brand and generic drugs between CVS pharmacies and independent pharmacies. In comparison the spread is greater with CVS pharmacies for specialty drugs.

Table 4: Spread Analysis by Region and Pharmacy Type

	CVS Pharmacies			Independent Pharmacies		
Region	**Brand**	**Generic**	**Specialty**	**Brand**	**Generic**	**Specialty**
Metro	$2.04	$5.49	$57.02	$1.67	$5.50	$43.67
Central	$1.60	$5.83	$66.58	$1.80	$5.11	$24.21
Northeast	$2.51	$5.60	$50.68	$3.55	$6.71	$39.14
Northwest	$4.85	$7.13	$43.50	$3.71	$6.69	$25.32
Southeast	$1.91	$5.58	$62.92	$1.88	$4.90	$43.28
Southwest	$2.06	$5.57	$50.19	$1.77	$5.27	$31.32
Overall Average Without Metro	**$2.37**	**$5.74**	**$53.42**	**$2.57**	**$5.80**	**$35.19**
Overall Average All	**$2.22**	**$5.63**	**$55.09**	**$2.10**	**$5.66**	**$39.08**

[1] Source: Data files submitted by CVS Caremark and OptumRx
[2] Based on the period of April 1, 2017 through March 31, 2018

Spread Analysis Conclusion

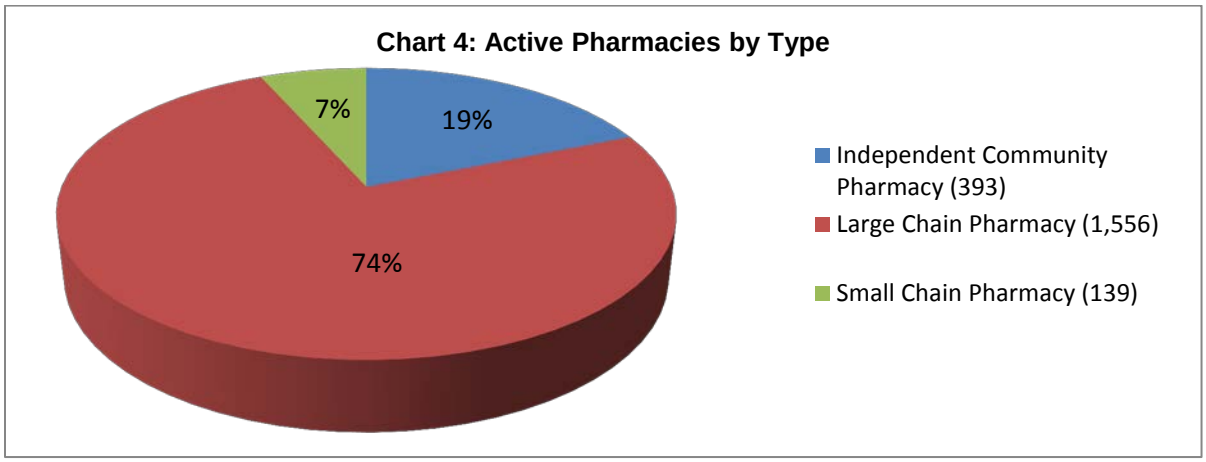
Caution should be used in drawing conclusions based on this pharmacy spread data as it does not reflect all transactions that occur between a pharmacy and a PBM. For example, the data used for this spread analysis does not include direct and indirect remuneration (DIR)[12] fees paid back to the PBM by the pharmacy. In addition, per contracts, many specialty drugs are filled by CVS Caremark's specialty pharmacy – which is a CVS specialty pharmacy both of which are subsidiaries of CVS Health Corporation. This analysis does not address the significant rebates offered to PBMs by the drug manufacturers. Finally, there are other additional contractual arrangements that could impact final payments. To fully address the concerns raised recently would take access to financial and statistical data from the Plans, PBMs and pharmacies that are currently inaccessible. See **Appendix F** for spread analysis by region and quarter.

We were unable to benchmark the Ohio Medicaid spread data as Ohio is the first state to release a full year's data on the pharmacy spread. Virginia and Kentucky have analyzed the pharmacy spread in their Medicaid programs and are planning to release reports in the next few months and this may provide some comparative basis. The Department recently contracted with HealthPlan Data Solutions, LLC to analyze the Medicaid pharmacy spread. Based on this vendor's market intelligence, the costs for the administrative fees covered by the spread would be from $0.95 to $1.90[13] per prescription, which is one-third of the pharmacy spread passed down in Ohio's Medicaid managed care program. Although this figure may not include all of services performed by a PBM, it suggests Ohio's current spread may be excessive and warrants the State taking further action to mitigate the impact on the Medicaid program (see Recommendations section).

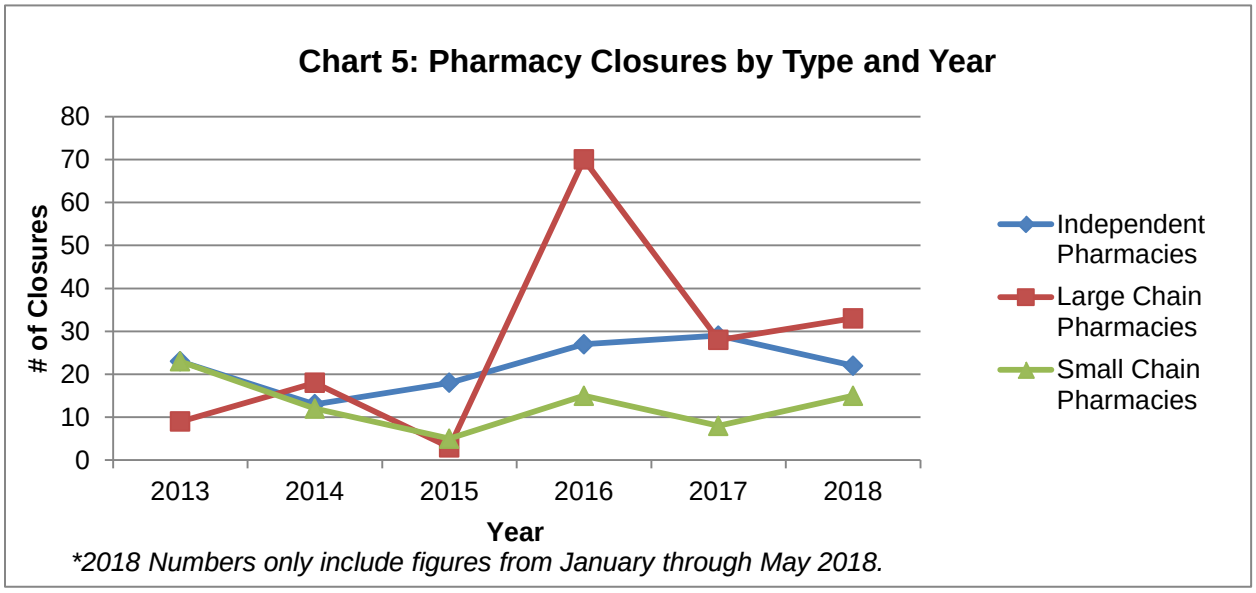
[12] DIR fee is the terminology used to categorize certain pharmacy network participation fees and the reconciliation of certain contractual terms with actual reimbursement.
[13] This estimate of fees has not been independently verified by the Auditor of State. .

IMPACT OF REDUCTIONS IN PHARMACY REIMBURSEMENT ON ACCESS TO CARE

According to the Ohio Board of Pharmacy's data, there were 2,088 active independent, small chain and large chain pharmacies licensed in Ohio as of May 15, 2018[14]. Of these 2,088 pharmacies, the majority were large chain pharmacies. The Board considers an independent community pharmacy as one outlet, a small chain pharmacy as having two to 11 outlets and a large chain pharmacy as having 12 or more outlets. Chart 4 shows the percentage of pharmacies in Ohio by pharmacy type.

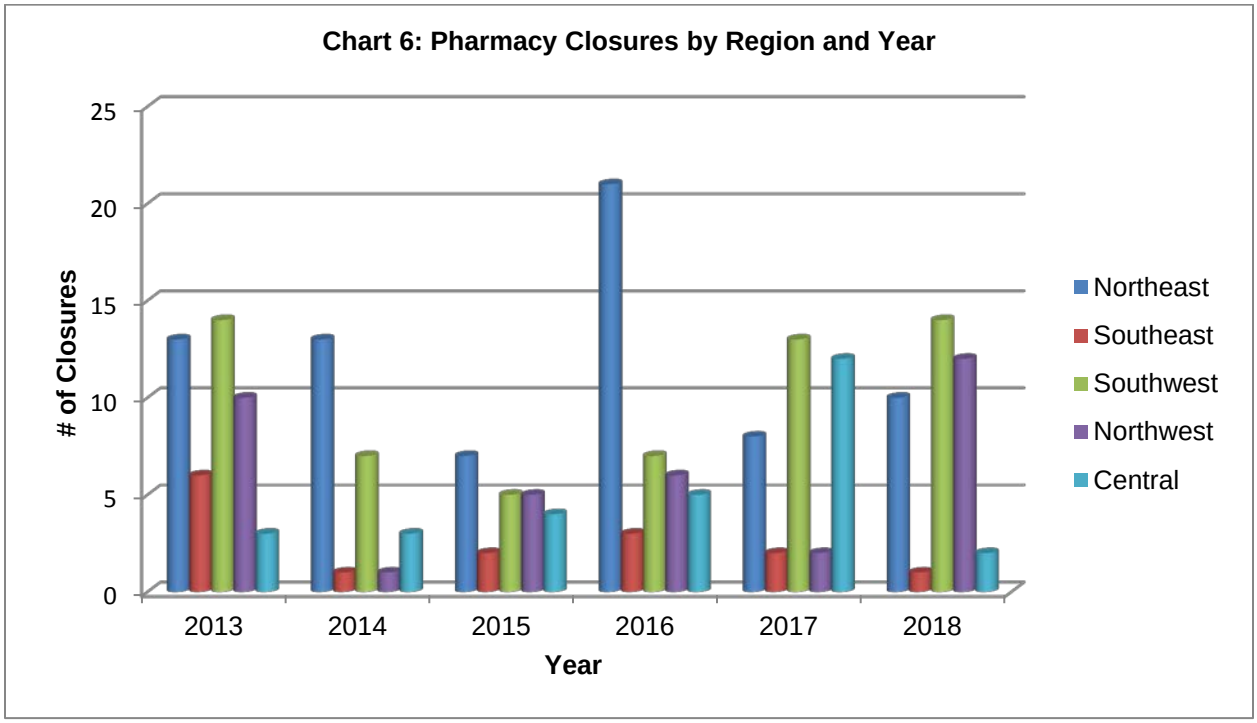


The Ohio Board of Pharmacy also maintains data on pharmacy closures. This data shows 132 independent community pharmacies, 78 small chain pharmacies and 161 large chain pharmacies have closed in Ohio since 2013. **Chart 5** shows pharmacy closures by pharmacy type and year. The data shows a significant increase in large chain pharmacy closures in 2016; however, the increase was due to CVS pharmacy acquiring Target pharmacy locations. This acquisition made up 81.4 percent of the large chain closures in 2016 and, while identified as closures in the data, there was no resulting reduction in pharmacies.



[14] The Pharmacy Board licenses other terminal distributers of dangerous drugs such as veterinary clinics, hospitals, physician (prescriber) offices, and nursing homes. This data in this report did not include these other types of terminal distributers.

Auditors also analyzed closures geographically to show any regional impact of these closures. We noted that the northeast region had the highest number of closures with 133, followed by 93 closures in the southwest region, 63 closures in the central region, 55 in northwest region and 27 closures in the southeast region. The data also shows a spike in closures in the northeast region in 2016. See **Appendix F** for closure numbers by region. The 2018 data includes only January through May 2018 so does not represent a full year.



Summary on Pharmacy Closure Data

Table 4 above shows that the spread for independent community pharmacies in the northeast and northwest regions for this 12 month period was higher than other regions for both brand drugs (69 and 77 percent, respectively) and generics (19 and 18 percent, respectively). This raises questions as to why pharmacies in these regions are reimbursed at lower amounts for these two drug types. The pharmacy closure data shows that 48 percent of Ohio independent pharmacies closed since 2013 were located in these two regions. Lower reimbursements may result in future closures so continued monitoring of pharmacy closures would be beneficial. The trend in independent pharmacy closures shown in the Pharmacy Board's data coincides with concerns expressed by pharmacists regarding reductions in reimbursements. However this data does not show causality and further research is needed to determine the factors that led to these closures. While the analysis did show differences in the spread by region, the spread analysis completed for this report was for a limited time frame and does not reflect the final reimbursements to pharmacies.

INITIATIVES, RECOMMENDATIONS AND ISSUES FOR FURTHER STUDY

Federal Initiatives

A report released from the U.S. Department of Health and Human Services – Office of Inspector General[15] (HHS-OIG) found reimbursement for brand-name drugs increased between 2011 and 2015, even with lower inflation and decreased drug utilization. The report analyzed pharmacy costs in the Medicare program but its findings raise concerns for the Medicaid program as well. The report notes that reimbursement increased 62 percent over 2011 to 2015, even when factoring in rebates, while the number of prescriptions went down 17 percent. Per unit costs for brand-name drugs increased nearly six times faster than inflation from 2011-2015 and these cost increases were similar to increases in manufacturer prices. The HHS-OIG report highlights the impact that drug manufacturers and wholesalers have on increasing pharmaceutical costs. While this Auditor of State report focuses on PBMs, these other sectors of the pharmacy industry could have higher profit margins than PBMs and be a key factor in Medicaid pharmacy costs. Massachusetts recently submitted a proposal to negotiate directly with manufacturers on the price of drugs and, under certain conditions, to have drug manufacturers justify drug prices, attend public hearings and make information on pricing available to the public (see Medicaid Initiatives in Other States).

Recently, it was announced that the Department of Health and Human Services (HHS) will take steps to lower drug costs including:

- Streamlining and accelerating the approval process for over-the-counter drugs;
- Increased reliance on value-based pricing;
- Ending the current Medicaid rebate cap; and
- Including drug maker copay discount cards in Medicaid best-price calculations.

Action Taken by the Ohio Department of Medicaid as of August 13, 2018

The Department has focused its monitoring on the contract with the Plans and has not extended those monitoring activities to subcontractors (such as PBMs) used by the Plans to carry out core functions of the State's Medicaid program. In response to concerns around pharmacy reimbursements, the Department amended the agreement with the Plans in April 2018 to include additional disclosure requirements for pharmacy benefits. PBMs are now required to disclose differences between the amounts paid to a pharmacy and the amount charged to the plan sponsor (the spread pricing) and whether it uses the same maximum allowable cost list for billing a Plan compared to reimbursing a pharmacy. Each Plan is to develop and publish on its website the requirements and appeal process for pharmacy providers. The amended agreement indicates that upon request, the Plans will provide all financial terms and arrangements for payment of any kind that apply between the Plan (or the Plan's first tier, downstream and related entity) and any provider of a Medicaid service.

The new agreement also adds a requirement effective July 1, 2018 that for sub-contracted payment arrangements in which a vendor is responsible for paying claims on behalf of the Plan, the encounter data must include the amounts paid by the vendor. This should ensure that the Plans submit amounts paid by the PBM to the pharmacy in future encounter data.

[15] Increases in Reimbursement for Brand-Name Drugs in Part D (June 2018 OEI-03-15-00080 https://oig.hhs.gov/oei/reports/oei-03-15-00080.pdf

Medicaid Initiatives in Other States

Other state Medicaid programs have taken steps to address concerns around costs of pharmacy services.

- Kentucky: Passed legislation in 2018 to increase reporting requirements of PBMs. The legislation requires PBMs to provide the state's Medicaid agency the total Medicaid dollars paid by the managed care organizations as well as the detailed cost components of payments to pharmacies and all direct and indirect fees, charges and assessments a PBM imposes on a pharmacy. Officials from the state Medicaid agency are currently engaged in the development of a reporting mechanism to implement the recent legislation and define terms appropriately so that the correct data is obtained. In addition, Kentucky approves contracts between the managed care organizations and PBMs.

- Massachusetts: In an attempt to control rapidly increasing pharmacy and high drug costs, the state Medicaid agency submitted a waiver to the Centers for Medicare and Medicaid Services (CMS) to implement a value-based pharmacy pricing model. Under this model, Massachusetts would have the ability to negotiate directly with manufacturers on the price of drugs and to exclude certain drugs from its preferred drug list under certain conditions. Under the proposal, if an agreement with drug manufacturers is not reached, manufacturers would be required to justify drug prices, may be required to attend public hearings and make information on drug pricing available to the public. In its initial response, CMS did not approve the waiver as submitted. The final resolution was not known at the time of this report. Following Massachusetts, other states including Arizona announced intentions to request approval for new flexibilities in Medicaid drug coverage.

- Texas: In 2014, Texas Medicaid added to and strengthened provisions in its contract with its managed care organizations to:

  - Prohibit contracting with PBMs using the spread pricing model;
  - Improve monitoring of PBMs;
  - Prohibit PBMs from charging pharmacies transaction fees; and
  - Ensure patient access to medications.

  Texas requires PBMs to submit quarterly financial and statistical reports in order to analyze their reimbursements to pharmacies compared to their reimbursements from the managed care organizations.

  Texas also passed legislation in 2017 that requires periodic audits of PBMs to obtain greater assurance about the effectiveness of the PBMs' internal controls and compliance with state requirements. Representatives from the Texas Medicaid program stated that building positive relationships with PBMs and stakeholders through regular meetings and dialogue was important to obtain support for these changes and for the additional reporting and monitoring activities.

- Virginia: This state added a provision to the budget bill in 2017 requiring the state Medicaid agency to provide quarterly reports on PBM claims data, the amount being paid to pharmacies, and the difference between those amounts (the spread). In October 2018, Virginia will release a report that will include a full year of data enabling officials to identify patterns and trends. In addition, Virginia is working to add a requirement for managed care organizations to report an itemization of all administrative fees, rebates, and processing charges associated with the claim.

- West Virginia: In July of 2017, in response to increasing payments that the state determined were unsustainable, West Virginia moved pharmacy benefits from managed care back to fee-for-service. To address concerns by the managed care organizations in relation to care coordination, the state added technology to enable the managed care organizations to view pharmacy data on a real-time basis. The state performed an analysis prior to implementing this change which

indicated there would be savings to the state Medicaid program from this change; however, the actual impact of this change was not known at the time of this report.

Recommendations

1. SERVICE ORGANIZATION REPORT ON INTERNAL CONTROLS

Service organizations provide services ranging from performing a specific task under the direction of an entity to replacing entire business units or functions of the entity. When the operating activity is not directly administered by the entity, such as when utilizing a service organization, it is critical that the appropriate controls are designed and implemented to reasonably ensure the service organization has adequate controls to achieve management's goals and objectives and complies with applicable laws and regulations. Service Organization Controls reports, known as SOC reports, help user organizations monitor their outsourced relationships and manage the associated risks. SOC-1 audits are performed over these service organizations to provide information about internal controls to management and to auditors who rely on the SOC-1 report results for the audit of the user entity's financial statement.

The Managed Care Plan Provider Agreement outlines the responsibility of the Plans in relation to pharmacy services and submission of encounter data regarding these services. These responsibilities include ensuring appropriate coverage of prescribed drugs, communications with members (Medicaid beneficiaries), conducting a drug utilization review program, and making payments to pharmacies. In order to meet the requirements related to pharmacy services, the Plans contract with PBMs to perform these required functions. Per the agreement, the Plan agrees to hold all subcontractors acting on its behalf in the performance of services responsible for adhering to the requirements.

Without a SOC-1 audit, the Department may not have sufficient information to reasonably ensure controls are in place to ensure the integrity of the data processed, maintained, and reported by the Plans. Data errors could lead to undetected errors in calculation of the capitation payment and federal reporting. We recommend the Department take steps to ensure that an annual SOC-1 audit is completed over PBM services and activities, and to make this information available to auditors evaluating the encounter and financial data reported.

2. ADDITIONAL AUDIT REQUIREMENT

In addition to the SOC-1 audit, the State should require that the Department engage an independent audit entity to perform periodic compliance audits of each PBM that contracts with a managed care plan. The Department should establish the scope of the compliance examinations. The compliance audits should provide greater assurance about the PBMs' compliance with State requirements. The Department should develop, document, and implement a monitoring process to ensure that the Plans correct any findings from those audits.

3. ADDITIONAL STATISTICAL AND FINANCIAL REPORTING REQUIREMENTS

The State should go beyond monitoring the spread and obtain statistics and financial information that include transactions that occur outside of claims adjudication. This would give a more accurate picture of actual reimbursement to pharmacies for services rendered. We recommend that the Department require the Plans report financial terms and payment arrangements they have with its PBM and prescription drug manufacturers, or labelers, including formulary management, drug-switch programs, educational support, claims processing, pharmacy network fees, data sales fees, and all other fees. The Department should also include language ensuring that it has the right to audit this data at any time. The confidentiality of the information disclosed by the Plans should be maintained, to the extent that the information is protected under state or federal law.

4. DEVELOPMENT OF BENCHMARKS FOR MONITORING PHARMACY PAYMENTS

If Ohio's Plans continue to use spread pricing contracts, the Department should develop benchmarks or a performance scorecard to monitor spread pricing and price fluctuations. These benchmarks should include, at a minimum, spread by type of drug, by region, and by managed care plan. As other state Medicaid programs report out on pharmacy data/spread, Ohio could look to these states to benchmark its data.

5. ANALYSIS OF ALTERNATE CONTRACT MODEL

The State should perform an analysis to identify the costs and benefits of requiring pass through contracting for its pharmacy services and report on those results including a detail of the methodology used for the analysis. In pass through contracting, the PBM charges the Plan a flat administrative fee per claim or per member and then passes the exact price paid to the pharmacy through to the Plan. In the interim, the Department should work with its Plans and the PBMs to ensure that reimbursement methodologies reflect reasonable costs associated with providing the service.

In addition, the State should engage an independent third party to conduct a complete analysis of the impact of moving pharmacy services to a fee-for-service model similar to the change implemented in West Virginia. The HealthPlan Data Solutions (HDS) executive summary contains a fee-for-service comparison; however, notes that the comparison is incomplete and recommends a follow-up analysis that incorporates the impact of rebates. The Auditor of State requested a copy of the full report developed by HDS but the full report is not yet available. Without the detailed methodology of the analysis performed by HDS, the Auditor of State cannot comment on or evaluate its fee-for-service pricing comparison.

6. **MONITOR OTHER STATE INITIATIVES**

The Department should continue to monitor approaches being tried in other states, such as the waiver request submitted by Massachusetts, and consider if application of any of these approaches would benefit Ohio.

7. STRENGTHEN INTERNAL CONTROLS OVER DRUG REBATE CONTRACT MONITORING

The Department should implement the recommendation regarding the State's own third party administrator contained in the State of Ohio Single Audit for the year ended June 30, 2017 and strengthen its current internal control procedures over drug rebate contract monitoring. The monitoring procedures performed should be documented to provide assurance they are performed consistently. Additionally, these procedures should be updated regularly to address any changes in the contract requirements.

Issues for Further Study

The following are issues that were identified but were not reviewed within the scope of this report.

- Automatic Refills: This refers to allowing pharmacies to automatically refill prescriptions for certain medications without any customer action. Concerns with pharmacy automatic refill include the potential for stockpiling and continued filling of discontinued medications which results in increased costs and waste of prescription medications, as well as fraudulent resale. Two states reviewed by the Government Accounting Office, Florida and Arizona, have prohibited the practice. The impact of this practice on the Medicaid program is unknown, but automatic refills have been identified as a risk factor in fraud, waste and abuse.

- Medical Loss Ratio: The Medical Loss Ratio places a requirement on insurance companies to spend a set percent of premium dollars on medical care and health care quality improvement rather than administrative costs. Quality improving activities should be designed to improve health

outcomes and be based on evidence based practices. The Department's contract with its Plans indicates that the minimum medical loss ratio shall not fall below 85 percent.

During several interviews concerns were expressed that the current practice of spread pricing contracts impacted the medical loss ratio requirement. In addition, a 2017 presentation by the HHS/OIG identified one type of managed care fraud which included misrepresenting the ratio. Additional review of this issue is warranted if Ohio continues to allow spread pricing contracts to fully determine if these practices have any material impact on the medical loss ratio.

- Rebates and Rebate Audits: A rebate is a discount on a medication provided by a drug manufacturer in return for the manufacturer's drug product being included on the preferred drug list. Since PBMs impact the managed care plan's formularies, they can negotiate better prices for certain drugs. The Plan's contracts address the sharing of rebates obtained by the PBMs.

  However, concerns were expressed around PBMs inappropriately withholding rebates and this practice has been identified as a risk factor for fraud, waste and abuse. In addition, research on PBMs noted practices that result in higher costs drugs with larger rebates being added to preferred drug lists that may increase overall costs. Also, PBMs could be negotiating for additional discounts that are unknown to the Plans. Others have raised concerns that PBMs are charging another fee (in addition to the supplemental rebates), renaming it as a transaction fee, and charging this directly to the manufacturer.

  Representatives of the Plans discussed their rebate audit processes which differed in their scope and depth. If the state of Ohio were to perform rebate audits any discrepancies could be brought to light. Given the complexity and secrecy around rebates, the role of the rebate audit is significant. Rebates are used by the actuarial firm that calculates the per member/per month capitation payment. The significance of rebates on the capitation payment is unclear; however, further study of this issue is warranted to fully understand the impact on the Medicaid program.

- Conflicts of Interest/Anti-Competitive Practices: This report presents data on pharmacy closures over past five plus years and spread pricing for a recent 12 month period; however, this high level review is not adequate to fully address the concerns that exist around conflict of interest and anti-competitive practices. It should be noted that of the Medicaid PBMs operating in Ohio, CVS Caremark is the only PBM that shares ownership with a pharmacy, or put differently, CVS is the only retail pharmacy affiliated with a PBM (having the same parent company). Representatives of CVS Caremark interviewed as part of this report stated that a firewall is maintained between CVS Retail Pharmacies and CVS Caremark. During interviews with interested parties, it was suggested that CVS Retail pharmacy technicians are prompted as to which drugs to pick from a list to maximize the spread. CVS Caremark representative deny that this takes place. The limited scope of this report does not address this practice and this area warrants a more thorough audit.

  Other potential sources for conflicts of interest were identified in research performed for this report. For example, one conflict noted involves the PBMs exclusivity with specialty and mail order prescriptions. Most of the Plans agreed to have its PBM be the provider of these types of prescriptions. This arrangement could impact the rates of generic and brand drugs that may impact the rebates paid to the PBM for the purchase of the drugs. The potential conflicts of interest surrounding PBMs warrant further study as they could impact not only Ohio Medicaid program but other public payers of health care.

- Sale of De-Identified Information: We inquired with representatives of both PBMs as to whether they sell de-identified data associated with PBM facilitated transactions. They both indicated that they would need permission from a Plan to do that. Based on a review of contracts between PBMs and the Plans, there are no provisions prohibiting the sale of de-identified data by a PBM to a third party.

Appendix A: Analysis of Maximum Allowable Cost Lists for November 12 - 18, 2017

We received maximum allowable cost generic drug pricing lists from OptumRx and CVS Caremark for one week and analyzed the pricing for a sample of five drugs[16]. For this period, CVS Caremark provided 12 lists and OptumRx provided three lists[17]. We identified the prices applicable to each of the five selected generic drugs from both PBMs. CVS Caremark had four times the number of lists with an average of two different prices for each drug during the week as compared to one different price for OptumRx. However, this data represents a limited snapshot of drug pricing and is not sufficient to draw conclusions about pricing.

[16] The five drugs selected were: Omeprazole, Hydrocodone-Acetaminophen, Cetirizine HCL, Tramadol HCL, and Amoxicillin.

[17] Three additional Maximum Allowable Cost lists were provided by OptumRx; however, they were excluded from this analysis as OptumRx stated the three lists were based on aggregate value based contract pricing and were not reflective of individual negotiated drug prices.

Appendix B: Minimum and Maximum Spread by Quarter and Drug Type

This data shows that specialty drugs had the largest minimum and maximum spreads per claim, followed by generics and then brand drugs. We reviewed some of the claims that showed a negative spread and found that these were due to a payment from a third party payer, indicating that the member had other insurance coverage.

Minimum and Maximum Spread by Quarter and Drug Type							
	Brand		Generic		Specialty		
Quarter	Min. Spread	Max. Spread	Min. Spread	Max. Spread	Min. Spread	Max. Spread	Combined Average
4/1/2017-6/30/2017	($1.79)	$3.32	($3.22)	$7.58	($33.47)	$32.45	$5.09
7/1/2017-9/30/2017	($1.87)	$3.20	($5.07)	$7.69	($52.94)	$35.26	$5.35
10/1/2017-12/31/2017	($2.11)	$3.05	($5.02)	$8.96	($41.46)	$37.36	$6.47
1/1/2018-3/31/2018	($3.84)	$2.96	($5.92)	$8.39	($87.13)	$58.65	$6.01
Total	**($2.23)**	**$3.15**	**($4.57)**	**$8.20**	**($53.87)**	**$38.55**	**$5.71**

[1] Source: Data files submitted by CVS Caremark and OptumRx
[2] Based on the period of April 1, 2017 through March 31, 2018

Appendix C: Spread by County Based on Pharmacy Location

County	Brand	Generic	Specialty	All Types	County	Brand	Generic	Specialty	All Types
Adams	$0.99	$5.24	$37.69	$4.74	Licking	$1.15	$7.20	$82.11	$6.55
Allen	$2.42	$6.55	$42.18	$6.11	Logan	$2.20	$5.56	$7.75	$5.16
Ashland	$4.58	$5.44	$86.18	$5.41	Lorain	$2.14	$5.62	$52.19	$5.23
Ashtabula	$2.18	$6.16	$53.95	$5.71	Lucas	$1.13	$7.48	$32.79	$6.67
Athens	$1.60	$7.39	$59.45	$6.64	Madison	$2.37	$6.00	$21.28	$5.58
Auglaize	$3.69	$8.32	$95.94	$7.85	Mahoning	$2.54	$5.19	$36.58	$4.89
Belmont	$3.46	$7.99	$56.08	$7.50	Marion	$1.00	$5.79	$46.74	$5.33
Brown	$1.48	$6.53	$95.59	$5.97	Medina	$2.27	$5.92	$38.06	$5.53
Butler	$1.49	$6.08	$16.53	$5.56	Meigs	$2.13	$5.45	$96.36	$5.18
Carroll	$2.05	$5.57	$171.03	$5.20	Mercer	$3.08	$7.97	$58.87	$7.49
Champaign	$1.80	$6.97	$71.60	$6.42	Miami	$2.51	$7.01	$45.88	$6.51
Clark	$1.55	$5.33	$45.12	$4.90	Monroe	$1.53	$4.96	$50.52	$4.58
Clermont	$1.31	$7.37	$69.11	$6.65	Montgomery	$1.73	$5.81	$44.68	$5.37
Clinton	$1.91	$6.78	$55.94	$6.23	Morgan	($17.80)	$4.91	$301.45	$2.13
Columbiana	$3.77	$5.77	$39.20	$5.53	Morrow	$1.79	$6.72	$58.99	$6.14
Coshocton	$2.10	$5.22	$39.83	$4.83	Muskingum	$2.20	$6.78	$52.96	$6.21
Crawford	$1.68	$6.17	$157.17	$5.75	Noble	$2.24	$6.99	$108.25	$6.54
Cuyahoga	$1.70	$5.29	$73.19	$5.08	Ottawa	$2.89	$7.26	$47.64	$6.72
Darke	$2.41	$7.08	$67.82	$6.62	Paulding	$3.37	$6.36	$60.14	$6.03
Defiance	$2.98	$7.14	$36.22	$6.68	Perry	$1.30	$6.64	$80.11	$5.99
Delaware	$1.30	$7.91	$36.09	$7.28	Pickaway	$1.10	$6.54	$65.24	$5.90
Erie	$2.31	$6.58	$82.17	$6.20	Pike	$1.88	$6.05	$38.20	$5.56
Fairfield	$1.41	$6.59	$69.07	$6.01	Portage	$3.77	$6.79	$46.78	$6.45
Fayette	$0.89	$6.75	$50.09	$6.07	Preble	$1.75	$5.06	$60.06	$4.70
Franklin	$1.09	$6.06	$62.13	$5.57	Putnam	$1.70	$7.97	$42.19	$7.34
Fulton	$1.39	$8.96	$49.46	$8.12	Richland	$2.95	$6.01	$40.89	$5.66
Gallia	$2.40	$5.14	$32.65	$4.86	Ross	$1.56	$5.39	$61.86	$4.99
Geauga	$2.63	$7.36	$75.19	$6.90	Sandusky	$3.59	$7.87	$101.16	$7.51
Greene	$2.09	$6.38	$47.55	$5.87	Scioto	$2.04	$4.89	$35.52	$4.56
Guernsey	$2.34	$6.76	$30.01	$6.28	Seneca	$4.17	$8.36	$109.86	$7.96
Hamilton	$0.86	$6.06	$42.91	$5.48	Shelby	$2.58	$7.34	$45.99	$6.86
Hancock	$3.40	$8.59	$30.56	$7.95	Stark	$2.93	$6.10	$51.17	$5.78
Hardin	$2.16	$6.95	$37.24	$6.38	Summit	$3.50	$6.10	$67.03	$5.87
Harrison	$2.85	$6.00	$114.17	$5.75	Trumbull	$2.61	$5.64	$36.88	$5.29
Henry	$1.33	$9.31	$36.82	$8.03	Tuscarawas	$3.22	$5.50	$46.13	$5.26
Highland	$0.98	$6.05	$34.95	$5.40	Union	$1.49	$5.89	$49.92	$5.37
Hocking	$1.05	$7.72	$47.69	$6.93	VanWert	$4.28	$8.90	$26.79	$8.38
Holmes	$9.41	$7.25	$80.79	$7.53	Vinton	($6.39)	$4.94	$50.36	$3.44
Huron	$2.96	$6.62	$83.76	$6.26	Warren	$2.26	$6.42	$13.67	$6.03
Jackson	$2.20	$6.01	$71.97	$5.56	Washington	$1.95	$5.58	$72.68	$5.17
Jefferson	$2.97	$6.98	$61.01	$6.59	Wayne	$2.76	$6.49	$56.76	$6.10
Knox	$1.76	$6.14	$43.51	$5.72	Williams	$4.41	$7.66	$30.98	$7.29
Lake	$2.33	$6.77	$38.35	$6.30	Wood	$1.33	$8.27	$62.41	$7.58
Lawrence	$1.83	$4.98	$66.67	$4.68	Wyandot	$1.98	$7.59	$34.81	$6.94

[1] Source: Data files submitted by CVS Caremark and OptumRx
[2] Based on the period of April 1, 2017 through March 31, 2018

Appendix D: Spread by Managed Care Plan

This data shows the spread as percentage of total paid to a PBM for each of the five Medicaid managed care plans.

Managed Care Plan	Total Spread (millions)	Total Paid (millions)	Percentage
Buckeye	$32.8	$298	11.0%
CareSource	$113.5	$1,386	8.2%
Molina	$27.1	$310.2	8.8%
Paramount	$22.3	$244.4	9.1%
United	$28.9	$287.8	10.1%
Total	**$224.8**	**$2,526.5**	**8.9%**

[1] Source: Data files submitted by CVS Caremark and OptumRx
[2] Based on the period of April 1, 2017 through March 31, 2018

Appendix E: Regions and Counties

Northeast Region	Southeast Region	Southwest Region
Ashland	Athens	Adams
Ashtabula	Belmont	Brown
Carroll	Gallia	Champaign
Columbiana	Guernsey	Clark
Coshocton	Hocking	Clermont
Erie	Jackson	Clinton
Geauga	Lawrence	Darke
Harrison	Meigs	Fayette
Holmes	Monroe	Greene
Huron	Morgan	Highland
Jefferson	Muskingum	Miami
Lake	Noble	Pike
Medina	Perry	Preble
Portage	Scioto	Ross
Trumbull	Vinton	Warren
Tuscarawas	Washington	
Wayne		

Northwest Region	Central Region	Metro Region[18]
Auglaize	Delaware	Allen
Crawford	Fairfield	Butler
Defiance	Knox	Cuyahoga
Fulton	Licking	Franklin
Hancock	Madison	Hamilton
Hardin	Marion	Lorain
Henry	Morrow	Lucas
Logan	Pickaway	Mahoning
Mercer	Union	Montgomery
Ottawa		Richland
Paulding		Stark
Putnam		Summit
Sandusky		
Seneca		
Shelby		
Van Wert		
Williams		
Wood		
Wyandot		

The analysis of pharmacy closures does not include the Metro Region; however these counties are included in a region based on their location; Allen and Lucas counties are in the Northwest Region, Butler, Hamilton and Montgomery counties are in the Southwest Region, Franklin County is in the Central Region and the remaining Metro counties are in the Northeast Region.

[18] Counties identified as metropolitan is based on categorization in the Quality Decision Support System.

Appendix F: Pharmacy Closures by Region

The following table shows a breakdown of the independent, small chain and large chain pharmacy closures by region and by year as reported by the Ohio Pharmacy Board. The Pharmacy Board's data did not identify reasons for a closure.

Year	Northeast	Southeast	Southwest	Northwest	Central	Totals
2013	15	7	17	11	5	55
2014	15	2	15	4	7	43
2015	9	2	6	5	4	26
2016	52	5	21	11	23	112
2017	19	6	15	6	19	65
2018	23	5	19	18	5	70
Totals	**133**	**27**	**93**	**55**	**63**	**371**
Percentage	**36%**	**7%**	**25%**	**15%**	**17%**	**100%**

[1] Source: State of Ohio Pharmacy Board.
[2] The 2018 data includes only January through May 2018 so does not represent a full year.