The Menges Group

Strategic Health Policy & Care Coordination Consulting

Value of Managed Care Organizations and Pharmacy Benefit Managers in Managing the Medicaid Prescription Drug Benefit

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I. Executive Summary and Introduction

A. Overview

The prescription drug benefit in state Medicaid programs has a significant impact on Medicaid beneficiaries' health and well-being as well as on state and federal spending. In Federal Fiscal Year (FFY) 2018, Medicaid programs across the US spent approximately $30 billion on prescription drugs (after price concessions), which represents 5.0% of overall Medicaid spending and 1.5% of total state expenditures. Prescription drugs also play an integral role in treating clinical conditions.

The integration of the pharmacy benefit into Medicaid managed care can allow health plans to better identify beneficiary diagnoses and facilitate treatment adherence. States have increasingly implemented capitation contracting with managed care organizations (MCOs) to achieve greater access, cost, and quality outcomes and accountability in their Medicaid programs. By law, Medicaid programs receive statutory rebates for every drug. While rebate amounts vary, Medicaid programs typically receive an average rebate of more than 50% of the Average Manufacturer Price (AMP) across brand drugs and 13% of AMP on generic drugs.[1] Additionally, state Medicaid programs and MCOs are also able to negotiate with drug manufacturers for supplemental rebates on brand drugs (on top of the statutory rebates).

From 2013 to 2018, the proportion of prescription drugs administered by Medicaid MCOs – typically through contracts with their pharmacy benefit manager (PBM) partners – grew by almost 20 percentage points. In FFY2013, just over 52% of Medicaid prescription drugs were paid in the MCO setting. This grew to 64.1% in FFY2015 and to 71.7% as of FFY2018.[2] These figures are shown in Exhibit 1. There were two key reasons for this growth. First, a greater proportion of Medicaid enrollees who were not also covered by Medicare (not Medicare-Medicaid dual eligible) moved into MCOs. This proportional growth occurred as more Medicaid enrollees entered managed care. In FFY2013, 56.0% of Medicaid enrollees were enrolled in comprehensive managed care. Secondly, many large states that previously carved the prescription drug benefit out of managed care moved to a carve-in model (e.g., New York, Texas, and Ohio).

Exhibit 1. Percentage of Medicaid Prescriptions Paid by MCOs

FFY2013	FFY2014	FFY2015	FFY2016	FFY2017	FFY2018
52.1%	56.3%	64.1%	69.0%	71.8%	71.7%

While the presence and use of Medicaid MCOs has increased in recent years, the operational details of MCOs vary by state. For example, in some states Medicaid MCOs have full latitude over the prescription drug benefit, including deciding which drugs are on the formulary and what level of prior authorization is needed for drug coverage. Other states require MCOs to follow a

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[1] https://www.medicaid.gov/medicaid/prescription-drugs/medicaid-drug-rebate-program/index.html

[2] https://www.medicaid.gov/medicaid-chip-program-information/by-topics/data-and-systems/medicaid-managed-care/downloads/2013-managed-care-enrollment-report.pdf & https://www.medicaid.gov/medicaid/managed-care/downloads/enrollment/2017-medicaid-managed-care-enrollment-report.pdf

state-mandated formulary or standardized authorizations guidelines. Additionally, states may adopt differing approaches to the managed care model based on the unique needs of populations within the state.

States that choose to pay for Medicaid prescriptions through fee-for-service (FFS) do so in one of three different ways. First, 12 states do not have Medicaid MCO contracting programs – Alabama, Alaska, Arkansas, Connecticut, Idaho, Maine, Montana, North Carolina, Oklahoma, South Dakota, Vermont, and Wyoming. These states therefore retain the obligation to manage and pay for all Medicaid benefits, including prescription drugs, under a FFS model. Secondly, four states (Missouri, Tennessee, West Virginia, and Wisconsin) "carve out" their Medicaid prescription drug benefit from the MCO capitated benefits, paying pharmacies via the FFS model. Finally, in the 35 remaining states (and the District of Columbia) with MCO programs, some portion of the Medicaid population is not enrolled in MCOs and these individuals' prescriptions are also paid in the FFS setting. Within the FFS model, states also often contract with PBMs to help administer the Medicaid pharmacy benefit. For example, Vermont, whose Medicaid program is administered entirely in the FFS setting, has contracted with a PBM for a comprehensive suite of services since 2015.[3]

It is important to note that while the data available allow us to compare cost and usage outcomes between MCOs and FFS, our comparisons cannot capture many nuances within these models. Different MCOs use different PBMs and employ different tools (preferred drug lists, prior authorization processes, access and adherence programs, etc.) to manage the prescription drug benefit and to integrate this benefit effectively with all other Medicaid health services. Similarly, FFS includes an array of benefits management approaches, with some states contracting with PBMs to perform some services similar to those provided by MCOs.

PCMA engaged The Menges Group to estimate the financial and programmatic value of managing the prescription drug benefit in the Medicaid managed care setting, comparing states that utilize MCOs – who contract with PBMs – for their prescription drug benefits to states that manage their prescription drug benefits in FFS. Using Medicaid prescription drug data reported by each state to the Centers for Medicare and Medicaid Services (CMS) for all Medicaid-paid pharmacy-dispensed prescriptions, we analyzed how prescription drug costs and usage vary depending on how prevalent managed care is in each state Medicaid program. We also analyzed the drug costs and usage within specific therapeutic drug classes. This report details our findings.

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[3]
https://legislature.vermont.gov/Documents/2020/WorkGroups/Senate%20Finance/Health%20Care/PBMs/W~Nancy%20Hogue~Medicaid%20PBM%20Overview~4-30-2019.pdf

B. Key Findings

The most significant findings from our analyses are presented below.

1. There is wide variation among state Medicaid programs when it comes to cost per prescription and generic dispensing rate (GDR), but Medicaid MCOs tend to obtain more favorable outcomes across these statistics relative to Medicaid FFS. This results in MCOs having lower net pharmacy costs, which creates savings for states and the federal government. For a discussion of population differences between MCO and FFS and the potential impacts on the analysis, please see the "Strengths and Limitations of the Data Sources Used" section at the end of this document.

    a. Of the 15 states with the highest percentage of Medicaid prescription drug volume paid in the MCO setting (all greater than 92%) in FFY2018:
        i. Six were in the top ten states having the lowest net cost per prescription
        ii. Seven were in the top ten states having the highest generic dispensing rates

    b. Conversely, among the 13 states with no Medicaid prescription drugs covered in the MCO setting in FFY2018 (the twelve states with no Medicaid MCO contracting programs plus Missouri)[4]:
        i. Seven were among ten states with the highest net cost per prescription
        ii. Seven were among the ten states with the lowest generic dispensing rates

2. When split into MCO usage cohorts by volume of prescriptions paid by MCOs, states with substantial MCO involvement in the prescription drug benefit have a much lower average net cost per prescription and a significantly higher generic dispensing rate than states with little or no MCO involvement.

3. Within therapeutic classes, Medicaid MCOs perform more favorably compared to FFS on several metrics.
    a. In the highest volume therapeutic classes, MCOs typically use far more generic medications than FFS, generating lower average costs per prescription.
    b. In the three therapeutic classes with the highest volume nationwide (between both FFS and MCOs, combined), the generic dispensing rate is nearly identical between MCOs and FFS, but the average costs per prescription are still much lower in the MCO setting. This indicates the MCO setting and its associated PBM tools *utilize less expensive drugs within both generic and brand medications*.
    c. Upon the introduction of newer and cheaper curative hepatitis C medication alternatives, MCOs have historically adopted the less costly medications both sooner after their introductions and in greater proportion than FFS. For example, after Zepatier was introduced in FFY2016 as the cheapest hepatis C curative drug at the time, MCOs promptly shifted to using it for 36% of its hepatitis C

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[4] West Virginia, Tennessee, and Wisconsin are not included in this group because, while they carve the prescription drug benefit out of their Medicaid managed care program, they still retain some Medicaid MCO prescription drug volume in non-comprehensive managed care programs. The 13 states included in this group had no Medicaid MCO prescription drug volume.

medications, while it only represented 17% of hepatitis C medications in FFS nationwide. Similarly, after the introduction of Mavyret in August of 2017, at that time the cheapest hepatitis C option, it comprised 63% of hepatitis C medications for MCOs during FFY2018, whereas it comprised 46% of hepatitis C medications for FFS during this timeframe. This greater use of lower-cost drugs translated to $435.7 million in savings for MCOs over five years.

4. In addition to the financial value MCOs and PBMs bring to Medicaid, their comprehensive approach to prescription drug management also has programmatic value:
   a. Real time data to immediately flag potential utilization issues, identify certain medical conditions, and inform medical decisions.
   b. Improved communication and systems—MCOs, through their contracted PBMs, have teams dedicated to pharmacy-specific and pharmacy-adjacent tasks, such as utilization management, care coordination, case management, quality improvement, and beneficiary and provider services.
   c. Effective management of the mix of drugs, including using generics over brand alternatives as well as lower cost alternatives within both brand and generics.
   d. Negotiating with drug manufacturers to obtain lower prices for drugs.

II. Medicaid Prescription Drug Usage and Costs

A. State-by-State Performance Results

National comparisons between MCO-paid and FFS-paid Medicaid prescriptions are shown in Exhibits 2, 3 and 4. During FFY2017, net costs per Medicaid prescription were 26.5% lower for MCOs than FFS, and this figure increased to 27.1% during FFY2018. The average net cost per prescription for MCOs increased by 2.1% from FFY2017 – FFY2018, a slightly lower rate of increase than occurred for FFS-paid prescriptions (2.9%).

Exhibit 2: National Medicaid Prescription Drug Metrics, FFY2017

Cohort	FFY2017		
	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions
MCO	$73.65	$34.59	88.2%
FFS	$106.58	$47.09	83.8%
USA	$82.94	$38.11	86.9%

Exhibit 3: National Medicaid Prescription Drug Metrics, FFY2018

Cohort	FFY2018		
	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions
MCO	$75.90	$35.32	88.0%
FFS	$110.73	$48.46	83.9%
USA	$85.75	$39.04	86.9%

Exhibit 4: Percent Change in Medicaid Prescription Drug Metrics, FFY2017-FFY2018

Cohort	Percent Change, FFY2017 - FFY2018		
	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions
MCO	3.1%	2.1%	-0.1%
FFS	3.9%	2.9%	0.1%
USA	3.4%	2.4%	-0.1%

States' rankings on the pharmacy benefits management performance metrics further demonstrate the value being delivered by MCOs. In FFY2018, of the 15 states with the highest MCO involvement (as a percentage of total Medicaid prescriptions),[5] six are in the top ten states with the lowest net cost per prescription and seven are in the top ten states with highest generic dispensing rates. In these states, MCOs use a "front-end" management of the mix of drugs, maximizing their generic dispensing rate to manage drug costs which, on average, lead to lower net costs per prescription than in FFS programs. The fact that these states with the lowest net costs have the highest generic dispensing rates indicates that price-focused rebate maximization is not as effective an overall cost management strategy in comparison to "front-end" management of the mix of drugs.

Conversely, of the 13 states with no managed care presence in FFY2018, none are in the top ten states having the lowest net cost per prescription or highest generic dispensing rate while seven of these states are in the bottom ten by these metrics with high net costs and low generic dispensing rates.

The FFS-dominant states are securing relatively large rebates – although not to the extent that net cost metrics are equivalent to the MCO setting. Exhibit 5 presents these statistics for each state's Medicaid program alongside each state's Medicaid MCO utilization percentage in both FFY2017 and FFY2018. Exhibit 6 shows each state's rankings for these statistics in both years.

Despite these performance differences, states sometimes prefer "carving out" prescriptions from MCOs to the FFS model for certain medications, therapeutic classes, or other reasons specific to their populations. The states using the FFS setting often utilize brand drugs over generic alternatives in an attempt to maximize rebates obtained from manufacturers. While rebates remain an important tool in lowering costs, states choosing a FFS model tend to have higher average net costs per prescription than states using an MCO model.

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[5] The 15 states with the highest MCO involvement are Arizona, Delaware, Florida, Hawaii, Iowa, Kansas, Louisiana, Nebraska, New Jersey, New Mexico, Pennsylvania, New Hampshire, Kentucky, Rhode Island, and Texas.

Exhibit 5: Comparison of Medicaid Prescription Drug Management Performance by State

State	FFY2017				FFY2018			
	MCO Share of Total Prescriptions	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions	MCO Share of Total Prescriptions	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions
Alabama	0%	$98.86	$46.34	82.7%	0%	$107.13	$50.12	82.6%
Alaska	0%	$108.66	$53.66	84.0%	0%	$112.74	$54.80	83.2%
Arizona	100%	$71.93	$35.98	90.1%	100%	$75.75	$38.19	89.9%
Arkansas	0%	$83.83	$40.88	84.4%	0%	$85.86	$42.59	84.5%
California	74%	$83.36	$40.35	87.7%	74%	$85.58	$41.13	87.6%
Colorado	5%	$105.45	$45.65	85.0%	4%	$116.27	$50.07	84.4%
Connecticut	0%	$135.14	$54.37	78.6%	0%	$136.67	$54.47	79.1%
Delaware	98%	$87.54	$38.32	83.2%	99%	$94.31	$41.28	83.4%
District of Columbia	60%	$85.19	$33.79	84.8%	61%	$93.15	$36.57	85.2%
Florida	92%	$100.71	$43.06	84.8%	92%	$100.94	$43.05	84.1%
Georgia	56%	$72.12	$34.86	88.3%	57%	$71.84	$35.63	88.8%
Hawaii	100%	$62.53	$30.11	90.6%	100%	$68.10	$32.78	90.4%
Idaho	0%	$91.53	$38.18	85.0%	0%	$95.36	$38.62	84.6%
Illinois	73%	$71.12	$30.89	88.8%	80%	$72.66	$31.06	88.7%
Indiana	82%	$95.62	$46.97	85.7%	85%	$105.74	$51.08	86.2%
Iowa	98%	$85.20	$39.24	87.2%	97%	$91.17	$41.51	87.1%
Kansas	97%	$88.87	$40.71	84.1%	97%	$93.11	$42.70	84.0%
Kentucky	94%	$58.77	$27.77	91.1%	95%	$58.16	$26.15	90.3%
Louisiana	92%	$60.95	$30.35	90.9%	95%	$62.81	$29.77	91.2%
Maine	0%	$98.60	$36.94	79.8%	0%	$105.90	$40.71	79.8%
Maryland	69%	$82.89	$40.29	85.9%	69%	$83.77	$40.85	85.8%
Massachusetts	62%	$87.61	$38.04	86.9%	57%	$83.18	$36.07	86.4%
Michigan	68%	$68.71	$28.91	88.3%	68%	$70.17	$28.98	88.5%
Minnesota	82%	$76.46	$34.15	89.4%	83%	$76.68	$33.86	89.8%
Mississippi	86%	$92.18	$49.97	87.2%	85%	$98.55	$53.14	87.2%
Missouri	0%	$101.90	$54.99	85.3%	0%	$108.61	$58.69	85.6%
Montana	0%	$94.71	$44.60	84.6%	0%	$92.76	$42.84	84.3%
Nebraska	78%	$75.87	$32.45	85.9%	100%	$74.67	$30.89	86.7%
Nevada	64%	$77.44	$35.67	89.0%	68%	$79.87	$36.37	89.2%
New Hampshire	95%	$78.83	$38.77	85.9%	95%	$85.08	$41.93	85.8%
New Jersey	98%	$71.30	$33.53	89.4%	99%	$74.79	$35.19	89.3%
New Mexico	98%	$64.82	$30.65	90.0%	98%	$68.52	$31.66	90.2%
New York	86%	$84.50	$41.76	88.3%	87%	$85.96	$42.08	87.9%
North Carolina	0%	$108.05	$44.90	79.2%	0%	$117.58	$47.28	78.6%
North Dakota	39%	$73.69	$34.69	86.7%	39%	$74.57	$33.71	86.9%
Ohio	91%	$72.43	$34.91	86.8%	92%	$73.01	$34.58	87.2%
Oklahoma	0%	$90.91	$41.49	85.6%	0%	$98.14	$45.48	86.1%
Oregon	77%	$69.36	$30.73	89.4%	77%	$72.60	$31.55	89.5%
Pennsylvania	95%	$85.34	$38.77	87.8%	96%	$91.75	$40.92	87.7%
Rhode Island	97%	$69.74	$32.76	90.1%	97%	$68.89	$32.48	90.2%
South Carolina	82%	$83.87	$38.53	86.4%	83%	$91.89	$41.84	86.4%
South Dakota	0%	$124.68	$59.11	79.8%	0%	$130.83	$62.29	79.5%
Tennessee	4%	$81.10	$32.01	85.8%	4%	$82.40	$33.06	85.9%
Texas	95%	$98.40	$39.52	82.0%	97%	$100.83	$40.11	82.1%
Utah	56%	$84.14	$36.20	85.8%	56%	$89.49	$37.05	87.0%
Vermont	0%	$116.89	$50.29	76.2%	0%	$122.67	$50.70	76.7%
Virginia	80%	$77.08	$34.15	87.4%	89%	$84.99	$38.57	86.1%
Washington	91%	$74.07	$33.25	89.5%	91%	$76.01	$33.43	89.0%
West Virginia	56%	$65.75	$27.68	86.5%	3%	$68.33	$29.36	86.7%
Wisconsin	1%	$100.95	$41.97	82.4%	1%	$110.10	$44.43	82.2%
Wyoming	0%	$90.03	$37.75	84.2%	0%	$89.29	$39.02	85.2%
USA	**72%**	**$82.94**	**$38.11**	**86.9%**	**72%**	**$85.75**	**$39.04**	**86.9%**

Exhibit 6: Medicaid Prescription Drug Management Performance Rankings by State, Sorted by FFY2018 Net Cost Per Prescription Ranking

State	FFY2017				FFY2018			
	MCO Share of Total Prescriptions	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions	MCO Share of Total Prescriptions	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions
Kentucky	12	1	2	1	13	1	1	3
Michigan	28	6	3	14	28	7	2	14
West Virginia	32	5	1	24	37	4	3	24
Louisiana	13	2	5	2	14	2	4	1
Nebraska	23	16	10	28	2	13	5	23
Illinois	26	9	8	12	24	10	6	13
Oregon	24	7	7	9	25	9	7	8
New Mexico	5	4	6	6	6	5	8	4
Rhode Island	7	8	11	4	8	6	9	5
Hawaii	1	3	4	3	1	3	10	2
Tennessee	37	21	9	30	36	19	11	30
Washington	15	15	12	7	17	16	12	11
North Dakota	35	14	17	23	34	12	13	22
Minnesota	20	17	16	8	22	17	14	7
Ohio	16	13	19	22	16	11	15	18
New Jersey	3	10	13	10	5	14	16	9
Georgia	34	12	18	15	31	8	17	12
Massachusetts	30	32	25	21	32	20	18	26
Nevada	29	19	20	11	29	18	19	10
District of Columbia	31	28	14	36	30	34	20	34
Utah	33	26	22	29	33	28	21	21
Arizona	2	11	21	5	3	15	22	6
Virginia	22	18	15	18	18	22	23	28
Idaho	39	36	26	34	39	36	24	36
Wyoming	39	34	24	40	39	27	25	35
Texas	10	40	32	46	7	39	26	46
Maine	39	41	23	48	39	42	27	47
Maryland	27	22	33	26	27	21	28	32
Pennsylvania	9	30	30	16	11	30	29	16
California	25	23	34	17	26	24	30	17
Delaware	4	31	27	43	4	35	31	42
Iowa	6	29	31	20	9	29	32	20
South Carolina	19	25	28	25	23	31	33	25
New Hampshire	11	20	29	27	12	23	34	31
New York	17	27	38	13	19	26	35	15
Arkansas	39	24	36	39	39	25	36	37
Kansas	8	33	35	41	10	33	37	41
Montana	39	38	41	38	39	32	38	39
Florida	14	43	40	37	15	40	39	40
Wisconsin	38	44	39	45	38	45	40	45
Oklahoma	39	35	37	32	39	37	41	29
North Carolina	39	47	42	49	39	48	42	50
Colorado	36	46	43	35	35	47	43	38
Alabama	39	42	44	44	39	43	44	44
Vermont	39	49	47	51	39	49	45	51
Indiana	21	39	45	31	21	41	46	27
Mississippi	18	37	46	19	20	38	47	19
Connecticut	39	51	49	50	39	51	48	49
Alaska	39	48	48	42	39	46	49	43
Missouri	39	45	50	33	39	44	50	33
South Dakota	39	50	51	47	39	50	51	48

B. MCO Usage Cohorts

The pharmacy benefits management achievements using the MCO model presented in the previous section become even more apparent when states are grouped into MCO percentage cohorts. We broke states out into four groups depending on the proportion of Medicaid prescription drugs paid for by MCOs:

- <1% of Medicaid Prescriptions Paid by MCOs
- 1 - 60% of Medicaid Prescriptions Paid by MCOs
- 60 - 80% of Medicaid Prescriptions Paid by MCOs
- > 80% of Medicaid Prescriptions Paid by MCOs

The results are shown in Exhibit 7. In all the cohorts with a substantial amount of MCO-paid prescriptions, average cost per prescription is far lower and use of generic drugs is higher than in the states with no MCO involvement. However, these data do not show substantial differences in prescription drug cost performance once there is meaningful MCO involvement (i.e., in cohorts with an average MCO share of prescriptions greater than or equal to 30%). The performance metrics are fairly similar across the bottom three cohorts in Exhibit 7.

Exhibit 7: Medicaid Prescription Drug Management Performance by MCO Usage Cohort

Cohort	FFY2017				FFY2018			
	MCO Share of Total Prescriptions	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions	MCO Share of Total Prescriptions	Overall Medicaid Pre-Rebate Cost Per Prescription	Overall Medicaid Net (Post-Rebate) Cost Per Prescription	Generic Share of Total Prescriptions
States With No MCO Prescriptions (n=13)	0.0%	$105.34	$47.53	82.0%	0.0%	$111.33	$49.73	82.0%
States With 1-60% of Prescriptions Paid by MCOs (n=8)	29.6%	$83.05	$35.73	85.8%	27.8%	$86.01	$37.23	86.1%
States With 61-80% of Prescriptions Paid by MCOs (FFY2017: n=9, FFY2018: n=7)	71.8%	$78.84	$36.36	87.8%	73.3%	$80.46	$37.09	87.9%
States With >80% of Prescriptions Paid by MCOs (FFY2017: n=21, FFY2018: n=23)	91.6%	$81.32	$37.87	87.5%	92.3%	$83.81	$38.50	87.4%

C. Carve-Out Versus Carve-In Experience

During 2011, 13 states used a pharmacy carve-out model in their Medicaid MCO programs. With the passage of the Affordable Care Act (ACA), the large statutory rebates— which had previously been payable only for Medicaid prescriptions paid through FFS — were extended to all Medicaid prescriptions, including those paid by MCOs. As a result, 10 of these 13 states moved to a pharmacy carve-in approach (Delaware, Illinois, Indiana, Iowa, Nebraska, New York, Ohio, Texas, Utah, and West Virginia) during the ensuing years.[6] Three of the 2011 carve-out states – Missouri, Tennessee, and Wisconsin – retained their carve-out approach throughout the 2011-2017 timeframe.

These dynamics permit a comparison of the progression of key Medicaid prescription drug costs and metrics between these two groups of states. Our tabulations include all Medicaid prescriptions between FFY2011-FFY2017, including all Medicaid prescriptions in each of these

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[6] West Virginia recently switched to a carve-out model. However, West Virginia used a carve-in model during FFY2017 and is therefore included in the carve-in group of states for this section of the analysis.

states, as well as all associated rebates. Even the smaller group of three states provides a large statistical volume of data – nearly 40 million prescriptions during FFY2017, for example. A summary of these tabulations is presented in Exhibit 8.

Exhibit 8. Comparison of Costs and Usage Between States that Retained Carve-Out Model and States that Switched to Carve-in Model

Federal Fiscal Year	Net Cost/Rx		Generic Dispensing Rate	
	3 Carve-Out States Throughout 2011-2017	10 States with 2011 Carve-Out that Used Carve-In Model in 2017	3 Carve-Out States Throughout 2011-2017	10 States with 2011 Carve-Out that Used Carve-In Model in 2017
2011	$37.98	$38.62	76.8%	71.1%
2017	$42.66	$38.07	84.5%	86.6%
Percent Change from 2011-2017	12.3%	-1.4%	7.7%	15.5%

The states that switched to a carve-in model have collectively outperformed those that retained their carve-out approach on these metrics. A key metric demonstrating this performance is that the states that carved-in the drug benefit as a group experienced a 1.4% *decrease* in net cost per prescription across the entire FFY2011-FFY2017 timeframe. States that continued to carve-out the pharmacy benefit experienced a 12.3% cost increase.[7] This 13.7 percentage point difference in net cost per prescription between these two state groupings provides strong evidence of the carve-in approach's favorable impact on drug spending.

The 13.7% savings of the carve-in model relative to the carve-out is understated because not all Medicaid prescriptions in the carve-in states were paid by MCOs, and because most of the carve-in states expanded Medicaid (which we elsewhere have found to create higher average costs per prescription[8]). After adjusting for these two things—i.e., Medicaid expansion uptake and the percentage savings from carving in the Medicaid pharmacy benefit—the estimated percentage savings from carving in the Medicaid pharmacy benefit increases from 13.7 % to 21.6%.

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[7] Note that the states maintaining their carve-out had similar growth in cost-per prescription as the 13 states with 100% FFS utilization; these experienced 17.6% growth in net cost per prescription in this time.
[8] https://www.themengesgroup.com/upload_file/assessment_of_medi-cal_pharmacy_benefits_policy_options.pdf; Exhibit 3

III. Therapeutic Class-Level Analysis

In this section, we provide a more granular analysis that compares national, aggregated MCO and FFS drug mix and average cost per prescription outcomes within several therapeutic drug classes. Note that these cost analyses are conducted only on a pre-rebate basis, as rebate data are not available at the therapeutic class or individual brand drug levels.

The MCO model had a favorable generic dispensing rate (GDR) in eight of the ten most highly utilized therapeutic classes in FFY2018 (compared to the FFS setting). In three of these therapeutic classes, the Medicaid MCO setting had an especially wide performance advantage versus FFS with regard to the GDR. These classes are narcotic analgesic combinations (a 17.1% GDR differential), central nervous system (CNS) stimulants (a 26.7% differential), and atypical antipsychotics (a 7.7% differential). The average cost per prescription in those classes are 28-35% lower for MCOs than in FFS, with these efficiencies strongly driven by the preferential use of generics over brand alternatives (see Exhibit 9 below).

Exhibit 9: Highly Used Therapeutic Classes With Large Disparities in Generic Dispensing Rate Between Medicaid MCOs and FFS, FFY2018

Third Tier Therapeutic Class	Medicaid MCO		Medicaid FFS		MCO Cost Per Prescription as % of FFS Cost Per	Percentage Point Difference Between MCO GDR and FFS GDR
	Generic Dispensing Rate	Pre-Rebate Cost Per Prescription	Generic Dispensing Rate	Pre-Rebate Cost Per Prescription		
Narcotic analgesic combinations	86.5%	$49.02	69.5%	$76.07	64%	17.1%
CNS stimulants	72.9%	$141.79	46.1%	$197.67	72%	26.7%
Atypical antipsychotics	87.4%	$199.18	79.7%	$290.13	69%	7.7%

For the three highest-volume therapeutic classes in FFY2018 (antihistamines, nonsteroidal anti-inflammatory drugs, and selective serotonin reuptake inhibitors), costs per prescription for MCOs were substantially below FFS as shown in Exhibit 10. Generics comprised essentially all of the drug volume in both the FFS and MCO settings in each of these classes. Generic medications tend not to garner any rebates beyond the statutory requirement, so lower costs under the MCO model evince another important "front end" drug mix advantage of the MCO model – less expensive drugs are being used *within* the available generic medications.

Exhibit 10: Top Three Medicaid Therapeutic Classes by Total National Volume, FFY2018

Third Tier Therapeutic Class	Medicaid MCO		Medicaid FFS		MCO Cost Per Prescription as % of FFS Cost Per Prescription
	Generic Dispensing Rate	Pre-Rebate Cost Per Prescription	Generic Dispensing Rate	Pre-Rebate Cost Per Prescription	
Antihistamines	99.4%	$7.70	99.8%	$12.78	60%
Nonsteroidal anti-inflammatory drugs	99.8%	$7.55	99.7%	$13.27	57%
Selective serotonin reuptake inhibitors	99.8%	$7.37	99.8%	$13.64	54%

We have also conducted analyses across seven curative hepatitis C medications that have been introduced in the past five years. The different drugs were introduced at different times and at different costs, as can be seen in Exhibit 11. Note that drugs with a cost per prescription of "NA" indicate that the drug had not yet been introduced in that year. Exhibit 11 shows MCOs have historically adopted the less costly hepatitis C medications both sooner after their introductions and in greater proportion than FFS. In FFY2016, Zepatier was introduced at a cost per prescription (pre-price concessions) around $10,000 less than the other four available medications.

Both FFS and MCOs shifted their usage to Zepatier, prescribing the new medication as approximately 5% of all hepatitis C medications. However, by FFY2017, MCOs had shifted this proportion to 36% of hepatitis C medications while FFS programs had increased Zepatier's share to only 17%.

Similarly, in FFY2018, after the cheapest hepatitis C option, Mavyret, had been approved and established, MCOs used Mavyret for 63% of its hepatitis C medications, while FFS programs only used it for 46%. Meanwhile, the most expensive option, Harvoni, represented 20% of the FFS setting's hepatitis C medications and only 9% for MCOs.

Exhibit 11: Hepatitis C Medications, Pre-Rebate Costs Per Prescription, and Usage Mix in Medicaid FFS Compared to MCO

Pre-Rebate Cost Per Prescription					
Drug	**FFY2014**	**FFY2015**	**FFY2016**	**FFY2017**	**FFY2018**
Epclusa	NA	NA	$26,183	$20,746	$20,573
Harvoni	NA	$27,531	$27,192	$27,297	$27,431
Mavyret	NA	NA	NA	$11,738	$10,834
Sovaldi	$27,510	$23,777	$23,158	$24,636	$17,355
Viekira Pak	NA	$24,959	$24,012	$25,113	$26,834
Vosevi	NA	NA	NA	$22,507	$20,080
Zepatier	NA	NA	$14,893	$15,627	$16,131
All Drugs, MCO Setting	$27,377	$26,402	$26,589	$20,922	$14,317
All Drugs, FFS Setting	$27,729	$26,008	$23,469	$22,926	$17,710
All Drugs, Overall Medicaid Setting	$27,510	$26,258	$25,452	$21,637	$15,573
FFS Utilization as % of all Hepatitis C Usage					
Drug	**FFY2014**	**FFY2015**	**FFY2016**	**FFY2017**	**FFY2018**
Epclusa	0%	0%	3%	32%	26%
Harvoni	0%	63%	60%	47%	20%
Mavyret	0%	0%	0%	0%	46%
Sovaldi	100%	29%	22%	2%	0%
Viekira Pak	0%	8%	11%	2%	0%
Vosevi	0%	0%	0%	0%	2%
Zepatier	0%	0%	4%	17%	6%
MCO Utilization as % of all Hepatitis C Usage					
Drug	**FFY2014**	**FFY2015**	**FFY2016**	**FFY2017**	**FFY2018**
Epclusa	0%	0%	3%	31%	15%
Harvoni	0%	65%	64%	27%	9%
Mavyret	0%	0%	0%	1%	63%
Sovaldi	100%	31%	21%	3%	0%
Viekira Pak	0%	3%	7%	3%	0%
Vosevi	0%	0%	0%	0%	3%
Zepatier	0%	0%	5%	36%	10%

The use of a greater proportion of lower-cost hepatitis C medications by MCOs translated to over $435 million in savings between FFY2014 and FFY2018. Exhibit 12 presents the MCO's actual expenditures on hepatitis C medications alongside what the annual expenditures would have been if the setting had used the same drug mix as FFS. By FFY2017, the MCOs were saving over $200 million each year based on drug mix management alone.

Exhibit 12: MCO Expenditures Using the FFS Hepatitis C Drug Mix, FFY2014-FFY2018

MCO Hepatitis C Pre-Rebate Expenditures - Actual					
FFY2014	**FFY2015**	**FFY2016**	**FFY2017**	**FFY2018**	**Five-Year Total, FFY2014-2018**
$703,113,105	$1,531,744,075	$2,378,853,353	$2,026,388,264	$1,246,101,684	$7,886,200,481
MCO Hepatitis C Pre-Rebate Expenditures - At FFS Drug Mix					
FFY2014	**FFY2015**	**FFY2016**	**FFY2017**	**FFY2018**	**Five-Year Total, FFY2014-2018**
$703,113,105	$1,527,471,124	$2,370,738,310	$2,245,785,747	$1,474,830,897	$8,321,939,183
MCO Savings From Using Lower Cost Hepatitis C Drug Mix					
FFY2014	**FFY2015**	**FFY2016**	**FFY2017**	**FFY2018**	**Five-Year Total, FFY2014-2018**
$0	-$4,272,951	-$8,115,043	$219,397,482	$228,729,213	$435,738,702

IV. Programmatic Value of Prescription Drug Management

The findings throughout this report demonstrate the financial value of taking a comprehensive approach to prescription drug management. In addition, MCOs and PBMs use a number of tools to better manage the prescription drug benefit programmatically. Integrating the prescription drug benefit into a whole-person coordinated care model creates programmatic advantages due to the additional tools at MCOs' and PBMs' disposal. These tools include:

- Real time data—There is no claims submission/payment lag time for prescription drug data, which means MCOs can see filled medications as they occur, enabling MCOs to immediately flag potential utilization issues, identify certain medical conditions, and inform medical decisions. For example, pharmacy data are used to inform beneficiary care, particularly during time-sensitive transitions of care. In the FFS model, delays may occur in viewing prescription drugs dispensed, and there typically is no link to broader care coordination activities given that FFS does not deliver "whole person" care coordination.

- Strong communication and systems that contribute to whole-person health care— Prescription drugs play a vital role in the healthcare services Medicaid beneficiaries receive. Closely tracking prescription drug use enables healthcare providers to discern beneficiary's health needs, comorbidities, treatment adherence, and the accuracy of diagnoses. Prescription drug data are central to these tasks. For MCOs, prescription drug data are available in real time on health plans' own terms via their internally designed information systems and contracts with their PBMs. This permits an array of care coordination opportunities and advantages for MCOs, including those listed below:

  o Utilization management teams review medical coverage requests based on pharmacy data, ensuring beneficiaries can access the prescription drugs they need, when appropriate.
  o Care coordination and case management staff use pharmacy data to facilitate medication reconciliation and support transitions in care.
  o Quality improvement staff depend on pharmacy data to ensure proper clinical design of initiatives and programs and for collaboration on interventions. Pharmacy data are also instrumental in developing clinical programs where medication treatment is a factor, such as chronic disease management, opioid substance use disorder, maternal health, mental health, and many other areas.
  o Beneficiary services staff handle calls and other outreach tasks with full prescription drug use information. For example, if a beneficiary calls regarding prescription refills, beneficiary services representatives know if that beneficiary is overdue for a preventive service and can address all care gaps at one time.
  o These data can be shared with other partners in care, such as behavioral health providers. Integrating medications with other health services helps improve overall health outcomes and increases cost savings.

- Effective management of the mix of drugs—When Medicaid is financed using a managed care payment system and MCOs are paid using a capitated rate, MCOs strive to use the

most cost-effective medication available. Assuming equal effectiveness, this includes prioritizing generic medications over brand medications as well as opting for cheaper alternatives within brand and generic medications. In addition, Medicaid MCOs can more quickly modify their preferred drug lists (PDLs) as new drugs are introduced, prices of drugs change, or as their populations' needs change.

- Negotiating the price of drugs—The same financial incentives referenced above promote a more aggressive and effective negotiation with drug manufacturers on the price of medications.

V. Conclusions

Most state Medicaid programs have predominantly transitioned the prescription drug benefit to the managed care setting, through which MCOs and their contracted PBMs collaborate using their prescription drug management and broader care coordination and integration tools. By FFY2018, almost 72% of Medicaid prescription drugs were paid by MCOs. This figure has grown substantially in recent years, driven by both the financial and programmatic advantages of the MCO model.

From a financial standpoint, states with a higher percentage of Medicaid prescription drugs paid for by MCOs have lower average net costs per prescription and higher generic dispensing rates. The increased use of lower-cost generic medications also tends to lead to lower rebates per prescription, as generic drugs have much lower percentage statutory rebates than do brand drugs and additional supplemental rebates are negotiated for these drugs less frequently. The Medicaid FFS model, on the other hand, uses a lower percentage of generic medications but negotiates for more rebates per prescription on the brand drugs. This rebate maximization strategy in Medicaid typically leads to a higher average net cost per prescription. This paper finds that the most cost-effective strategy in Medicaid prioritizes "front end" drug mix management by maximizing both the use of generics and the use of lower cost brand and generic medications when multiple are available, which leads to the lowest average net cost.

We have also conducted a comparison between states using a Medicaid MCO carve-in model for the prescription drug benefit, and those carving out the drug benefit to the FFS setting. This analysis compared cost progressions in the 13 states that used the carve-out model between 2011 and 2017, to those that switched to a carve-in approach. Our findings show that net costs per prescription are 21.6% lower in states that switched to a carve-in program model in comparison to continuing with the carved-out approach.

More importantly, the tools MCOs and PBMs bring to Medicaid not only positively impact Medicaid's financial side, but also offer programmatic values aimed at promoting quality care for Medicaid beneficiaries. While many states opt to keep some or all Medicaid prescriptions in the FFS setting, we find there are key financial and programmatic advantages of the tools MCOs and their PBMs utilize to serve the Medicaid population under a managed care model.

Appendix A. Strengths & Limitations of Data Sources Used

The Medicaid State Drug Utilization Files are a comprehensive dataset of all Medicaid prescription drug utilization and expenditures in every state. This dataset is maintained by the Centers for Medicare & Medicaid Services (CMS) and is updated quarterly, with an approximately six-month lag before the data are uploaded.

These drug utilization files are an excellent analytical resource as they include nearly all Medicaid prescription volume, unit volume, and pre-rebate expenditures at the national drug code (NDC) level broken out by state, quarter, and payment setting (i.e., FFS and MCO). However, the data are collected by CMS based on state data submissions related to the collection of manufacturer rebates in the Medicaid Drug Rebate Program, so the use of these data for other purposes must account for the limitations inherent to secondary, administrative data collected for non-claims payment purposes. The Menges Group uses public data sources and additional research to classify each NDC code as brand or generic.

Key Limitations:

Suppression: One limitation of the State Drug Utilization Files involves suppression of very small numbers. To protect the privacy of individual Medicaid beneficiaries, CMS suppresses drug utilization data with fewer than 11 prescriptions in a given quarter and state. Because of this, we adjust the aggregate utilization and costs upwards to estimate all suppressed Medicaid prescriptions and costs.

Drug Exclusions: Some drugs are not included in the State Drug Utilization Files. Drugs that are paid under the 340B program, drugs billed in the outpatient setting that are multisource, and drugs that are billed as a part of a bundle are not included in the files.

Inaccurate Data: There are also some instances where a state's reported data cannot accurately be portraying the prescription volume, pre-rebate costs, or units that were incurred in a given timeframe. In these instances, we adjust the aggregate data into a reasonable range. These adjustments were large in some states and time periods but had only a minor influence (less than 2%) on national prescription and expenditure totals.

Annual Smoothing of Reported Rebate Estimation: Medicaid prescription drug rebates are derived in aggregate from CMS's annual Financial Management Reports (FMR). These data are available annually. Like the State Drug Utilization Files, after obtaining each data release, we audit the aggregate rebates and adjust in instances where the state-reported data are unrealistic based on drug usage and pre-rebate spending. In addition, states often report expenditures at irregular intervals in the FMR as earnings and spending occur only semi-regularly, creating high levels of variation in the annual net costs per prescription. Because the *collective* FFY2013 to FFY2018 rebates were approximately what would be expected, we used a data smoothing algorithm to allocate the overall rebates into each fiscal year (without changing the overall reported rebate amounts).

Aggregate Rebates: While state- and payer-level rebate information provides an accurate picture of overall net (post-rebate) expenditures and costs per prescription, we are unable to analyze net

values more granularly. For this reason, our analysis of therapeutic classes and specific drugs are all conducted prior to rebates.

Supplemental Rebates: Negotiated rebates are included in the rebates reported in the CMS FMR, however many states' supplemental rebates from the MCO setting are not conveyed in these reports. Accordingly, we estimated these states' MCO rebates using the average MCO supplemental rebate percentage in states with these rebates reported.

Population Differences: Finally, as noted in the report, very few states manage 100% of their Medicaid program through managed care. Many states carve out specific categories of drugs or segments of the population to be covered by FFS, such as beneficiaries with HIV and their associated medications. When these expensive segments are carved out and paid under the FFS setting, it leaves the managed care program potentially looking more cost effective in comparison to FFS programs. This makes a comparison of Medicaid MCOs to FFS within a single state problematic. However, we can compare programs across states as the overall Medicaid population makeup is relatively similar from one state to the next. For example, Exhibit 13 below shows the Medicaid population breakdown by eligibility group by state. This table shows that almost all states are within a few percentage points of the rest of the US in any one category. We therefore focus on comparing statewide costs (for both MCO-paid and FFS-paid prescriptions). We have also controlled for Medicaid expansion in many of our analyses.

Exhibit 13: 2011 Medicaid Population by Eligibility Group

State	Duals	Children	TANF & Related	Adults	Medicaid-Only Disabled	Other
Alabama	13%	30%	39%	9%	8%	1%
Alaska	7%	32%	43%	11%	5%	2%
Arizona	7%	24%	44%	19%	4%	1%
Arkansas	10%	33%	41%	8%	7%	1%
California	7%	22%	44%	22%	4%	1%
Colorado	8%	31%	42%	11%	5%	2%
Connecticut	12%	24%	43%	19%	2%	1%
Delaware	7%	22%	44%	22%	4%	1%
District of Columbia	6%	21%	42%	21%	8%	2%
Florida	13%	29%	37%	8%	7%	6%
Georgia	11%	34%	41%	7%	7%	1%
Hawaii	7%	26%	44%	18%	3%	1%
Idaho	9%	37%	42%	5%	6%	1%
Illinois	7%	30%	44%	14%	3%	1%
Indiana	8%	33%	43%	10%	5%	2%
Iowa	9%	27%	42%	15%	4%	2%
Kansas	12%	32%	39%	7%	7%	3%
Kentucky	13%	31%	38%	7%	10%	1%
Louisiana	9%	33%	42%	9%	7%	1%
Maine	17%	21%	37%	16%	7%	1%
Maryland	7%	29%	43%	14%	5%	1%
Massachusetts	12%	16%	39%	23%	10%	1%
Michigan	8%	29%	43%	14%	6%	1%
Minnesota	9%	25%	43%	17%	4%	1%
Mississippi	14%	31%	39%	8%	8%	1%
Missouri	10%	30%	41%	11%	6%	2%
Montana	12%	33%	40%	7%	6%	2%
Nebraska	9%	35%	42%	7%	4%	3%
Nevada	8%	33%	43%	9%	5%	2%
New Hampshire	13%	35%	41%	6%	5%	1%
New Jersey	10%	30%	41%	11%	5%	2%
New Mexico	7%	31%	45%	14%	4%	1%
New York	9%	21%	42%	22%	5%	1%
North Carolina	11%	31%	41%	10%	6%	1%
North Dakota	13%	30%	39%	9%	4%	5%
Ohio	9%	30%	43%	13%	5%	1%
Oklahoma	8%	35%	43%	9%	5%	1%
Oregon	10%	25%	41%	15%	5%	4%
Pennsylvania	12%	25%	36%	11%	12%	4%
Rhode Island	11%	25%	40%	15%	7%	2%
South Carolina	10%	31%	42%	11%	5%	1%
South Dakota	10%	35%	42%	7%	5%	2%
Tennessee	11%	31%	41%	11%	6%	1%
Texas	9%	36%	42%	5%	6%	2%
Utah	7%	31%	43%	12%	5%	2%
Vermont	12%	20%	42%	22%	4%	1%
Virginia	11%	33%	41%	7%	6%	2%
Washington	8%	33%	43%	10%	6%	1%
West Virginia	14%	29%	35%	6%	13%	3%
Wisconsin	11%	23%	42%	19%	4%	1%
Wyoming	8%	35%	42%	7%	4%	3%
USA	**9%**	**28%**	**42%**	**14%**	**6%**	**2%**