OCTOBER 2022

UNDERSTANDING PHARMACY REIMBURSEMENT TRENDS IN OREGON

THE HIGH COSTS OF LOW PRICES

THREE AXIS ADVISORS

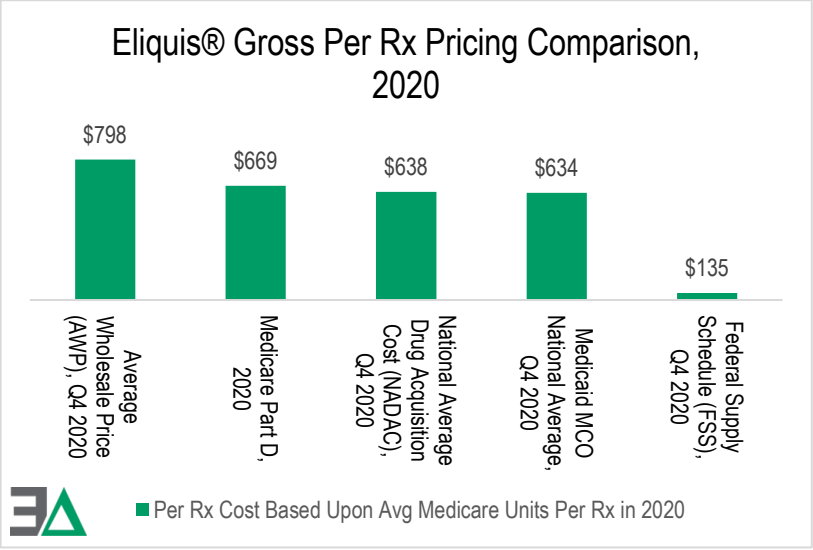
INFO@3AXISADVISORS.COM

Executive Summary

On September 30, 2021, Bi-Mart, a regional retail chain in Oregon and surrounding states, announced plans to exit the pharmacy business by January 2022. Citing increased costs and ongoing reimbursement pressures, the company transitioned their pharmacy inventory and prescription files to competitor Walgreens. (1) The move was perhaps unsurprising as just two years prior, Bi-Mart had shuttered its pharmacy services in 13 locations in the Portland area. (2) Predictable or not, the impact of the pharmacy closures was one that almost certainly was going to increase healthcare inequities in Oregon. That's because there were rural areas in Oregon where Bi-Mart was virtually the only pharmacy accessible to their patients.[i] By shutting their pharmacy businesses, available pharmacy options became more limited, potentially creating access issues in critical areas of the state (Oregon statute [OAR 431-121-2000] identifies a critical access pharmacy as one where there is no other pharmacy within 10 miles). As a result, the ability to get prescriptions timely, obtain needed vaccinations, receive needed healthcare screenings and monitoring, or any number of pharmacy services in the area decreased with the ceasing of pharmacy operations.

Pharmacists provide essential care to the residents of Oregon. Pharmacy staff actions were critical to getting people vaccinated against COVID-19, implementing the state's key public safety response to the pandemic and saving lives. However, the profession of pharmacy faces challenges that have led to shorter operating hours, longer wait times for prescriptions, and less time for pharmacists to collaborate with physicians, counsel their patients, better manage chronic diseases, and address other broader health concerns. The Oregon Board of Pharmacy states that it continues to receive a high number of complaints from licensees and the public about conditions at retail pharmacy. (3)

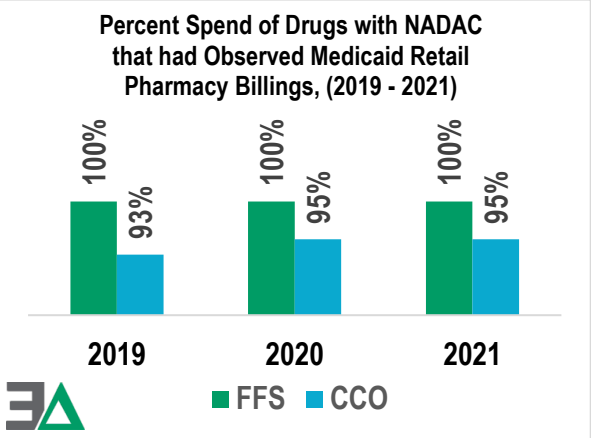
In addition to being essential healthcare providers, pharmacies are businesses. From a business perspective, we should expect that their financial incentives will have a meaningful impact on the focus of their services, as their viability will be determined by their ability to minimize losses and maximize profits. However, the desire of drug pricing policy to pay less for prescriptions is often at odds with the goals of ensuring the availability and accessibility of quality pharmacy services. This is because the primary way for the pharmacy businesses to obtain revenues is through dispensing medications. Despite prior work in the subject of prescription drug reimbursement practices, it is often forgotten that the revenues obtained from dispensing medications are highly differentiated within the market, such that some payers or purchasers of drugs incur significantly higher costs than others. For instance, Eliquis®, the drug with the highest gross Medicare expenditures in 2020, shows how a price for single-source brand product can be significantly different from program-to-program (i.e., 80% different in the reviewed gross spending in federal programs in 2020).



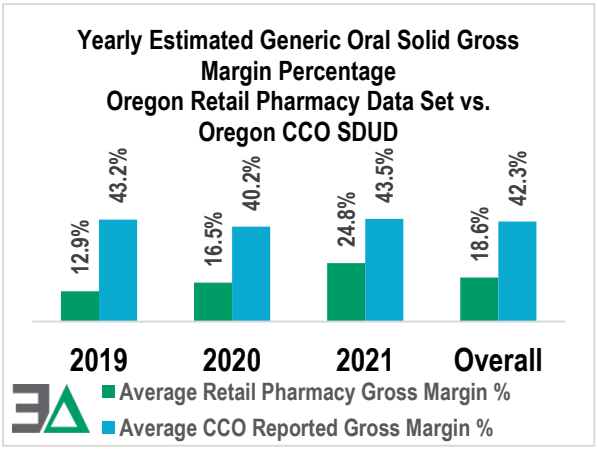
[i] The Oregon Health & Science University (OHSU) identified the 2022 Critical Access Pharmacies per Oregon Statute. Among the identified regions were Sutherlin and Veneta where Bi-Marts are located. (103)

The disparities in pharmacy pricing and the inequity of payment resulted in 3 Axis Advisors, LLC, being commissioned by the Oregon State Pharmacy Association (OSPA) to review reimbursement trends between payers and retail pharmacies between 2019 and 2021. The primary request was to identify if there may be *differential pricing* in payment or *spread pricing* among Oregon Medicaid retail pharmacy networks, which could compromise the sustainability of some providers and create barriers to care for many Oregonians.

Oregon Medicaid, like many other states, administers health benefits to beneficiaries either through a *fee-for-service (FFS)* arrangement, where the state pays providers directly for delivered healthcare service, or by way of *managed care organizations (MCOs),* in which the MCO provides care based on a *capitated rate* per member per month basis (also referred to as *Coordinated Care Organizations (CCOs)* within the Oregon Medicaid system). (4) In the CCO arrangement, the CCO will form its own network of providers in which payment rates may vary from FFS published rates and amongst providers.



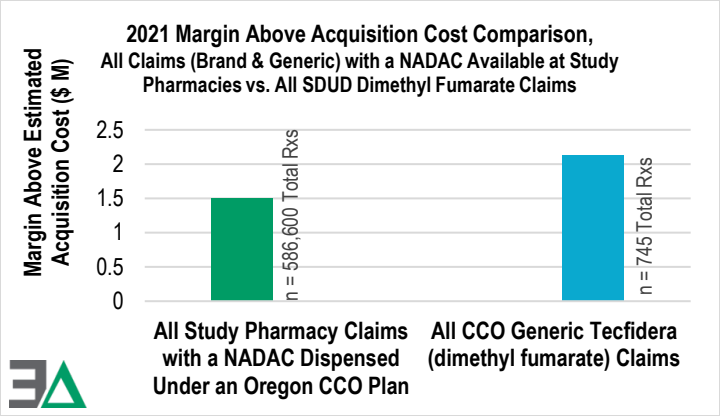
We obtained reimbursement data between 2019 and 2021 from 86 of Oregon's estimated 534 retail community pharmacies as of 2020 (16.1%).[ii] (5) Our findings identified significant disparities in reimbursement between the pharmacies in our study and all pharmacy providers based on reimbursements reported to the Oregon Medicaid program as reflected in the *State Drug Utilization Database (SDUD)*.



For example, in comparing reimbursements between the aggregate Oregon Medicaid program and our studied retail pharmacy group, there were substantial differences in both access to claims and gross margins with the CCO figures. Our study pharmacies on average had access to 7% less of the basket of CCO claims (on a product basis) than the aggregate program. However, there were no apparent access to claims issues with the state-run FFS program (as there were dispensations of every identifiable retail drug). At the same time, the CCO claims were associated with up to 24% less gross margin opportunity for our study pharmacies than the aggregate CCO program.

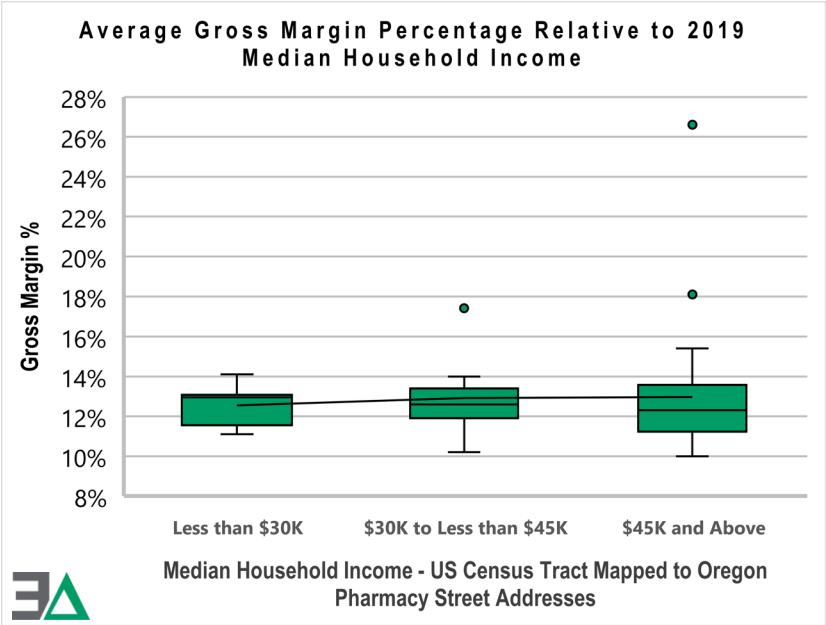
These findings show that the other Oregon retail pharmacies were potentially positioned for greater financial success for the delivery of pharmacy services in the state Medicaid program. And while the aggregate numbers are demonstrative of the variability in claim access and reimbursement, perhaps nothing shows the difference in margin

[ii] Data limitations outlined in the **Methods** section detail the need to limit the usage to 72 of the 86 pharmacies (13.5% Oregon Retail Community Pharmacies) for the granular Oregon Medicaid portion of analysis. Throughout the report, any time 16.1% of Oregon retail pharmacies are referenced, the data was from all 86 pharmacies. Whereas, when 13.5% is referenced, the data was obtained from the 72 pharmacies who provided all needed information to complete the Oregon Medicaid portion of the analysis.



opportunity created through Oregon Medicaid CCO pharmacy services than our findings related to generic Tecfidera® (dimethyl fumarate). As can be seen, just 745 claims for generic Tecfidera® produced $2.4 million in estimated margin above the drug's acquisition cost for all of Oregon's CCO pharmacy claims in 2021. In contrast, our study pharmacies during the same year made $1.5 million in estimated margin above drug acquisition cost **for all the claims they dispensed under the Oregon Medicaid CCO program (n = 586,600 claims).** This data demonstrates a significant gap between workload and financial success ($2.4 million in gross margin for 745 claims is more than 1,000-times greater value per transaction than $1.5 million in gross margin for 586,600 claims). Furthermore, it should be noted that despite having data for over 13.5% of all retail pharmacies in Oregon, our study pharmacies did not dispense a single claim of this financially lucrative dimethyl fumarate drug in the Medicaid CCO program in 2021. This may speak to *patient steerage* or other efforts by CCOs/PBMs to capture disproportionate shares of select prescription claims. Across all analyzed claims, our study estimates savings of up to $40 million to the state if the aggregate observable payment for our study pharmacies was applied throughout the entire Medicaid CCO program.

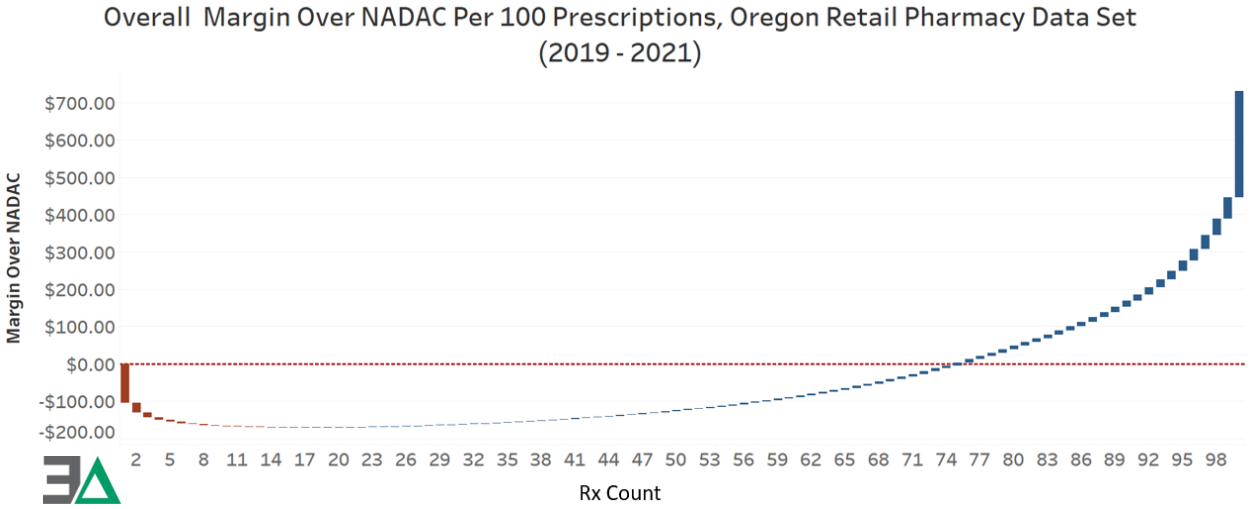
While Medicaid is a unique program that enables us to make comparisons between our study pharmacies and the aggregate payer experience, the data from our study pharmacies can highlight payment disparities within how people obtain medications. The pharmacy market is broadly divided into three payer types: Medicaid, Medicare, and Commercial. Each of these segments is setting potentially different incentives for pharmacies. As our study pharmacies demonstrated, Oregon Medicaid reimbursements were associated with the lowest margin experience in our pharmacies, whereas Medicare was the most profitable. This is despite many of the medications used overlapping between the payers.



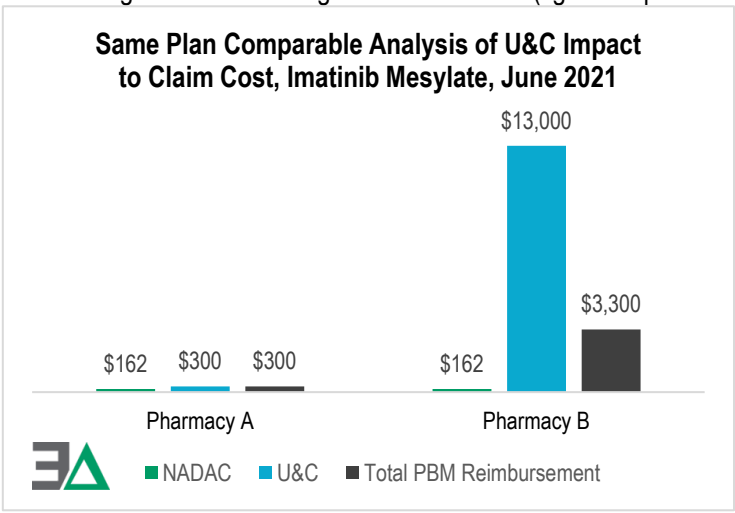
Overall profitability (as measured by gross margin above drug acquisition cost) at the pharmacy level was highly differentiated based upon whether the pharmacies were in high-income or low-income areas. As can be seen to the right, the higher the median income of the individuals in the geographic area of the pharmacy, the greater the average gross margin was likely to be – potentially demonstrating how pharmacies would be better served financially by investing in wealthier communities, and conversely, avoiding more impoverished areas of Oregon. Many pharmacies were seemingly rewarded for having

lower average acquisition costs (via higher gross margins); however, the most profitable pharmacy had the highest average drug costs (the opposite of the assumed drug pricing policy goal of incentivizing utilization of low-cost drugs).

Our study also demonstrated the broad reimbursement challenges and opportunities facing Oregon pharmacies. The reimbursement trends are such that for every 100 prescriptions filled (based upon percentiles), the majority of claims (75 out of 100) dispensed at a typical retail Oregon pharmacy (as represented by those in our study) were insufficient to cover approximate pharmacy labor and drug costs. At the same time, a small number of claims (2 out of 100) were reimbursed extremely well – at times thousands of dollars above pharmacy labor and drug costs. The market incentives seemingly incentivize pharmacy businesses to seek out claims with high reimbursements (i.e., specialty), while trying to avoid the claims that are less financially lucrative or at worst, dispensed at a loss to the pharmacy. Said differently, the financial incentives appear to promote healthcare inequality, where financial rewards are distributed unevenly among pharmacy market participants and those pharmacies are encouraged to service some members above others.



The pressure to avoid losses can result in pharmacies setting very high cash prices (i.e., usual & customary [U&C] prices) to ensure maximum revenues are obtained from their primary customers, pharmacy benefit managers (PBMs) and insurers. If a pharmacy sets a low U&C, it risks missing the tail end of high reimbursements (figure on previous page). As the previous chart demonstrated, failure to capture the tail end of reimbursements can be financially devastating to pharmacy business operations. Arguably, the disparity results in higher than reasonable pharmacy "sticker prices" that can have a disproportionate impact on patients in high deductible plans or those without insurance. Our report found vast differences in payment amounts for the cancer medication imatinib mesylate (generic Gleevec®), resulting in provider reimbursement (and by default, beneficiary cost sharing) that were over a 1,000% difference despite the prescription being reimbursed within the same plan by the same payer.



Ultimately, broad policy goals that may be intended to protect and enhance access to medicines and pharmacy services can be compromised when margin disparities can vary so widely from drug-to-drug and pharmacy-to-pharmacy. The data suggests that this inequity has a disproportionate negative impact on already disadvantaged communities. Further, the incentives embedded in the current system appear to reward and encourage higher drug prices at pharmacies, resulting in higher out-of-pocket costs for patients who obtain their medications through cost sharing or those without prescription drug coverage at all.

With this in mind, policymakers face real challenges in addressing reimbursement inequities given that the current paradigm results in many prescriptions being reimbursed below levels of provider sustainability (based upon Medicaid's definition of actual acquisition cost plus a professional dispensing fee). While this report showcases a number of instances where incentives may be working against efficient spending on pharmaceuticals and equitable access to care, it is important to note that the findings suggest a more thorough examination of the drug marketplace as a whole is needed.

Table of Contents

Table of Figures

Table of Tables

A Note to Our Readers

Thank you for your interest in reading our report (and reading beyond just the executive summary!). We hope that this report delivers, as the title implies, an "*Understanding [of] Pharmacy Reimbursement Trends in Oregon*." This document is the culmination of hundreds of hours of research and analysis across many months being condensed into 155 pages of material. We recognize that it is a potentially daunting task to read such a voluminous report loaded with acronyms and industry jargon that can make consumption understandably unappetizing; however, we want to acknowledge that the first quarter of this report is dedicated to background information with which readers of our previous works may already be well acquainted. To that end, we want to offer some recommended guidance before you begin reading.

By nature of this report being a paper, the narrative structure required us to spend a considerable amount of time on well-established background materials. The report begins with reviewing the drug supply chain, the role of key supply chain participants, the nature of drug pricing benchmarks, and how payment for a prescription drug is generally accomplished. We recognize that hundreds of published works already cover many of these same topics (as this report references dozens of those prior materials). To this end, readers of the report may find it more expeditious to begin reading this report at page 32 with the section titled "*Comparison Oregon Medicaid pharmacy reimbursement*." A reader starting there can expect to dive right into comparative analysis of prescription drug costs between pharmacy providers and payer types, while avoiding a review of materials they may already understand.

While we would love to assume the average reader is well versed in all these concepts, we understand that the mechanics of effective rate contracting and the nuances of drug utilization data are not regular staples of normal dinner table conversations, and thus we cannot in good conscience exclude the weedy background from the report. That said, if you are a reader well versed in how a pharmacy claim adjudicates, know the difference between Average Wholesale Price (AWP) and National Average Drug Acquisition Cost (NADAC), and have a general sense for how payment for prescription drugs is categorized into drug ingredient costs and dispensing fees, then you are encouraged to begin this report at page 32. At the worst, the prior pages will still be there for you to refer back to if you should need them.

Finally, this report includes many terms uniquely used within the drug supply chain that may be foreign to the general public. We have done our best to highlight all such terms in *green font* and provide definitions in the **Glossary** found in **Appendix A**.

Again, thank you for your interest in reading this report. We hope you enjoy it and come away with a better understanding of our nation's complicated drug pricing and distribution system.

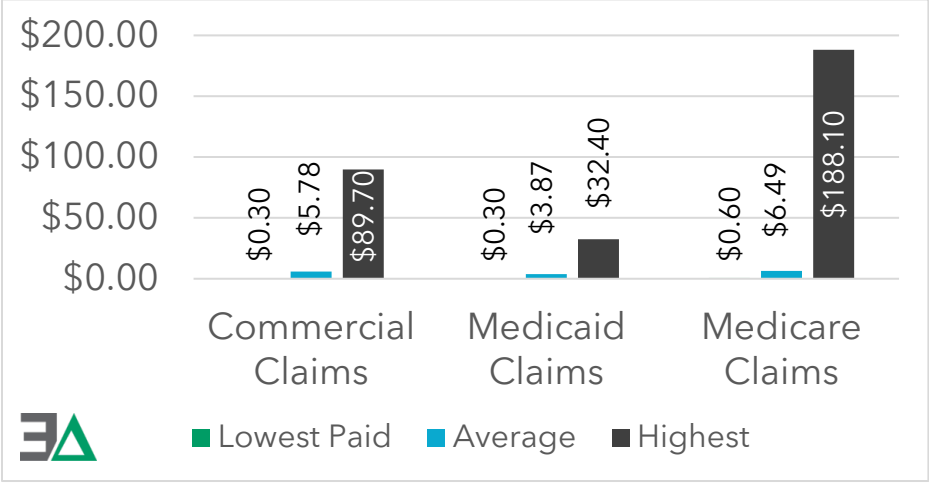
Background

Oregonians, like many Americans, currently experience hardships due to high healthcare costs. A 2021 survey of Oregon adult residents found that 55% encountered cost-related barriers to getting healthcare, including cutting medication in half, skipping doses, or not filling a prescription due to cost. (6) It is well documented that the United States spends enormous sums on healthcare. (7) And while the common perception may be that "you get what you pay for" in regard to health outcomes, the data does not support that perception with regards to U.S. healthcare. A recent study from 2021 concluded that the U.S. had the lowest performing health care system when compared to countries consisting of similar income characteristics. (8) The reasons for the low performance are undoubtedly multi-factorial, but an area of increasing interest is disparities of care, which arise based on social characteristics of a population. Indeed, one of the primary goals of the Centers for Disease Control and Prevention (CDC) is to achieve health equity by eliminating health disparities and achieving optimal health for all Americans. (9)

While prescription drugs represent just one component of healthcare costs and utilization, they provide one of the most transparent ways to contextualize potential healthcare inequality. **This is because the reimbursement structure of prescription drugs is inherently unequal**. There are more than a dozen pricing benchmarks that could be utilized from a typical drug reference file to determine a drug's price. Such benchmarks might be "objective" in that they could be sourced from a drug reference file directly, but rarely does that objectivity translate into a consistent price at the pharmacy counter for any particular drug. The options for how to pay for drugs become nearly limitless when you consider that each payer for prescription drugs potentially pays for the same product and service in a different way despite the same reliance on the same pricing benchmarks. When there are many prices for a product, there is effectively no price for that product.

Take for example atorvastatin 40 mg (the generic for Lipitor® 40 mg) used to manage and treat high cholesterol. Pharmacy claims analysis of 86 Oregon retail pharmacies revealed 110 different per-unit price payments within the three major market segments (i.e., Medicare, Medicaid, and Commercial) in 2021. The payments to pharmacies resulted in per-30-day prescriptions (30 tablets) varying from a low of $0.30 to a high of $188.10 (**Figure 1**). Each of the 110 price points were direct results of third-party payment arrangements for the same generic drug where price valuation differed 62,700% ($0.30 to $188.10) over the three-year span.

Figure 1: Comparison of Atorvastatin 40 mg Prices Paid to 72 Oregon Retail Pharmacies by Market Segment (2021)



Source: 72 Oregon retail pharmacies in study

What might explain the over 60,000% difference in pricing variability? Certainly not the underlying cost of the product being dispensed. According to the *National Average Drug Acquisition Cost (NADAC)* – a pricing benchmark that tracks a drug's acquisition cost by pharmacies – for atorvastatin 40 mg in 2021, the price range was no more than $1.11 between 2019 and 2021, from a low of $1.89 to $3.00 per 30 tablets. Said differently, at its most extreme, the underlying cost for atorvastatin varied at most by 150%, and not anywhere near the 60,000% seen in pharmacy reimbursement.

Consider the impact such payment methodology had on various stakeholders. Many pharmacy providers undoubtedly were reimbursed at rates that did not cover the *cost of dispensing (COD)* (see lowest paid claim amounts in **Figure 1**). In contrast, some beneficiaries and payers were exposed to excessive prices that consumed often limited financial resources (see maximum paid claim amounts in **Figure 1**).

The disparities in pharmacy pricing and the inequality of payment resulted in 3 Axis Advisors, LLC being commissioned by the Oregon State Pharmacy Association (OSPA) to review reimbursement trends between payers and retail pharmacies between 2019 and 2021. The primary request was to identify if there may be the existence of differential pricing in payment or PBM-to-pharmacy spread pricing among Oregon Medicaid retail pharmacy networks, which could compromise the sustainability of some providers and create barriers to care for many Oregonians.

Understanding pharmacy reimbursement

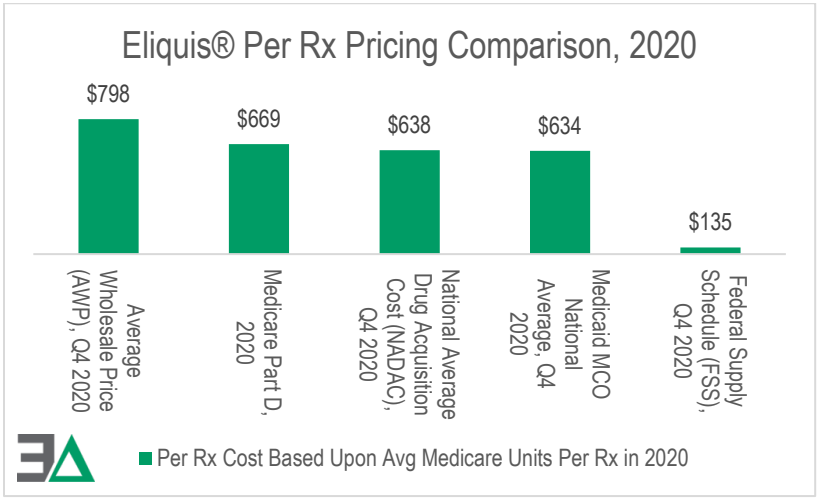
Despite what many may think, there is no universally agreed to price for prescription drugs. How much we pay for medications is often heavily dependent on the manner with which we obtain prescription drug coverage (i.e., employer sponsor health plans, Medicare prescription drug benefits, or Medicaid). However, drug prices are themselves not simply contextualized with a "manufacturer suggested retail price (MSRP)," but rather through numerous drug reference prices in which various benchmarks attempt to contextualize a different aspect of the sale of prescription medications. Said differently, people are not generally able to buy prescription drugs directly from the manufacturer and so the manufacturer-set price is just a component of how we experience drug prices.

With numerous drug prices that could be relied upon to determine a drug's "price," essentially everyone pays a different price at the pharmacy counter. This isn't the way that most of us shop for other products and services. What is it about prescription drugs that causes such inconsistency in the prices paid from purchaser to purchaser?

Imagine you are in line at the supermarket to buy a gallon of milk. The two people ahead of you in line also happen to be purchasing milk, and as the first person checks out, the gallon of milk rang up at $3.99, a price many would consider average. (10) The next person had the same gallon of milk and it registered $2.75. The clerk rings up your gallon of milk next, but your price is $5.23. While you might ask, "what gives?", the clerk will likely tell you they don't control the price of milk and simply ask if you want it at that price or not. If this conversation sounds familiar, it's because it is the type of conversation that occurs at the pharmacy counter every day. But while many can choose to go without certain grocery store items, going without medications can be the difference between life and death for patients.

To illustrate, Pfizer and Bristol Myers Squibb's joint blockbuster drug Eliquis® treats and prevents blood clots and had over $9 billion in gross sales in 2020; however, as **Figure 2** demonstrates, there were many different prices for the product in 2020. (11)

Figure 2: What's the Price of the Biggest Drug in Medicare?



Sources: Medicare Part D Dashboard, CMS NADAC, CMS SDUD, VA Federal Supply Schedule, Medi-Span PriceRx

This pricing variability is made even more perplexing when you consider that there was only one manufacturer of the medication. Eliquis does not have a generic alternative nor are there other manufacturers setting differing Eliquis® drug prices, so how can it be that a one-of-one product had such pricing variability? Despite the dozen different pricing

benchmarks that could be relied upon to determine the price of Eliquis®, there essentially was only one starting point for those prices: the brand manufacturer. So then how did prices for Eliquis® come to vary so widely?

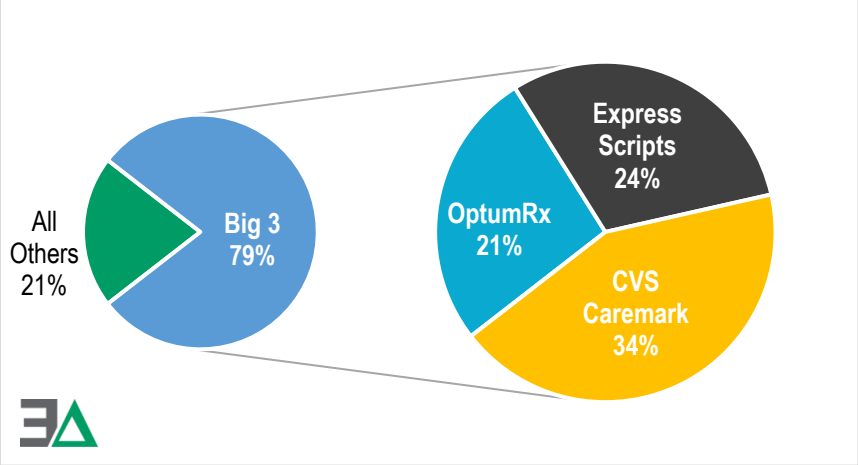
Eliquis® provides an introduction into how drug pricing can quickly be differentiated and result in potential healthcare inequity. Returning to our earlier milk example, consider that the total price for all three gallons was $11.97 ($3.99 + $2.75 + $5.23) or on average $3.99 ($11.97 / 3) per gallon. If asked to investigate, we may consider that consumers on average are paying a reasonable cost (i.e., the average cost) for milk, even if the cost to the individual purchasers varied. Overall, the grocer may be considered whole, as revenue generated among the three transactions were consistent with an average retail price of $3.99 for a gallon of milk despite each customer's exposure to a different price. This exact same phenomenon exists in prescription drug prices. Aggregate trends can inform one understanding of drug prices that may be disconnected from individual experience. To help understand how a product like Eliquis® has such disparity in price despite only one manufacturer (and theoretically only one starting point for price based upon that one manufacturer), we need to review the ways that we as patients acquire prescription drugs at the pharmacy counter.

PBM market

According to the Pharmaceutical Care Management Association (PCMA), pharmacy benefit managers (PBMs) administer drug coverage to over 265 million Americans, or approximately 80% of the U.S. population. (12) Prescription drug benefits are often part of a broader package of healthcare benefits. Many individuals get access to healthcare through government programs or employers. Healthcare benefits have an understood tangible monetary value, which is counted within overall worker compensation. It is important to appreciate that without the PBM's primary functions of transacting and facilitating the payment of the prescription claim between the pharmacy provider and plan sponsor, Americans have no way to access the value of their healthcare benefit. Such a system would be less efficient and likely more costly to the consumer.

The PBM market is relatively consolidated, in which 79% of all prescription claims in 2020 were managed by just three PBMs; CVS Caremark (34%), Express Scripts (24%), and OptumRx (21%) (**Figure 3**). (13) The consolidation has many impacts on the U.S. prescription drug supply chain.

Figure 3: Percent of U.S. Lives Managed by PBM (2020)



Source: Becker's Hospital Review

The first impact that is felt is by pharmacy providers that need to contract with these three PBMs to access most of their customers (i.e., 80% of people with insurance). While this may increase convenience for the pharmacy, the consolidated market wields extensive negotiating power by PBMs towards pharmacy providers, particularly as we cannot agree to what a drug actually costs. We can demonstrate this in data where we see that, at times, the same PBM may pay the same pharmacy provider differently for the same product depending upon which contract or payer the PBM is managing (see earlier **Figure 1;** there are 110 different prices but less than 110 different PBMs).

Returning to **Figure 2**, we can see that variability in drug costs is not simply attributable to the drug manufacturer's price point. At times, it may be significantly attributed to the PBM-pharmacy relationship while at others, the wholesaler-pharmacy buying arrangement may be more impactful (i.e., acquisition cost variability). Despite the fact that there was only one manufacturer to set "manufacturer drug prices" for Eliquis®, the market ended up producing different prices for different payers. However, it is also true that the price variations can be attributed to different approaches to paying for prescription drugs. Some plans pay for medications based on an AWP-based discount (i.e., one potential pricing benchmark), while others pay based on a mark-up to a pricing benchmark like NADAC or WAC. One of the goals of this study is to attempt to understand and contextualize the impacts of market segmentation on prescription drug costs.

Introduction to drug pricing benchmarks

At this time, we should acclimatize you to common pricing benchmarks cited throughout our discussion. We will try to keep this section brief, but bear in mind, we are focusing on common retail pharmacy pricing benchmarks. It is possible if you review other works, you may come across additional pricing terminology not discussed in this analysis. In such cases, you may want to reference external resources, such as the glossary of terms available at the end of this report, 46brooklyn Research, or GoodRx.[iii]

Wholesale Acquisition Cost (WAC)

We will first discuss *Wholesale Acquisition Cost (WAC)*, which is the price paid by a wholesaler, distributor, and other direct accounts for drugs purchased from the wholesaler's supplier (often manufacturers). However, this price does not include discounts, rebates, or other reductions in price and therefore does not represent the net transaction price (the final price paid), either by the wholesaler or retail pharmacy. We are confident in what WAC is supposed to represent within

Differentiating milk prices

Going back to our milk example in which three different customers paid a different price for the same product. Assume that instead of customers buying milk, it was clients of PBMs buying the milk as a benefit for their employees. Assume the different prices paid represent different contracts the plan sponsors have **with the same PBM, each contract pricing the same gallon of milk differently**. Now recall that at the end of the day, the grocer received an average gross market price for servicing the PBM's network of varying contracts ($3.99 per gallon) despite the significant disparity in price among the different transactions.

Now consider that the PBM negotiated a network rate of reimbursement with the grocer of $3.89 per gallon of milk. The network rate takes all the contract rate payments into consideration and nets a final payment to the grocer to the net network terms. For this example, the average amount paid per gallon of milk was $3.99, but the network rate or "guarantee" was $3.89, a difference of $0.10 per gallon. In this case, the grocer was overpaid by $0.30 (3 gallons of milk x $.10 each) and would owe the PBM a $0.30 refund. Along the same lines, if the network rate was $4.09, then the PBM would owe the grocer the $0.30. Ultimately, our milk example is representative of what has happened to prescription drugs over time. As the prescription drug market has become more complex, efforts to understand drug pricing became increasingly difficult.

Step back for a second and consider the complexity of determining price for an elementary example of milk. We bet many had to reread this section a few times to follow the math. Despite our best efforts, it can be difficult to follow the calculation in this simple example. Now consider pharmacy networks often consist of hundreds or thousands of contracts and many groups of providers. What are the chances that any purchaser of prescription drugs could realistically determine a true net price paid for any given product given this complexity?

[iii] 46brooklyn Glossary Available at: https://www.46brooklyn.com/glossary
GoodRx Glossary Available at: https://www.goodrx.com/healthcare-access/medication-education/pharmacy-medical-glossary

the drug supply chain, because the definition of WAC is defined in federal law [42 USC 1395w-3a(c)(6)(B)]. The federal definition removes ambiguity related to what this price should represent.

As part of the definition, we know that WAC does not reflect discounts, rebates, or other forms of price concessions for drugs. Most brand drug price concessions occur after the sale of the prescription and are between the PBM and manufacturer. This is opposite for generic drugs, where most discounts occur before the retail sale of the drug and happen within the manufacturer-wholesaler-pharmacy relationship. For this reason, the WAC price may provide a reasonable estimated retail pharmacy cost to acquire brand drugs, but it is not nearly as reliable for generics.

To get a better understanding, you may think of the brand drug rebate structure much like a mail-in rebate for consumer goods. For example, imagine your washing machine breaks. Fortunately, a prominent machine manufacturer just sent you, a loyal customer, a $200 mail-in rebate for their washing machines. You go to the store, do the math, and determine that even though the manufacturer's washing machines are not on sale and the retail price is more than other brands, the $200 rebate would result in the lowest net price. You purchase the manufacturer's washing machine for the full price, send in the rebate, and in three months, a check from the manufacturer arrives for $200, lowering your net price purchase price.

Consider the following observations. In the example, the retailer most likely purchased the manufacturer washer at or near the wholesale price and therefore did not offer a sale price. Another retailer's price for the same manufacturer's washer was similar (within 1-2%), as the manufacturer did not significantly discount the wholesaler price to any retailer. Ultimately, the dynamic largely mimics the market for the price in which retail pharmacies acquire brand drugs.

You, the purchaser, paid the full price upfront. Anyone who saw you walking out of the store that day assumed you paid full retail price for the appliance. The person ahead of you in line may have purchased the same washing machine without the rebate and paid the full retail price. Likewise, the individual behind you may have a different rebate worth $300, resulting in an even lower net price for the same washing machine. From an outsider's perspective, the only known price for each transaction was the customer's price at the counter, which is generally based on some mark up to the wholesale price the retailer paid when acquiring the drug. Yet, different consumers paid different net prices. The customer who did not have access to a rebate (you may think of them as a cash-paying customer at the pharmacy) paid a significantly higher price than anyone else, and even those with rebates had their prices differentiated (potentially representing different payers and their different access to rebates, since customers generally don't get drug rebates themselves).

Now that we understand what WAC is, and how WAC can be used to give us semi-reliable information related to brand drug purchases but not necessarily generics, the question becomes what, if any, pricing benchmark would help us understand generic drug costs at a pharmacy.

National Average Drug Acquisition Cost (NADAC)

The National Average Drug Acquisition Cost (NADAC) survey represents the average invoice cost a pharmacy pays to acquire a drug. NADAC was developed by the Centers for Medicare and Medicaid Services (CMS), "to provide a national reference file to assist State Medicaid programs in the pricing of Covered Outpatient Drug claims to reflect the *Actual Acquisition Cost (AAC)* of drugs." As such, NADAC's goal is to be the most comprehensive public measurement of market-based retail pharmacy acquisition costs available.

NADAC is compiled by Myers & Stauffer, an accounting firm that specializes with public healthcare and social service agencies, on behalf of CMS. It is generated from a voluntary monthly invoice cost survey of 2,500 randomly selected retail pharmacies (with 450 to 600 respondents). After Myers & Stauffer completes its data processing and cleanup activities, it publishes the survey results at the *National Drug Code (NDC)* level on Medicaid.gov. For our milk example,

the NADAC price for milk would be derived from invoices submitted by grocers such as Kroger and Publix to determine the average invoice cost paid for a gallon of milk. NADAC has one established publicly published price per unit of a given drug.

To be clear, NADAC pricing reflects some, but not all discounts in pricing. We know this because much like WAC, NADAC has a statutory definition we can rely upon to understand what it is supposed to contextualize about the drug supply chain [42 USC 1396r-8(f)]. (14) As a result, we may compare a drug's NADAC to WAC price to determine the percent discount off invoice a pharmacy acquires a drug. A review of NADAC pricing over time tells us that brand medications are typically acquired by pharmacies at a discount of approximately 4%, whereas generic medications may be acquired at much greater discounts. (**Figure 4**)

Figure 4: CMS NADAC Equivalency Metrics

Quarter Ending	Brand Legend Drugs				Generic Legend Drugs			
	WAC Mean	WAC Median	AWP Mean	AWP Median	WAC Mean	WAC Median	AWP Mean	AWP Median
June 2021	-4.6%	-4.1%	-20.6%	-20.1%	-43.8%	-48.8%	-79.3%	-87.5%
September 2021	-4.8%	-4.1%	-20.7%	-20.1%	-43.9%	-48.7%	-79.6%	-87.7%
December 2021	-4.6%	-4.0%	-20.6%	-20.0%	-45.4%	-50.3%	-80.7%	-88.8%
March 2022	-4.6%	-4.0%	-20.6%	-20.0%	-44.2%	-49.5%	-80.9%	-88.7%
June 2022	-4.8%	-4.0%	-20.8%	-20.0%	-46.2%	-50.5%	-81.7%	-89.6%

Source: Myers and Stauffer, LC via Medicaid.gov

In our washing machine example, this would be equivalent to identifying the invoice cost the retailer paid below the wholesale price for a washing machine. Therefore, a 4% average discount would suggest that most retailers acquired a $500 wholesale priced washing machine at an invoice price of $480 dollars. In addition, we can appreciate that the $200 mail-in rebate represents a 40% discount to the product's wholesale price, while the $300 rebate represents a 60% discount to wholesale price.

Unlike brand drugs, much of the discounting for generic drugs that occurs between the wholesaler and manufacturer ends up reflected in pharmacies' cost to acquire (invoice or *net cost*). Returning to our prior **Wholesale Acquisition Cost (WAC)** section and **Figure 4** above, we understand that WAC, via its federal definition, reflects the wholesale price (i.e., a list price between the manufacturer and wholesaler) between the generic manufacturer and the wholesaler. However, we can see that the wholesaler is making available to pharmacies 50% discounts to the WAC price for generic drugs. The wholesaler is likely not providing these discounts in a way that harms its finances, suggesting it is acquiring the generic products for greater than a 50% discount off WAC. Why is this? Generic drugs often have multiple manufacturers, creating wholesale pricing competition. For this reason, generic manufacturers provide significant discounts on list price (WAC) to wholesalers to incentivize distributing their product over a competitor. Then, a portion of the drug's discounts are reflected in the price the distributor uses to sell to their customers, such as retail pharmacies. This is because the competitor product can be made available to the pharmacy provider to purchase in other ways outside of the wholesaler who negotiated the price discount (such as selling directly to the pharmacy or via a secondary wholesaler). In general, the competition results in retail pharmacies acquiring generic drugs at discounts averaging 45-50% off WAC (as suggested by the NADAC pricing benchmark) but can be much higher or lower depending on the drug, market competition, and other forms of price concessions.

Now that we have a better understanding of how pharmacies purchase products (i.e., WAC for brands and NADAC for generics), we need to understand how pharmacies sell products. As stated, most pharmacies sell products to individuals with prescription drug insurance, and the majority of insurance claims are not basing pharmacy

reimbursement off of WAC or NADAC, but rather off of a third pricing benchmark known as *Average Wholesale Price (AWP)*.

Average Wholesale Price (AWP)

Returning to our washing machine example, when the manufacturer convinces a retailer to stock and sell their product, they generally provide a Manufacturer Suggested Retail Price (MSRP) to facilitate the retailer making money off the sale of their product. The greater the gap between the wholesale cost and MSRP "sticker price," the greater opportunity for a retailer to profit. Prescription drugs also have a "sticker price" that is far above the actual cost to acquire, and that enables the supply chain to make money. This "sticker price" is known as AWP, which unlike the prior pricing benchmarks of WAC and NADAC, has no federal statute that can reliably inform us what AWP is supposed to represent. As a result, AWP is many times greater than both NADAC and WAC when it comes to pricing drugs (see earlier **Figure 4**).

Because of the lack of federal statute regulating AWP, our understanding of what AWP is and represents is informed primarily from suppliers of prescription benchmark pricing data. The most common suppliers of prescription drug pricing benchmark data, (i.e., WAC, NADAC, AWP), are Medi-Span and First Databank. Traditional PBMs attempt to overcome the unreliability of AWP not by abandoning the pricing benchmark, but rather, through discounting the AWP and/or creating upper limits on payments. Discounting is an approach to pricing where the AWP payment is discounted by a percentage. Upper payment limits take the form of the last pricing major benchmark to discuss, *maximum allowable cost (MAC)*.

Maximum Allowable Cost (MAC)

MAC pricing is a PBM-generated catalog that includes an upper limit that the payer will reimburse for a generic drug. Generic drugs are eligible for MAC pricing because of the potential for numerous manufacturers to compete to produce the product, with many different potential price points as a result of that competition. In contrast, brand or other exclusive products lack price competition, as there is only one supplier of the product. A MAC list sets a per unit price for a particular generic drug regardless of the WAC, or the AWP, or other pricing benchmarks. MAC lists are designed by the PBM through market research and are meant to encourage efficient pharmacy purchasing. (15)

PBMs may set different MAC rates for different groups of providers or different contracts for the exact same drug. MAC list prices are not publicly available, as PBMs claim their methods are proprietary. (16) Therefore, the ability for a client of a PBM or beneficiary to analyze MAC rates and determine if they are getting a fair price is difficult. Likewise, it is very difficult for a provider to determine if the MAC rate is an adequate reflection of the market. This may help to explain why there were 110 different prices per unit for atorvastatin 40 mg in 2021, in which 30 tablets ranged between $0.33 and $188.10 (see **Figure 1** previously).

What milk can teach us about MAC prices

Going back to our milk example, grocers will often carry assorted brands of milk such as United Dairy, Fairlife, or Dairy Gold. If we were to assume a world where a PBM-like entity worked on behalf of purchasers to provide "coverage" for purchases of groceries, we can assume that with the right incentives, the PBM would work on behalf of their clients to try to procure the milk that is least expensive. To the PBM, milk is milk (and we are assuming all these brands represent generic milk, as they are essentially interchangeable), so a PBM will pay $3.99 per gallon regardless of which brand of milk is purchased. The grocer will then work with distribution channels to acquire the lowest net price milk regardless of what the suggested retail price may be. It is quite possible different grocer providers for the PBM secured different manufacturers to provide the lowest net price. For example, Safeway may have secured the lowest price per gallon of milk with United Dairy while Publix struck a deal with Dairy Gold. If a beneficiary shopped at Safeway, they would receive United Dairy while others would receive Dairy Gold at Publix.

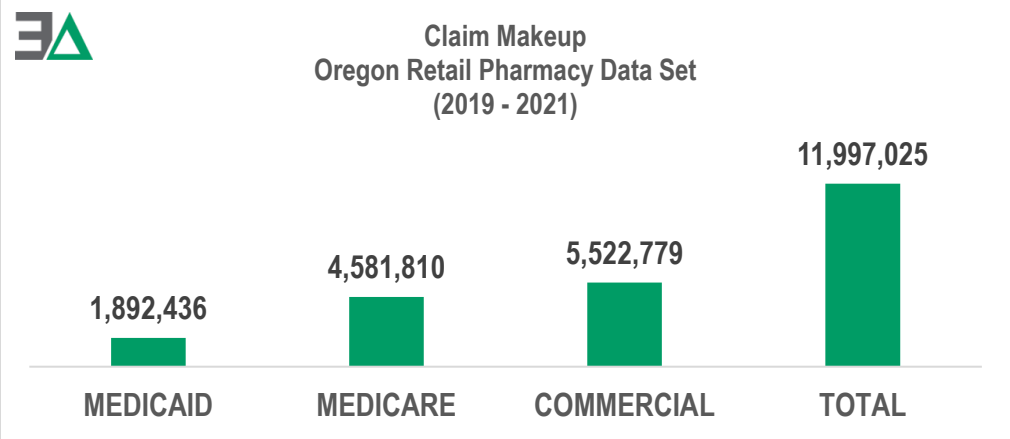
A significant criticism of MAC pricing arises when the PBM may set the price for a gallon of milk at say $2.99 and the grocer is unable to acquire the product at that price. In this scenario, the grocer would have to provide the milk for a reimbursement rate that is below distribution cost. This is often referred to as an *underwater claim*. Some states have attempted to legislate MAC pricing laws that require PBMs to reimburse at a minimum provider cost to acquire. However, as we are learning, what is a truly reliable reference price?

Pharmacy pricing is complicated, but an understanding of what pricing benchmarks are available, what they represent, and how they get used by the drug supply chain is critical to our attempts to understand and contextualize pharmacy claims data for Oregon and beyond.

Pharmacy claims data

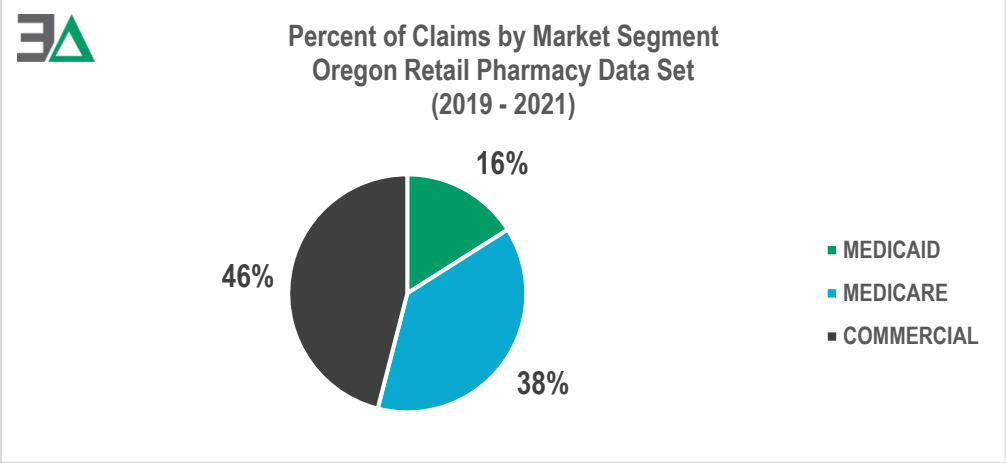
For this analysis, with the assistance of the Oregon State Pharmacy Association (OSPA), we received and reviewed claims from 86 Oregon retail pharmacies comprising of small chain pharmacies and independently owned pharmacies. Transactions spanned over a three-year period (2019 to 2021). A total of 11,997,025 claims were included in the overall study of which 46% (5.5 million) were identified as Commercial, 38% (4.6 million) Medicare, and 16% (1.9 million) Medicaid transactions (**Figure 5 and 6**). The National Community Pharmacists Association (NCPA) estimates that as of 2020, a total of 534 retail pharmacies were in operation in Oregon, suggesting that the data set represents approximately 16.1% of Oregon retail pharmacies. (5)

Figure 5: Oregon Retail Pharmacy Claim Makeup by Prescription Count (2019 – 2021)



Source: 86 Oregon retail pharmacies in study

Figure 6: Oregon Retail Pharmacy Claim Makeup by Percent of Market Segment (2019 – 2021)

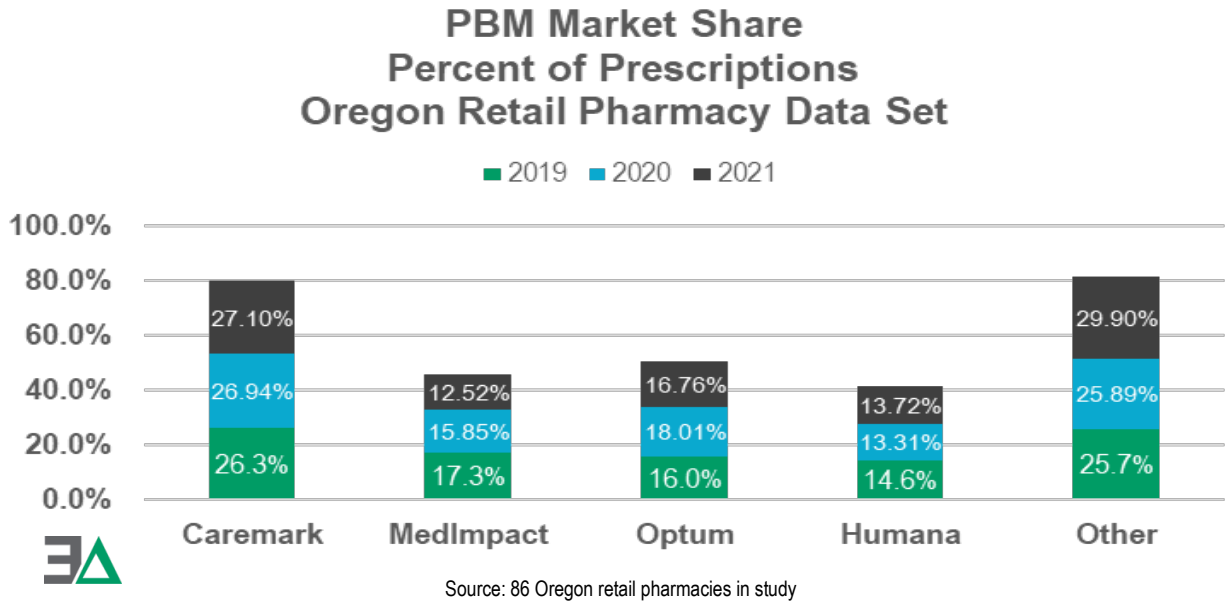


Source: 86 Oregon retail pharmacies in study

Oregon PBM market share

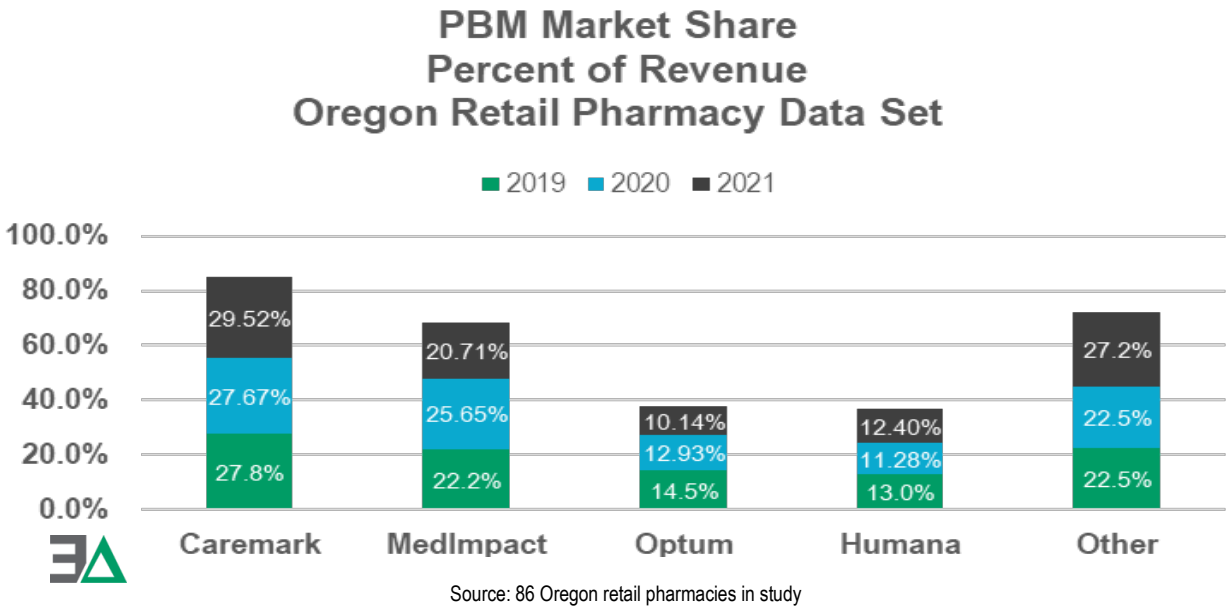
As already identified, a few PBMs manage most prescription drug transactions. The national trend of consolidation has meant that Oregon's own PBM market has become consolidated as well. The prescription transaction data over a three-year time frame identified four PBMs who represented over 70% of total transactions and total revenue within the analyzed pharmacy group data. Specifically, CVS Caremark, MedImpact, OptumRx, and Humana processed approximately 73% of all transactions and accounted for 76% of revenue within the pharmacy study group (**Figure 7 & 8** below). All other PBMs who share in the market were grouped into the classification as "Other".

Figure 7: Oregon Pharmacy PBM Market Share Trends by % of Prescriptions & % of Pharmacy Revenues (2019 – 2021)



Source: 86 Oregon retail pharmacies in study

Figure 8: Oregon Pharmacy PBM Market Share Trends (Percent of Pharmacy Revenue) (2019 – 2021)

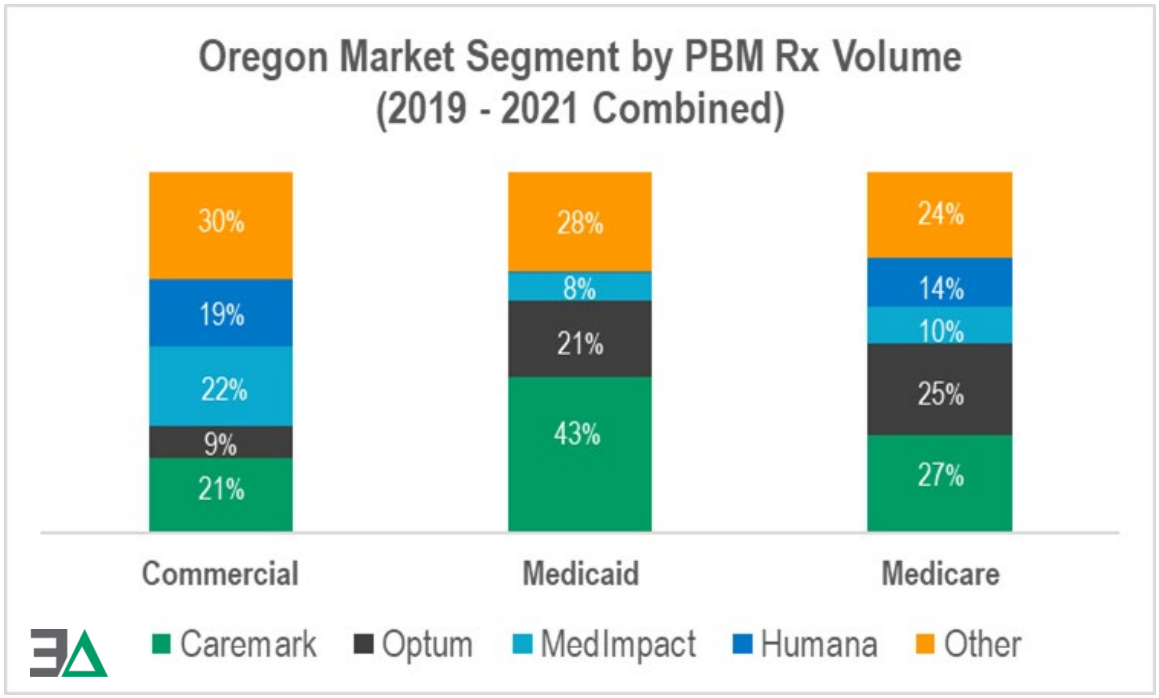


Source: 86 Oregon retail pharmacies in study

In reviewing **Figures 7 & 8** on the previous page, we can appreciate how important an understanding of the top PBMs can be to our attempts to understand prescription drug cost trends in Oregon. Caremark gained market share over the three-year period from 26.3% to 27.1% (3.0% change) of total prescriptions filled and percentage of gross revenue payment to pharmacies from 27.8% to 29.2% (6.2% change). OptumRx gained market share as a percentage of transactions from 16% to 16.76% (4.8% change) but declined their share of percentage of gross revenue payment to pharmacies from 14.5% to 10.14% (30.0% change). Both MedImpact and Humana saw declines in market share as a percentage of transactions and percentage of gross revenue. Over the three-year period, the Other category (smaller PBMs by market share in Oregon) represented a similar percentage of transactions as Caremark (27.1% vs 26.8%) but experienced a 15.2% lower percent of the market as a percentage of gross revenue payment to pharmacies (24.0% vs 28.3%). Ultimately, the decisions of four organizations will impact approximately three out of every four prescriptions in the state (assuming our pharmacies are a representative sample of the broader Oregon pharmacy market).

To further understand PBM market share trends, the data was further studied to identify what portion of each market segment (i.e., Commercial, Medicaid, and Medicare) that these top Oregon PBMs were responsible for based on the analyzed pharmacy group data. Although our data consisted of approximately 16.1% of Oregon retail pharmacies, we did not have samples from all pharmacy settings, such as large chain pharmacies or closed-door *specialty pharmacies*. Nevertheless, we felt it important to attempt to understand the distribution of claims amongst payer types, as many studies have attempted to examine drug prices in terms of payer types with the general trends being that Medicaid pays the least for a comparable mix of medications, Medicare pays the most, and Commercial is somewhere between Medicaid and Medicare. (17) In re-contextualizing the pharmacy group data by market segment, we see in **Figure 9** that Caremark's presence was significant in all segments (Medicare, Medicaid, and Commercial) while Humana did not have any appreciable direct influence over Medicaid drug prices in Oregon.

Figure 9: Oregon Market Segmented by PBM Rx Volume Based on Oregon Retail Pharmacy Data (2019 – 2021)



Source: 86 Oregon retail pharmacies in study

Pharmacy customers

Although we have demonstrated that PBMs play a large role in pharmacy claim transaction activity, a more simplistic view would recognize that a pharmacy provider has two primary customer types: those who pay directly for the prescription (often referred to as cash pay or cash only) and those who rely on someone else to negotiate and pay for all, or part of, the cost of the drug (i.e., those relying on a PBM via their health plan).

For patients who pay directly, without the use of a PBM, the pharmacy will set an asking price (sometimes referred to a pharmacy's sticker price) for the drug, known in the industry as their *Usual and Customary (U&C) price*. The U&C price is the price available to anyone who may use the services of the pharmacy. Patients may have familiarity with U&C through the common act of calling a pharmacy and asking for their price of medication to shop around and secure the lowest price. The price that the pharmacy can generally disclose over the phone is their U&C price.

For patients who have asked a pharmacy over the phone what the price of a drug would be with insurance, it wouldn't be unusual for the pharmacy staff to say that they wouldn't know the adjusted rate until the patient came in with the prescription and the patient's health benefits card. That is because most claims don't adjudicate at the pharmacy's set U&C price. The U&C price is not proprietary or hidden, and pharmacies may increase or lower their U&C prices at their discretion. However, the negotiated rates paid on behalf of those who rely on someone else to pay, or help pay, for their medication are often considered trade secrets; so the pharmacy often does not know what the medication will cost until processing the claim through the patient's health benefit plan. For example, in the case of generic medications, which constitute 90% of all dispensing, third-party rates may change from day-to-day. This is because many PBMs manage generic drug prices with proprietary MAC lists that may be updated infrequently or as often as daily.

This brings us to the second primary group of pharmacy customers: those who utilize a third-party payer to negotiate a price on their behalf. This is by far the largest customer base for retail pharmacies. The third-party payer is typically a PBM. The PBM is deeply rooted in the drug supply chain, acting as a prescription drug intermediary having relationships with many market participants, including but not limited to pharmacies, manufacturers, and plan sponsors. A PBM's primary relationship with a retail pharmacy is to act as a gatekeeper between the patient and the pharmacy for the purposes of coverage of prescription drugs under a plan benefit. By establishing a network of pharmacy providers, the PBM can negotiate rates for a prescription drug on behalf of their clients, who generally speaking, are not the patients but instead the employer groups or government plan sponsors who provide health benefits coverage for those patients. The value of the PBM's services may be perceived based on discounted rates achieved when PBMs negotiate with various stakeholders (i.e., pharmacies, drugmakers). However, the lack of consensus of what constitutes a fair rate or even a typical going rate for any drug makes it difficult to assess the true value of the service provided by the PBM.

The agreements between PBMs and pharmacy providers typically require that a PBM always receives the lowest available price from any network pharmacy by incorporating "lesser of" methodology or "most favored nation clauses." These agreements ensure that, regardless of the price the PBM calculates to pay for a drug, if the pharmacy provider requested less reimbursement in the form of a lower submitted U&C, the PBM will elect to pay at the lower rate and not the negotiated contract rate. Because the majority of a pharmacy's customers are people with insurance, the predominant business incentive created for pharmacies is to set high U&C prices to secure maximum revenue from their largest customer base. To be clear, such an incentive is not that different from a grocer setting a higher price for milk or any other retailer working to maximize returns through price-setting. The major difference is that the buyer of milk can review the price and determine if it is a price they wish to pay.

This is not the case with pharmacies and PBM transactions. The provider has little idea of the value of any sale, as demonstrated in the atorvastatin example earlier (see **Figure 1**). For this reason, the retailer is placed in a situation where the best option is to hedge against the unknown and always ask for the highest price. This is the safest course of action for the pharmacy given the current pricing policies associated with billing PBMs for prescription drugs. As a result of this action, buyers are often exposed to the highest possible price from pharmacy providers. Some pharmacy providers have attempted to account for the collateral damage this dynamic creates for underinsured or uninsured patients by creating discount programs for impacted "cash pay" patients. However, this is not as easy as it may seem, as some pharmacies have found themselves in violation of U&C policies, at times resulting in hefty fines.

For example, beginning in the mid-2000s, Walgreens offered a Prescription Saving Club (PSC) in which a Walgreens customer could enroll in the PSC to receive a discounted cash price on a set list of medications. Under the program, the customer would pay for their medication "out of pocket," and the claim would not be sent by Walgreens to the customer's insurance and PBM for reimbursement. Absent of enrolling in the program or if the customer wanted the claim processed through insurance, the Walgreens asking price (U&C) would not include the PSC discount. (18) Payers, specifically state Medicaid systems, argued that the PSC price is in essence a U&C price and that payers were entitled to the lowest price option. Walgreens settled the accusation of U&C violations for $60 million. Both CVS and Rite Aid were involved in litigation over similar discounting programs, with CVS avoiding penalty but Rite Aid not. (19) (20)

These examples help explain why cash pay pharmacies, like Mark Cuban Cost Plus Drugs, Freedom Pharmacy, Scriptco, Marley Drug, Blueberry Pharmacy, and Oregon-based Access Prime Pharmacy have materially lower sticker prices than most conventional pharmacies – they can price their medications without consideration of potentially warped third-party payer incentives. (21) (22) They always know the value of each sale (without concern of other parties under-cutting the value of their sale).

As a result of these dynamics, to properly study and contextualize drug prices in Oregon, we need to understand both the manufacturer-set prices (WAC & AWP), pharmacy purchase prices (NADAC & WAC), pharmacy-set prices (U&C), and the negotiated prices paid by PBMs to Oregon pharmacies (MAC & AWP).

Negotiated price and pharmacy claims

For claims to be paid at negotiated rates, there must be a contract between the PBM and the pharmacy that details drug payment terms. For prescription benefits to have value to consumers at the local level, consumers must be able to present their pharmacy benefit card at pharmacies in close proximity to their location. The availability of pharmacy providers and the desire for lower negotiated rates creates competitive forces within the pharmacy network contract. (23)

PBMs establish a network of pharmacies for consumers to use by contracting either directly with individual pharmacies (often referred to as direct contracts) or in group contract arrangements. Large chain pharmacies have many pharmacy locations and often contract in a chain/group arrangement, utilizing their multiple locations as leverage to negotiate reimbursement and gain access into PBM networks. Smaller pharmacies may not be attractive enough to PBMs for inclusion into the network on an individual, direct basis. Rather, smaller pharmacies often achieve access to PBM network contracts through a *Pharmacy Services Administrative Organization (PSAO)*. The PSAO allows smaller pharmacies to be part of a larger collection of pharmacies to gain access to the PBM networks. In addition, a PSAO removes much of the administrative burden associated with contracting. (24) Moving forward in this report, when we refer to a pharmacy network from the pharmacy provider point of view, we are referring to PSAO/chain contracting group arrangements.

A PBM's negotiated price is the contractual price for which a PBM and pharmacy (or pharmacy network) has agreed upon for a particular transaction. And while that definition is relatively simple on paper, it is a fairly complex process. A transaction occurs when a pharmacy submits an electronic claim for payment for a particular product, service, or combination of both. At the most basic level, the transaction is comprised of payment for product (ingredient cost), a fee to cover overhead associated with the dispensing of the product (dispensing fee), and an additional optional payment (incentive amount) if the pharmacy performed a service beyond dispensing, such as administering a vaccine.

The National Council for Prescription Drug Programs (NCPDP) governs the standard for pharmacy claims transactions between pharmacy providers and third-party payers (i.e., PBMs). This ensures that all payers and pharmacies utilize a uniform data schema. The formula for calculating total amount paid for any given transaction is as follows (25) (**Figure 10**):

Figure 10: NCPDP Total Amount Paid Claim Standard

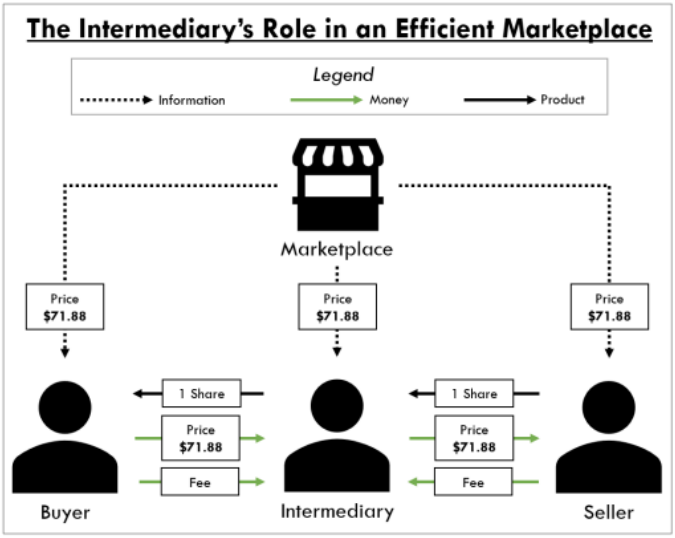
Total Amount Paid (NCDPD Field# 509-F9) = Ingredient Cost Paid (NCPDP Field# 506-F6)
+ Dispensing Fee Paid (NCPDP Field# 507-F7)
+ Incentive Amount Paid (NCPDP Field# 521-FL)
+ Other Amount Paid (NCPDP Field# 565-J4)
+ Flat Sales Tax Amount Paid (NCPDP Field# 558-AW)
+ Percentage Sales Tax Amount Paid (NCPDP Field # 559-AX)
- Patient Pay Amount (NCPDP Field # 505-F5)
- Other Payer Amount Recognized (NCPDP Field # 566-J5)

Source: National Council of Prescription Drug Programs (NCPDP) Telecommunication Standards D.0

A successful paid transaction results in the pharmacy receiving payment at the negotiated rate for the claim (inclusive of an ingredient cost paid plus payment in any of the other fields per the contract). The PBM's client will then receive a bill for the transaction. Like many other drug supply chain participants, PBMs can benefit when everyone receives a different price. For example, the PBM may pay a provider one price and then bill a client a higher price, creating what's typically referred to as a "spread." In this scenario, the PBM not only facilitates the transaction, but also is afforded the opaque ability to set different prices at either end of the transaction, creating a gap within the transaction that can generate profit for the PBM without disclosure to the plan sponsor.

To contextualize, we may turn to the stock market. Take for example a brokerage firm providing a service in which a seller of a stock may list a security for a particular price, say $100, and a buyer may purchase the security at that price. To facilitate the transaction, the brokerage firm may charge a small fee, say $1.00, known by all parties. There are many buyers and sellers using the firm's platform, and all transactions are posted. In this scenario, everyone knows the price of the stock, as well as the brokerage's transaction fee. The prices are transparent and determined directly between the buyer and seller as the firm facilitates the transaction (**Figure 11** on the next page).

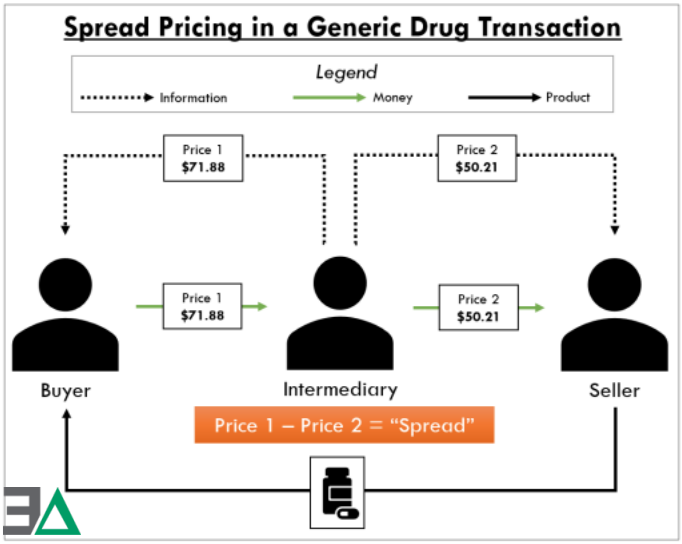
Figure 11: Overview of Transaction Facilitator Role in an Efficient Marketplace



Source: Analysis of PBM spread pricing in New York Medicaid managed care, 3 Axis Advisors, January 2019

Now consider the opposite, in which the seller does not list the security but instead the brokerage firm negotiates all transactions privately with buyers. Despite not assuming a fiduciary relationship with the buyer, the brokerage firm assures the seller that they will negotiate a great price. In private, the firm tells the buyer that the market price is $110 for the same security that sold above for $100. The buyer has no way have knowing the true market-clearing rate for the security, as those prices are not transparent, meaning the buyer must take the brokerage firm's word. The firm then goes back to the seller and informs them that the security sold for $90. So, the buyer is unaware that the broker secured the security for $90 and charged them $110, and the seller is unaware that the broker sold the security for $110 despite acquiring it for $90. The $20 gap is unknown to either end of the transaction, allowing the broker to maximize returns through pushing both ends further apart (**Figure 12** below).

Figure 12: Overview of an Intermediary's Role in Creating "Spread"



Source: Analysis of PBM spread pricing in New York Medicaid managed care, 3 Axis Advisors, January 2019

In the scenario of **Figure 12**, the buy and sell price was established entirely by the facilitator, who gets to arbitrage the arrangement. As we move forward and discuss factors that influence a drug's price, it is beneficial to consider how various payment arrangements positively or negatively impact various stakeholders in the drug channel, such as the manufacturers, wholesalers, pharmacies, beneficiaries, purchasers of prescription drugs lacking drug insurance, PBMs, and plan sponsors. As in the stock market example, we will need to ensure an understanding of the component costs that determine the drug price for any given transaction.

Ingredient cost paid

The ingredient cost paid component (NCPDP Field# 506-F6) of pharmacy reimbursement represents the price reimbursed by PBMs to the pharmacy for the drug product dispensed. The ingredient cost reimbursed at the *point-of-sale (POS)* is determined by the contract between the PBM and/or pharmacy (whether that contract was directly negotiated by the pharmacy or as part of a broader network contract the pharmacy is participating within). As already stated, retail drug pricing is complex due to the variety of pricing benchmarks (i.e., NADAC, MAC, AWP, WAC, AAC, etc.) which could be used to pay claims. However, complexity is increased when we recognize that the basis of paying a pharmacy for their dispensed drugs can be further contextualized by no less than 19 unique values, which may be provided in a claim response to designate why a particular calculation was utilized to determine a drug's cost. (26) In **Figure 13** (below), you can see that the PBM can indicate that the claim was paid at MAC, *average sales price (ASP)*, contract terms, the pharmacy's submitted charge (U&C), or a host of other methods.

Figure 13: Basis of Reimbursement Determination Supported Values

Code / Value	Meaning	Meaning Definition Text
0	Not Specified	*Not Provided*
1	Used to indicate when reimbursement is equal to the amount billed by the provider for the prescription item.	Used to indicate when reimbursement is equal to the amount billed by the provider for the prescription item.
2	Used to indicate when reimbursement is based upon the average wholesale price for the prescription item.	Used to indicate when reimbursement is based upon the average wholesale price for the prescription item.
3	Used to indicate when reimbursement is based on a discounted average wholesale price for the prescription item.	Used to indicate when reimbursement is based on a discounted average wholesale price for the prescription item.
4	Indicates when the ingredient cost reimbursed to the provider is based upon the submitted Usual and Customary Price.	Indicates when the ingredient cost reimbursed to the provider is based upon the submitted Usual and Customary Price.
5	Used to indicate that the processor has compared submitted U&C to the cost plus the fee (May be either their negotiated value for cost plus fee, or the submitted cost and fee), and is paying the lower of the amounts.	Used to indicate that the processor has compared submitted U&C to the cost plus the fee (May be either their negotiated value for cost plus fee, or the submitted cost and fee), and is paying the lower of the amounts.
6	Indicates when the ingredient cost reimbursed to the provider is based upon a payer's Maximum Allowable Cost list. (when MAC Basis of Cost was submitted)	Indicates when the ingredient cost reimbursed to the provider is based upon a payer's Maximum Allowable Cost list. (when MAC Basis of Cost was submitted)
7	Indicates when the ingredient cost reimbursed to the provider is based upon a payer's Maximum Allowable Cost list. (when other than MAC Basis of Cost was submitted)	Indicates when the ingredient cost reimbursed to the provider is based upon a payer's Maximum Allowable Cost list. (when other than MAC Basis of Cost was submitted)
8	Price based upon contractual agreement between trading partners.	Price based upon contractual agreement between trading partners.
9	Used to indicate when reimbursement is based upon the actual cost of the item.	Used to indicate when reimbursement is based upon the actual cost of the item.
10	The average sales price (ASP) is a cost basis required by and reported to CMS for pricing Medicare Part B drugs.	The average sales price (ASP) is a cost basis required by and reported to CMS for pricing Medicare Part B drugs.
11	The average price paid to manufacturers by wholesalers for drugs distributed to the retail class of trade; calculated net of chargebacks, discounts, rebates, and other benefits tied to the purchase of the drug product, regardless of whether these incentives are paid to the wholesaler or the retailer.	The average price paid to manufacturers by wholesalers for drugs distributed to the retail class of trade; calculated net of chargebacks, discounts, rebates, and other benefits tied to the purchase of the drug product, regardless of whether these incentives are paid to the wholesaler or the retailer.
12	Price available under Section 340B of the Public Health Service Act of 1992 including sub-ceiling purchases authorized by Section 340B (a)(10) and those made through the Prime Vendor Program (Section 340B(a)(8)). Applicable only to submissions to fee for service Medicaid programs when required by law or regulation.	Price available under Section 340B of the Public Health Service Act of 1992 including sub-ceiling purchases authorized by Section 340B (a)(10) and those made through the Prime Vendor Program (Section 340B(a)(8)). Applicable only to submissions to fee for service Medicaid programs when required by law or regulation.
13	A cost as defined in Title XIX, Section 1927 of the Social Security Act.	A cost as defined in Title XIX, Section 1927 of the Social Security Act.
14	Indicates reimbursement was based on the Other Payer-Patient Responsibility Amount (352-NQ).	Indicates reimbursement was based on the Other Payer-Patient Responsibility Amount (352-NQ).
15	Indicates reimbursement was based on the Patient Pay Amount (505-F5).	Indicates reimbursement was based on the Patient Pay Amount (505-F5).
16	Indicates reimbursement was based on the Coupon Value Amount (487-NE) submitted or coupon amount determined by the processor.	Indicates reimbursement was based on the Coupon Value Amount (487-NE) submitted or coupon amount determined by the processor.
17	Indicates the reimbursement was based on the cost calculated by the pharmacy for the drug for this special patient.	Indicates the reimbursement was based on the cost calculated by the pharmacy for the drug for this special patient.
18	Represents the manufacturer's published catalog or list price for a drug product to non-wholesalers. Direct Price does not represent actual transaction prices and does not include prompt pay or other discounts, rebates or reductions.	Represents the manufacturer's published catalog or list price for a drug product to non-wholesalers. Direct Price does not represent actual transaction prices and does not include prompt pay or other discounts, rebates or reductions.
19	State mandated level of reimbursement for Workers' Compensation or Property and Casualty prescription services.	State mandated level of reimbursement for Workers' Compensation or Property and Casualty prescription services.

Source: National Council of Prescription Drug Programs (NCPDP) Telecommunication Standards D.0

The basis of reimbursement is a data field returned by the PBM to the pharmacy provider as part of transacting the claim; however, it is not a commonly accessible data field in that many pharmacy billing software vendors do not make the information available to pharmacies within their technology systems. Processes that fail to capture and store the basis of reimbursement from the transacted claim can make determining which claims pay at the PBM's MAC rate vs. AWP-based discount rate beyond challenging. For example, if you are a pharmacy provider engaged in disputing PBM MAC rate payments, but your system does not let you contextualize which basis you were paid on, you may dispute a claim for low reimbursement that the PBM states you are not entitled to dispute via a MAC-rate process, as the claim was not reimbursed at a MAC rate, but at an AWP-discount. Recall from earlier (**Figure 1**) that a given drug may have

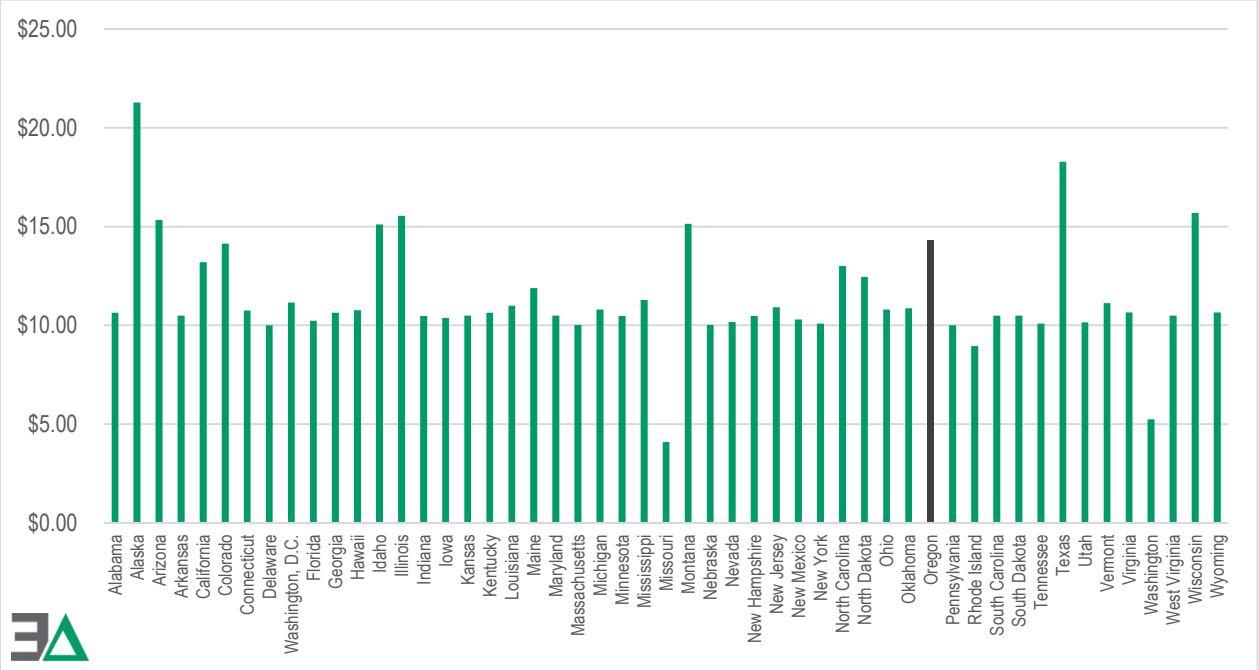
a multitude of different price points making it highly likely that a provider may inappropriately dispute an underpayment due to a lack of understanding as to which pricing formula was used to pay the claim. Similarly, if you are purchasing PBM services as a plan sponsor, but do not have access to the basis of reimbursement data, you have no way of contextualizing the potential value of PBM drug pricing services. Conceptually, this makes payers highly dependent on the methods used by PBMs to set prices for drugs.

Dispensing fees

A dispensing fee is also a component of the total amount paid for prescription medications. A dispensing fee is meant to cover pharmacy overhead costs associated with filling a prescription and is separate from the drug ingredient payment. Overhead includes but is not limited to payroll costs, time necessary to perform drug utilization review (DUR), prescription department cost (i.e., prescription containers, insurance, licenses, technology fees, and transaction fees), facility costs (i.e., rent, utilities, maintenance), and technology fees (i.e., software, electronic submission charges).

Recent research from the National Association of Chain Drug Stores (NACDS) estimates the average retail pharmacy cost to dispense at roughly $12.40 (for non-*specialty drugs*). (27) Previous analysis by 3 Axis Advisors suggests state-run fee-for-service (FFS) Medicaid systems' dispensing fees – which are required by the federal government to accurately approximate pharmacy cost of dispensing – range from and average between $10 and $12 per prescription with the mean in 2019 being $10.71 and $11.42 in 2022. (28) (29) (**Figure 14**)

Figure 14: Medicaid Maximum Retail Dispensing Fees by State (2022)



Source: Medicaid Covered Outpatient Prescription Drug Reimbursement Information by State, Quarter Ending June 2022[iv]

According to the National Community Pharmacists Association (NCPA), the publisher of the NCPA Digest, confirmed payroll (labor cost) as the largest contributor to pharmacy overhead besides the cost of goods sold between 2019 and

[iv] Some states have multiple retail dispensing fees (often based upon overall claim volume). For these states, the highest listed retail rate (i.e., excluding specialty and compounding rates) was selected for the figure.

2021. (30) Between 2018 and 2020, the average wage index (AWI) increased 6.68%. (31) The AWI is utilized by the Social Security Administration to adjust Social Security benefits to accommodate the general rise in costs to maintain the current standard of living. The AWI over the three-year period suggests employers on average would have needed to increase employee wages 6.68% just to maintain their employees' existing standard of living.

Pharmacy payers offer a variety of reimbursement approaches to dispensing fees, from simply not charging or paying a dispensing fee at all to paying a fee based upon the type of service or drug dispensed. As an example, the Oregon Medicaid Fee-for-Service (FFS) program (sometimes referred to as traditional Medicaid) utilizes a tiered dispensing fee methodology from which the dispensing fees range from a high of $14.30 to a low of $9.80 per prescription (**Table 1** below) and determined by the number of transactions performed by a pharmacy over the course of a year. Under this approach, larger pharmacy organizations may spread fixed costs over a greater number of transactions, therefore reducing the average cost to dispense for any individual transaction. This dynamic could incentivize greater pharmacy infrastructure investment in areas with more dense populations or within populations that may take more prescriptions than average. However, the opposite can also be true. Under a non-tiered approach, it could be reasonably argued that rural areas with less volume opportunities for pharmacies would have disincentives to invest in those areas. Oregon's model of paying differential rates to pharmacies based on their prescription volume, while inequitable on its surface, is a common approach to try to achieve incentive equity across communities of differing characteristics. Some states like Ohio have furthered this approach by also targeting increased incentives for pharmacies that dispense a higher overall proportionality of Medicaid claims, creating added incentives for investment. (32)

Table 1: Oregon Medicaid FFS Dispensing Fee Tiers *(33)*

Yearly Prescription Count	Dispensing Fee
0 to 30,000	$14.30
30,000 to 69,999	$11.90
70,000+	$9.80

Source: OAR 410-121-0160

Overview of net retail provider drug prices

While the presence of drug pricing benchmarks, standardized basis of reimbursement codes, and fixed dispensing fees to cover overhead costs may give the perception that pharmacy pricing is transparent, a pharmacy's final net payment is often not solely dependent on the formula in **Figure 10**. PBMs often include additional price concessions outside of the point-of-sale claim transaction that pharmacy providers must agree to in order participate in the *PBM provider network*. These concessions may result in payment adjustments at a later point that can increase or reduce gross retail pharmacy payment to a final provider net price. Because such adjustments to the provider happen at a later point, the ability for a client of a PBM to determine the final net price may be difficult.

Revisiting our earlier washing machine metaphor, assume you are renting an apartment, and appliances are included in your rent. Unfortunately, the washing machine in your apartment breaks. The landlord instructs you to purchase a washing machine, provide them with a copy of the receipt, and then the landlord will reimburse you for the purchase. In this scenario, you go to the appliance store and buy a washing machine. You pay the full retail price for the washing machine, provide the receipt to your landlord, who sends you a check for the amount on the receipt from the appliance store. Recall from our earlier example, you had a mail-in rebate worth $200 (which you sent in and received). In this example, you did not disclose the rebate to your landlord, who based the price of the washing machine from the purchase price reflected on the receipt, not the cost net of the $200 rebate. This example is not materially dissimilar from PBM revenue streams derived from pharmacy networks and drug manufacturers that are not shared or disclosed to plan sponsors. In the washing machine example, you in essence facilitated a transaction that resulted in an initial gross price payment from which a receipt was generated and presented to your landlord for payment. However, what

was not disclosed was the additional $200 price reduction that occurred at a later point (received in the mail weeks or months later) after the sale of the appliance in which you did not report to your landlord.

Plan sponsors who rely on PBMs to provide pharmacy payment data may unknowingly base drug prices on figures that they believe reflect the total payment to providers (retail transactions) when in fact adjustments to providers often occur after the fact to achieve a lower PBM-to-pharmacy network payment rate. These adjustments may not be shared with the PBM's client and, therefore a true net price may never be determined by the client.

In addition, pharmacies are subject to audits on any particular transaction to prevent fraud, waste, and abuse within the provider sphere. Audits require the pharmacy to invest in record keeping and dedicate staff to respond to audit-related requests, creating additional overhead in processing PBM transactions. The timeframe in which PBMs may perform an audit often persists for years after the transaction occurred. Any evidence of impropriety, failure of a pharmacy to produce all requested documentation, or clerical errors often results in the PBM recouping the entire original payment from the transaction. The money at stake within these audits can be significant, considering any particular transaction may be hundreds or even tens of thousands of dollars. The potential time gap (sometimes years) between transaction and audit recoupment may complicate reconciliation between gross and net payments.

In general, PBMs and their pharmacy provider networks are comprised of many PBM clients whose claims are aggregated together on an individual pharmacy or group of pharmacies basis (network). Each one of the PBM's clients may have different contracts that result in different pricing for any one drug even at the same pharmacy, on the same day. In most cases, adjustments are made to aggregated ingredient cost and dispensing fee payments to achieve a net pharmacy network rate agreement that is negotiated by the PBM within the pharmacy provider and PBM agreement. Since adjustments occur at a later point (not at the point-of-sale) and are aggregated on claims from potentially multiple payers (remember our milk example and the "network" rate for milk that resulted in a grocer refunding the PBM at a later date due to a calculated overpayment), an employer group or Medicaid agency utilizing a PBM that engages in these reconciliations often has no visibility into such net pharmacy payment adjustments, even in the case when contracts may be considered "pass-through." (34)

Contextualizing drug prices

By having multiple drug price benchmarks that can have disparities of over 90% in some instances (i.e., generic NADAC vs. generic AWP), the market can be segmented into higher and lower prices and as a result of the segmentation, more or less profitable customers. In turn, the nature of third-party payers for prescription drugs further segments the market as represented by the numerous bases for reimbursement codes that may be utilized to determine the ultimate cost of a prescription drug. Again, this segmentation creates the opportunity for the drug supply chain to effectuate higher and lower prices and facilitates the arbitrage of drug prices. And while individually, these forces may be understood to represent potential competitive market dynamics, the presence of retrospective price concessions throughout the drug supply chain creates a growing disconnect between the transparent transaction prices of medications and the net price of medications after all fees and retrospective price concessions are collected. The unequal nature of these retrospective price concessions – and their lack of transparency – ensures that a system predicated off high list prices that are discounted downward creates ample opportunity to take advantage of the disconnects within the variable drug's prices for financial gain. And the higher list prices rise, the more opportunity for disconnect and thus, more profit.

We've provided background on how consumers can pay widely different prices for their medications depending on how they obtain their prescription drug benefit and which price benchmarks are used to determine the prices they pay. Next, we'll look at how drug pricing ambiguity and wide ranges in discounts create challenges for Oregon pharmacies that can result in significant financial inequity between providers and compromise medication accessibility for Oregonians.

Comparing Oregon Medicaid pharmacy reimbursement

With a better background on the mechanics of prescription drug pricing, we can begin to review how varying reimbursements across the segments of the prescription drug market impacts pharmacy operations. We will start with the largest state budgetary component of the pharmacy market in Oregon: Medicaid. For this analysis, we had sufficient data from 72 of the 86 participating Oregon study pharmacies to conduct our analyses.[v]

Oregon Medicaid PBM market analysis

Oregon's Medicaid system is comprised of 16 managed care arrangements called Coordinated Care Organizations (CCOs) plus a state-run Fee-for-Service (FFS) component. According to enrollment figures, 75% of Oregon's Medicaid beneficiaries receive care from the 16 CCOs. The 16 CCOs use one of three PBMs while the FFS plan manages the benefit independently, as illustrated in the table below. The CCOs and PBM relationships remained constant between 2019 and 2021 (**Table 2**).

Table 2: Oregon BIN and PBM Information for Medicaid

Plan	Pharmacy BIN	PBM
Advanced Health	003585[vi]	MedImpact
AllCare	003585	MedImpact
Cascade Health Alliance	003585	MedImpact
Eastern Oregon CCO	003585	MedImpact
Health Share Kaiser	003585	MedImpact
Umpqua Health Alliance	003585	MedImpact
Health Share Legacy/PacificSource	004336[vii]	Caremark
PacificSource Community Solutions	004336	Caremark
Trillium Community Health Plans	004336	Caremark
OHA (Fee-for-Service)	014203	FFS
Health Share OHSU Health	600428[viii]	OptumRx (United HealthCare)
Health Share Providence	600428	OptumRx (United HealthCare)
Yamhill Community Care	600428	OptumRx (United HealthCare)
Columbia Pacific CCO	610011[5]	OptumRx (United HealthCare)
Health Share of Oregon – *Care Oregon*	610011	OptumRx (United HealthCare)
Intercommunity Health Network	610011	OptumRx (United HealthCare)
Jackson Care Connect	610011	OptumRx (United HealthCare)

Source: Oregon Medicaid Pharmacy Quick Reference

Data examined from the 72 Oregon retail pharmacies suggest that CVS Caremark processes roughly half of the CCOs' claims for Oregon Medicaid plans (**Figure 15** on the next page).

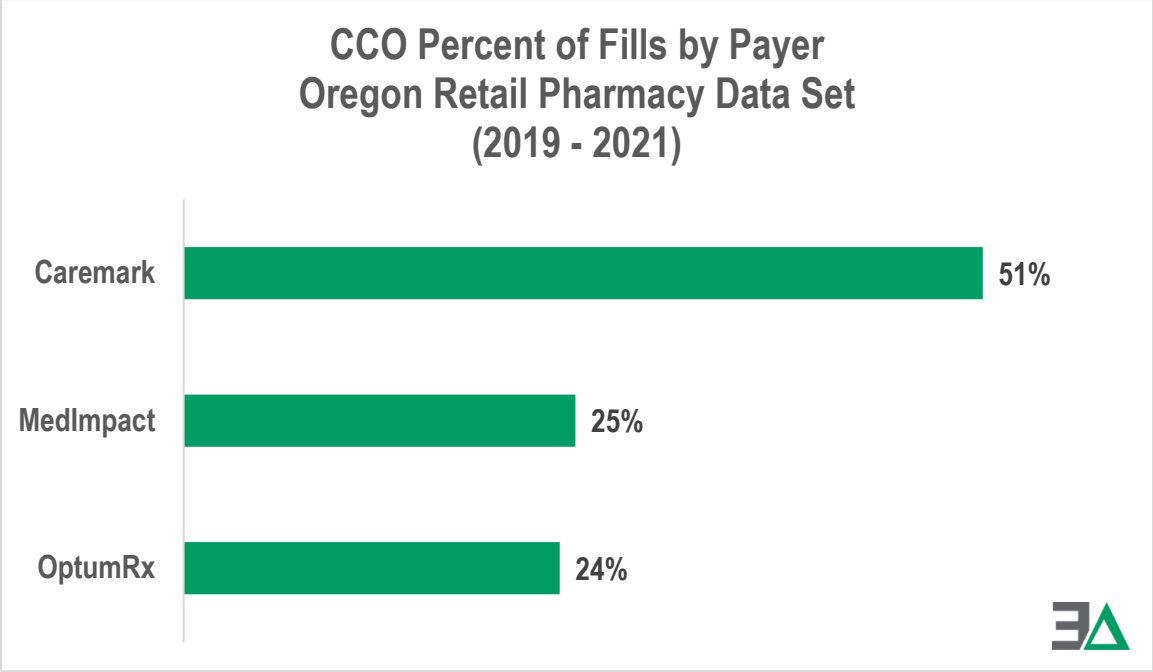
[v] As detailed in our **Methods** section later, the primary reason we excluded claims from the other study pharmacies was that their data was not properly formatted to allow for reliable comparisons of costs on an ingredient cost and dispensing fee basis.

[vi] https://pharmacy.medimpact.com/Upload/Resources%20Attachments/MedImpact_D0_Commercial_Payer_Sheet.pdf

[vii] https://www.caremark.com/portal/asset/D0PayerSheetCOM.pdf

[viii] https://professionals.optumrx.com/content/dam/optum3/professional-optumrx/resources/payer-sheets/2022OptumRxCommercial-Medicaid.pdf

Figure 15: Oregon Retail Pharmacy Claims Dispensed Under Each Medicaid CCO PBM (2019 – 2021)



Source: 72 Oregon retail pharmacies in study

Due to the lack of granular publicly available data around PBM market share and drug spending, we are unable to compare the experience of the 72 Oregon retail pharmacies in our study against overall state data on a per PBM basis. The Centers for Medicare & Medicaid Services (CMS) State Drug Utilization Database (SDUD) does not parse reporting by plan/payer. Rather, we are only able to make aggregate comparisons between our study pharmacies and the broader CCO program. In addition, as stated earlier, our analyzed data set does not have representation for all retail pharmacy settings such as large chain pharmacies and mail-order pharmacies, and broader population trends may vary from the sample. **As such, a limitation to this examination is that the analysis is limited to the experienced reality within the aggregated 72 retail pharmacies and the patient populations they serve**. Given that this data set represents approximately 13.5% of all Oregon retail pharmacies, our experience has taught us that general trends can directionally extrapolate across different regions and pharmacy types, but for more precision on the realities of the larger state experience, it is advised for state officials to further explore our discoveries through a broader and more detailed auditing process.

Fee-For-Service vs Managed Care

Traditional state Medicaid payment arrangements utilize a FFS structure. In this arrangement, a provider is compensated for every service rendered, typically on a defined fee schedule. Payment for every service has generated concern around efficacy, as providers could be finically motivated to overtreat since every service rendered can yield payment with few strings attached regarding the quality and value of the service. Consequently, budgeting can be more difficult with FFS models, as payers are unable to allocate a finite dollar figure to treat a member on a per month/per year basis, as utilized services may vary over time.

In recent years, many state Medicaid programs have adopted managed care arrangements as an alternative structure to provide benefits to Medicaid recipients. Managed care organizations (MCOs) are paid a capitated rate for services contracted by Medicaid. In a capitated arrangement, a managed care plan receives a set payment to provide all needed

care based on the scope of the benefit the plan provides. If a managed care plan can provide care to beneficiaries below the capitated amount, the MCO and state shares in the savings. However, if cost exceeds the capitated rate, the managed care plan bears risk and is intended to fund a portion of the excess cost along with state contributions. The underlying philosophy is that such arrangements incentivize the coordination of care and reward MCOs for ensuring their census is healthy. However, the ability of MCOs to recognize this outcome consistently is relatively unknown. (35) Further, while the system is designed on paper to make MCOs bear the risk of overspending, most MCO contracts have an explicit provision for margin, potentially blunting the cost saving effects to states (36). Regardless, the arrangement is intended to provide a more predictable spend for the state and therefore improve budgeting ability, a likely desirable characteristic for any state program.

MCOs will establish and maintain their own networks of providers from which payment rates may vary, which is a significant difference from FFS, where every provider is reimbursed at the same published rate. Also, payment may be bundled in managed care, where a provider receives a set amount for providing all needed care as opposed to billing each service separately. The holistic approach to payment is believed to remove incentives to overtreat while encouraging less costly preventive care. Many who oppose bundled payment arrangements believe the opposite occurs and rewards providers who undertreat, creating barriers for some beneficiaries from receiving all the care they may need. (35)

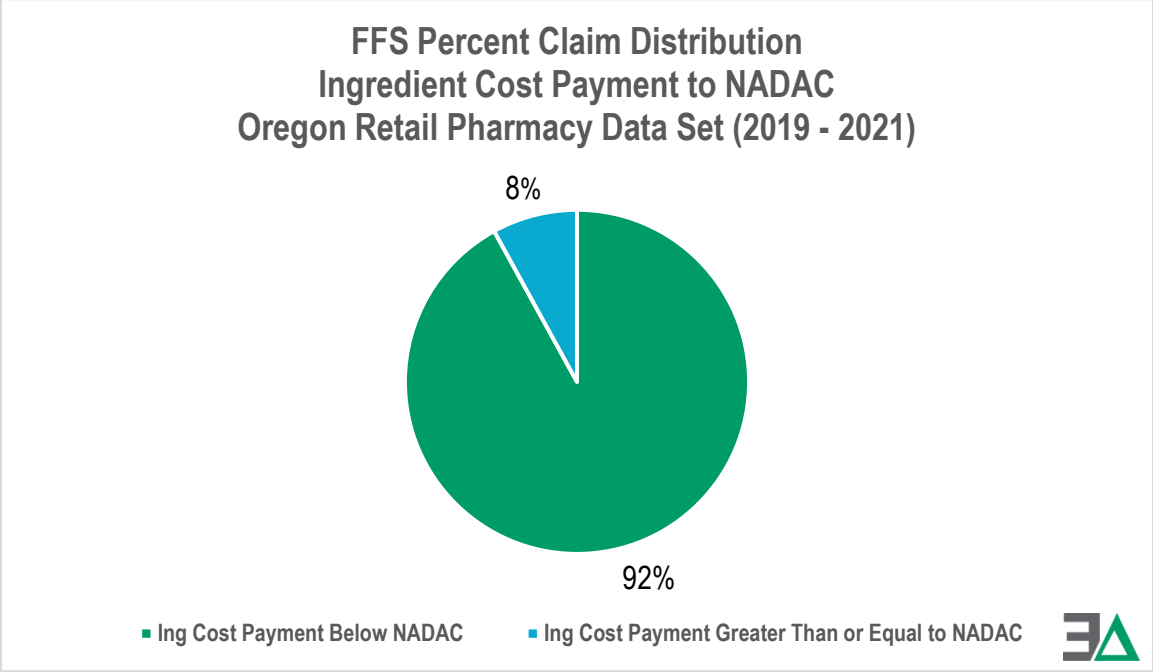
To deliver the bundle of services required under their contract, MCOs may themselves use contractors. MCOs often outsource prescription drug benefits to PBMs. As contractors, the MCO's PBM is a step removed from direct state oversight, which has proven a challenge for officials trying stay on top of pharmacy spending trends within their Medicaid programs. For example, the lack of transparency into MCO PBM pharmacy network contracting has come under significant scrutiny, as PBMs have utilized spread pricing to generate revenue by paying pharmacies low rates while reporting higher rates back to the plan and state. (37) (38) (39) (40) For example, in Ohio, PBM Medicaid managed care spread was found to be $224 million in one year, plus another $20 million captured by one of the plans itself. (41) (42) To give a sense of the size of this spread, the haul was equivalent to a cost of $42 for each of Ohio's 5.8 million tax filers.

Determining price

For state-run FFS programs, CMS requires payment to pharmacies be based on actual acquisition cost (AAC) estimates plus a *professional dispensing fee (PDF)* meant to cover the pharmacy's costs to dispense. FFS programs also are entitled to the lowest cost option in instances where a provider's U&C charges may be lower than AAC estimates plus the dispensing fee. States are given leeway in formulating AAC estimation and may establish a state-specific benchmark. For example, Alabama and Ohio have adopted their own AAC methods by utilizing surveys from providers to gauge provider procurement costs. (43) (44) However, most states have yet to invest in developing market-specific pricing benchmarks and instead rely on National Average Drug Acquisition Cost (NADAC) unit pricing. (45) For cases when drugs do not have AAC benchmarks, the drug's Wholesale Acquisition Cost (WAC) may be utilized. Drugs that default to WAC pricing must also include adjustments to reasonably estimate retail invoice costs (see NADAC equivalency learnings from **Figure 4** previously).

Oregon Medicaid currently utilizes both NADAC and a state-specific AAC pricing file for its FFS program. The data reviewed suggests the FFS program relies heavily on the state AAC file, as most claim payments were below NADAC (when a NADAC price existed) (**Figure 16** on the next page). On average between 2019 and 2021, the 72 Oregon retail pharmacies we examined experienced a FFS ingredient cost payment below NADAC roughly 92% of the time, at a mean value of $3.86 per prescription below NADAC. The rationale for this observation is that the Oregon FFS program is relying upon a system to approximate AAC beyond just relying on NADAC, which appears responsible for the observed differences to NADAC.

Figure 16: Oregon Retail Pharmacy FFS Payments Relative to NADAC (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS published NADAC

On the Medicaid managed care side, where most enrollees in Oregon Medicaid receive benefits, pricing is done differently. As a refresher, managed care plans and their PBMs are not required to adhere to the AAC payment requirements of the FFS program in Oregon. They are free to negotiate different rates for the same drug among their network of providers, which they do. Nevertheless, contracting still utilizes the "lesser of" methodology where the provider is paid at their submitted asking price (U&C) or negotiated rate set by the PBM utilizing any number of pricing benchmarks to achieve lowest net payment. States which have elected to carve in pharmacy benefits have experienced a greater dependency on PBMs when determining drug costs. In Ohio, as previously discussed, the dependency has resulted in some PBMs arbitraging prices between the provider and the state for financial gain. Such practices have led to litigation and states changing the policy that governs PBMs and in some instances, Medicaid agencies have carved back in some or all pharmacy services. (46)

Since managed care PBMs are not bound to any set price for a prescription drug (i.e., AAC), we will need to utilize pharmacy claims data to identify PBM drug price-setting trends. To do so, we will benchmark pharmacy payment against average wholesale price (AWP), the pricing metric utilized most frequently by PBMs to pay pharmacy providers.

AWP and CCO reimbursement

To begin this analysis, the medications dispensed by our study pharmacies for the three CCO PBMs and the FFS program were separated into brand and generic categories with average yearly AWP discounts calculated for each (see **Methods**). We included FFS to see how AAC payment compared to PBM pricing methodologies among Oregon's CCOs. The dispensing fees paid were removed from all claims for now to ensure the comparison was only based on ingredient cost payments. This will enable an isolated view of the prices of drugs, as set or assigned by the different program vendors. Theoretically, regardless of the program (FFS vs. CCO), the drugs purchased from pharmacy providers will largely overlap, making an ingredient cost comparison as direct of a comparison as possible.

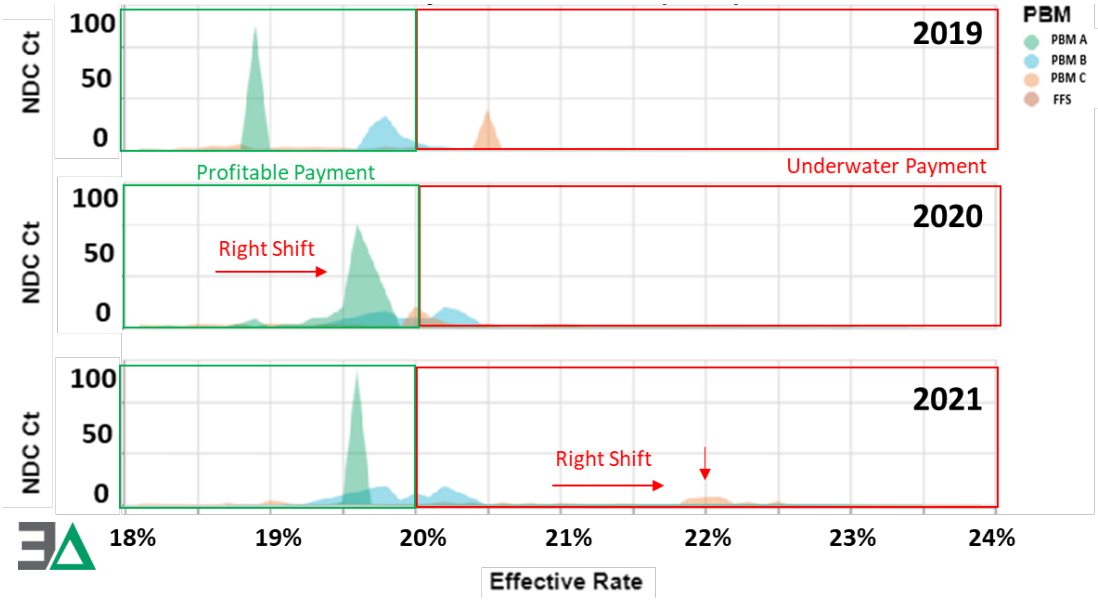
We may compare the average NADAC price to AWP discounts utilizing an equivalency chart. The AWP to NADAC equivalency is the rate at which the mean AWP invoice discount equals NADAC survey prices in the aggregate. The

equivalency chart we've previously reviewed (**Figure 4**) is published by Myers & Stauffer, the contractors who administer NADAC surveys on behalf of CMS. According to the equivalency chart, the median AWP discount for the quarter ending in June 2022 is AWP less 20.0% for brands and AWP less 89.6% for generics. This indicates in that quarter, the median invoice price retail pharmacies acquired brand drugs for was at an AWP less 20.0% equivalency.

Brand

To demonstrate the relationship between the two predominant benchmarks used to pay for drugs, an area plot was created where the average discount for each National Drug Code (NDC) by payer was recorded (**Figure 17**). To refresh, a drug's NDC is a unique three-segment number supplied to the FDA by manufacturers for each drug they produce. The uniqueness of each NDC enables a standardized identifier that may be used to distinguish each drug much like the way Social Security Numbers can be used to identify U.S. workers. The x-axis indicates the average AWP discount while the y-axis offers the count of NDCs for each PBM. The peaks of each color represent the count of NDCs at each AWP discount point for each PBM. This graph, therefore, lets us broadly contextualize payment for brand drugs on a per product basis. For example, the tall green peak of PBM A for the year 2019 on the brand chart represents roughly 80 NDCs reimbursed at an average AWP discount of approximately 18.75% – what we might consider the average brand reimbursement at that time.

Figure 17: Oregon Retail Pharmacies Brand AWP Discounts by Oregon Medicaid PBM per NDC (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS published NADAC Equivalency, Medi-Span AWP

Within **Figure 17,** a red box was placed to the right of the median AWP to NADAC equivalency while a green box was placed to the left. Any point inside the red box represents pharmacy reimbursement at an AWP discount greater than a retail pharmacy's estimated cost to acquire the product dispensed. For example, when the NADAC to AWP equivalence is AWP less 20% and NDCs were reimbursed to the pharmacy at AWP less 22% (depreciated with a red arrow in **Figure 17** for year 2021), the payment was at a rate that was an AWP discount 2% greater than what can be assumed the pharmacy purchased the drug for (20% - 22%). So, for a drug with an AWP of $100, the pharmacy would have purchased the drug for $80 ($100 x (100% - 20%)) but would have received $78 ($100 x (100% - 22%)) or $2 less than the estimated cost to acquire. We typically refer to such claims as *underwater claims*, or transactions that adjudicate at rates that are below the pharmacy's opportunity to purchase the drug. Alternatively, color areas in the green box represent an AWP payment greater than the likely cost to acquire and thus, yield a margin to the pharmacy.

Several trends may be identified within **Figure 17**.

First, there is a shift to the right over time. The shift demonstrates declining brand reimbursement to retail pharmacies from 2019 to 2021. To maintain previously yielded margins, pharmacies would need to improve brand purchasing discounts from wholesalers yearly to keep up with the rate of decline. The static median NADAC line in **Figure 17** (derived from the NADAC equivalency chart in **Figure 4**) illustrates that retail community pharmacies have been unsuccessful, in the aggregate, in improving their brand purchasing over time to keep up with the observed reimbursement trends in **Figure 17**.

Second, PBMs are increasingly reimbursing community pharmacies for brand drugs at discounts below the typical pharmacy's ability to acquire those drugs. Particularly within Medicaid by PBM C, which in 2021 had a significant number of covered brand drugs reimbursed at roughly an AWP less 22%, which is around 2% below the median prices paid by pharmacies to acquire the drugs. Further reviewing 2019 reimbursement illustrates that rates were more in line with the estimated pharmacy cost to acquire. PBM A reimbursed largely at a rate close to AWP less 19% (an estimated gross margin of 1% of AWP) but decreased the rate to roughly AWP less 19.5% (an estimated gross margin of 0.5% of AWP) in 2021. Although both rates represent a potential profit to a provider, the provider's gross margin was effectively cut in half (roughly $0.50 per $100 AWP as opposed to $1.00 per $100 AWP).

Third, we can also see that each PBM has different peaks, further illustrating the variability in pricing across plans. Said differently, regardless of the underlying drug dispensed, equitable margin across products would produce the same peaks, but that is not what we are observing here. In the case of PBM A and PBM C, the price variance is as much as 3% of AWP for the same drug. To contextualize the impact, consider the average brand AWP dispensed by the retail pharmacies in our study for Oregon Medicaid payers was $693.52 per prescription over the three-year period on 114,743 transactions. A difference of 3.0% of AWP on average represents $31,873 in revenue per pharmacy or $20.80 per brand transaction.

Lastly, we can generally identify that pharmacy margins for branded prescriptions are near or below the median price to acquire. Trends indicate that PBMs are successfully increasing brand drug reimbursement pressure yearly, but retail pharmacies have been unsuccessful at securing steeper brand drug wholesaler discounts to keep up with the rate of reimbursement decline. This margin compression on the brand side creates disincentives for pharmacies to stock and dispense brand medications and could cause pharmacies to be more reliant on margins yielded through generic drug dispensation to subsidize the diminishing profitability from dispensing branded drugs (more on this concept later).

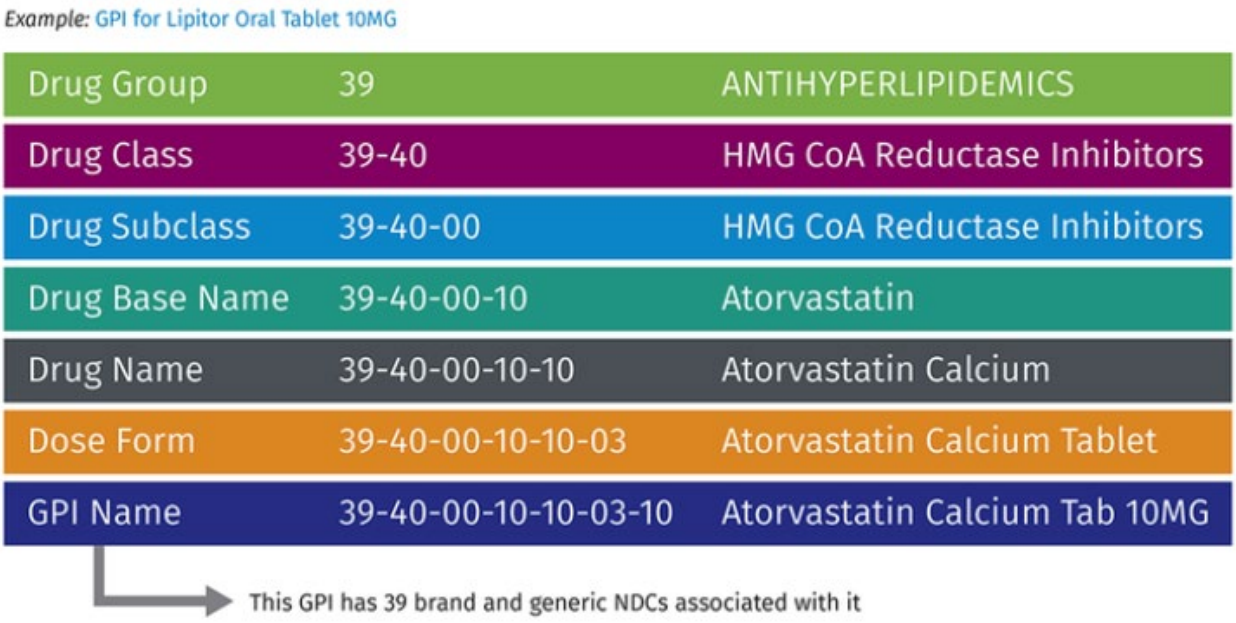
Ultimately, if the savings from these more aggressive negotiated rates are making their way back to the state, then it could be argued that in a broad sense, the PBMs are successfully using their negotiating leverage to drive savings to the state Medicaid programs, such as Oregon. However, to the degree that the state prefers lower net cost brands over generics within their Medicaid formulary design (i.e., brand preferred over generic alternatives), these growing disincentives for brand dispensing could work against the state's interests in pursuit of maximizing manufacturer rebate concessions to achieve the lowest net cost option. Specifically, Medicaid drug programs across the country have access to the lowest possible net price on brands through the *Medicaid Drug Rebate Program (MDRP)*. The design of MDRP creates instances where Medicaid's net cost for a branded drug is lower than the generic alternative for that same drug (i.e., an atypical arrangement in the broader drug distribution market). We know from federal Congressional investigations, such as those led by Senator Ron Wyden of Oregon, that dozens or more drug products have reached MDRP maximum rebates (meaning they are, in a broad sense, relatively free to state Medicaid programs). (47) (48) Even the cheapest generic will not be more cost-effective than a free branded product through the MDRP. We can see evidence of Oregon Medicaid recognizing this exact dynamic. The July 1, 2022, the *Preferred Drug List (PDL)* for Oregon listed nine products where the brand is specifically preferred over generic alternatives. When we consider that state Medicaid programs have access to some potentially free drugs, it can work against state interests when

unsustainable pharmacy reimbursement structures for brand products jeopardize patient access to these low-cost product options for states. Said differently, it seems counter-intuitive that pharmacy reimbursement incentive alignment would be at odds with state goals to dispense the products that achieve the lowest net cost.

Generic

Reimbursement yields for generic drugs have a much greater range than brands. Generic drugs are most often reimbursed at an AWP discount or MAC rate, whichever is lower. To examine these trends, we performed a similar analysis as with brand drugs. However, unlike brand drugs where a group of NDCs can be attributed to one manufacturer (and one set of drug reference prices), generics have many manufactuers with many potential drug reference prices (i.e., AWP). To address this, generic drugs were grouped by Medi-Span's *Generic Product Identifier (GPI)* rather than on an NDC basis. GPI is a classification system provided by Medi-Span that groups NDCs in a hierarchy. (49) The relevance is the ability to take drugs that are "like" (ex: same chemical, strength, dosage form) and assign a common identifier to the NDC. Now, if we are looking for information on say atorvastatin 10 mg tablets (generic Lipitor), we may use a single GPI number as opposed to working with each NDC (which happens to have approximately 39 unique NDCs) (**Figure 18**).

Figure 18: Medi-Span GPI Example



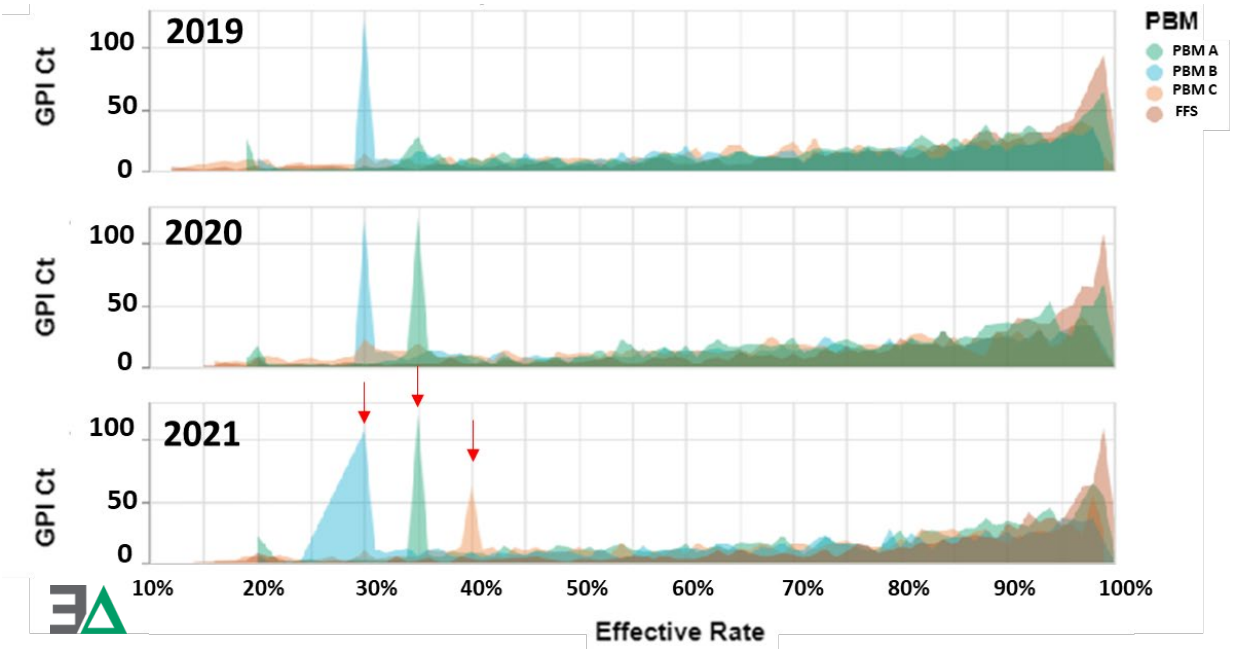
Sources: Medi-Span Generic Product Identifier (GPI)

Therefore in **Figure 19** (on the next page), each peak of each color represents the count of GPIs (represted by the y-axis) for a given AWP *effective rate* (shown on the x-axis), color coded for a specific payer (PBM). Take for example the first large blue shaded peak for 2019 that represents PBM B. The peak has a y-placement at approximately 120 and x-placement of 30%. The correct interpretation would be, "PBM B has roughly 120 GPIs of which the average effective rate was AWP less 30% in 2019."

Moving to the bottom 2021 chart in **Figure 19**, the red arrow indicates the likely established AWP discount for GPIs in 2021 by the different Oregon CCO PBMs. For generics, even when AWP is triggered as the reimbursement methodology benchmark, the price may vary by as much as 10% of AWP. Noticibly lacking is a spike from the FFS program in the 30% to 40% range. This is due to the FFS program utilizling AAC as a reference point for drug ingredient

reimbursement. We can see that FFS has the largest peak of any payer between the 95% to 99% range, suggesting that the FFS program receives the largest number of GPIs at the greatest AWP discount.

Figure 19: Oregon Retail Pharmacies Generic AWP Discounts by Medicaid PBM per GPI (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, Medi-Span AWP

Points outside the AWP peaks on the right (i.e., red arrow in 2021) are most likely drugs that are part of PBM MAC lists. In contrast, the red arrow peaks might represent negotiated rate payments for claims not subject to MAC rate pricing. The majority of generic drugs fall into this classification (i.e., to the right of the red arrows). MAC lists are intended to encourage competitve buying by pharmacies. This is because a generic drug's list price (as quantified by WAC or AWP) often can not be relied upon to to ascertain pharamcies' cost to acquire (as discussed in detail in the **Introduction to drug pricing benchmarks** section earlier). PBMs attempt to direct pharmacies to purchase the lowest net cost product by conducting market reasearch and setting a standard per unit rate for a particular generic drug from which a pricing benchmark such as WAC or AWP will not materially factor into the set MAC price. If the pharmacy is unable to secure a product at the MAC rate set by the PBM, they will experience an underwater claim.

According to the Academy of Managed Care Pharmacy (AMCP), "MAC pricing is designed to promote competitive pricing for pharmacies as an incentive for them to purchase less costly generic drugs available in the market, regardless of the manufacturer's list price, since manufacturers will charge different amounts for equally interchangeable generic drugs. If a pharmacy purchases the higher-priced product, it may not make as much profit or, in limited instances, may lose money on that specific purchase" (50)

The philosophy behind MAC and other cost-based reimbursement methodologies sounds logical, but the practicality of a pharmacy to acquire the lowest cost for a significant number of generic drugs may be more complicated due to incentives borne out of the drug wholesaler channel. We will investigate such incentives as we progress through the data analysis sections.

Why an understanding of pricing benchmarks is critical to understanding drug costs

To recap, we have learned that there are multiple drug pricing benchmarks that may be utilized to establish prices. The pricing benchmarks discussed included AWP, WAC, MAC, U&C, and NADAC; however, this list is in no way all-inclusive. The variability in determining cost has led to many different price estimations for the same drug, even on the same day, at the same pharmacy, and even for the same PBM.

Manufacturers of brand and generic drugs offer discounts at different points within the drug supply chain, which can influence the retail price at the pharmacy.

> Brand drugs are mainly discounted after the sale of the drug and between the PBM and manufacturer. The result is often that consumers and payers are exposed to the drug's list price (WAC) and rely on a PBM to equitably distribute any negotiated rebates and discounts accrued from the manufacturers.
>
> Generic drug rebates/discounts are mainly recognized between the manufacturer/wholesaler/pharmacy relationship. As most of the discounting occurs before the sale of the prescription, cost exposure for consumers and payers may be reduced (when compared to brand drugs), but only if the discounts are passed equitably through the drug supply chain and are reflected in the retail price.

When comparing brand drugs to generic drugs, retail prices for branded drugs are not nearly as competitive in Medicaid (see **AWP and CCO reimbursement** section above). In general, pharmacies acquire brand drugs at a list price discount of WAC less 4%, which is the equivalent to AWP less 20% (see AWP to NADAC equivalency, **Figure 4** previously), and Medicaid PBMs' gross reimbursement to pharmacies are largely reflected within 1-2% of the AWP to NADAC equivalency (see **Figure 17** in comparison to **Figure 4**). In comparison, retail pharmacies purchase generic drugs at costs that range between 10%, all the way up to 99%, off the AWP (51). In fact, most generic drugs have pharmacy invoice costs that eclipse discounts of more than 90% off AWP (again, see median AWP equivalency for generics in **Figure 4**).

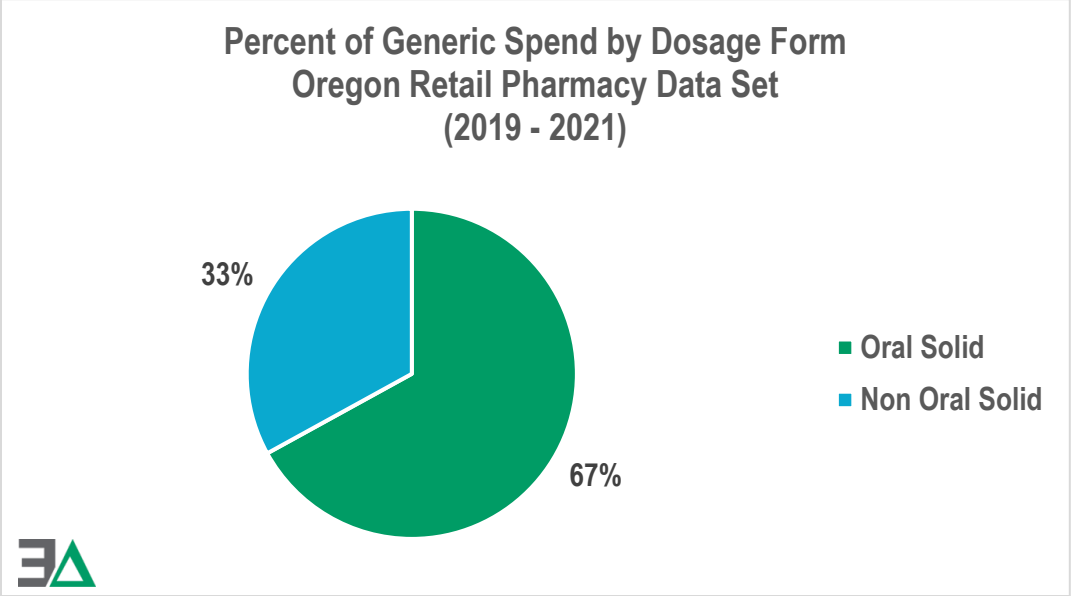
The greater competition and range in discounts create challenges when attempting to estimate the price a pharmacy will pay to acquire a generic medication. PBMs often attempt to overcome unreliable AWP pricing benchmarks for generic drugs by utilizing their own market analysis, establishing a MAC per unit rate. The usage of MAC methodology can be controversial though, as PBMs are often not held to any objective and consistent pricing method when assigning MAC values. This can result in MAC rates that are significantly higher or lower than what the average actual acquisition cost the pharmacy incurred when purchasing or restocking the generic medication. The multitude of prices that MAC lists generate creates ambiguity around price that often results in plan sponsors and other end payers of prescription drugs increasing their reliance on PBMs to establish what a drug's price is, regardless of what the true acquisition cost paid by the pharmacy is. Said differently, if the process is complicated for the experts, given the varying buying power and purchase terms of a network of pharmacies, it is often easier for payers to outsource the responsibility of establishing payment rates for generic medications.

Moving forward, we will dive into Oregon retail community pharmacy claims and attempt to identify what trends or incentives may exist between PBMs and their network of pharmacies.

Generic oral solid reimbursement

Limiting the data to generic *oral solids* is useful for analysis purposes, as it represents most of the drug utilization. Within Oregon, generic oral solid dosage forms represent 91% of all generic prescriptions and 66% of total generic spend within the analyzed Oregon pharmacy data set for Medicaid. (**Figure 20**).

Figure 20: Percentage of Oregon Retail Pharmacies Medicaid Claims Meeting Generic Oral Solid Definition (2019 – 2021)



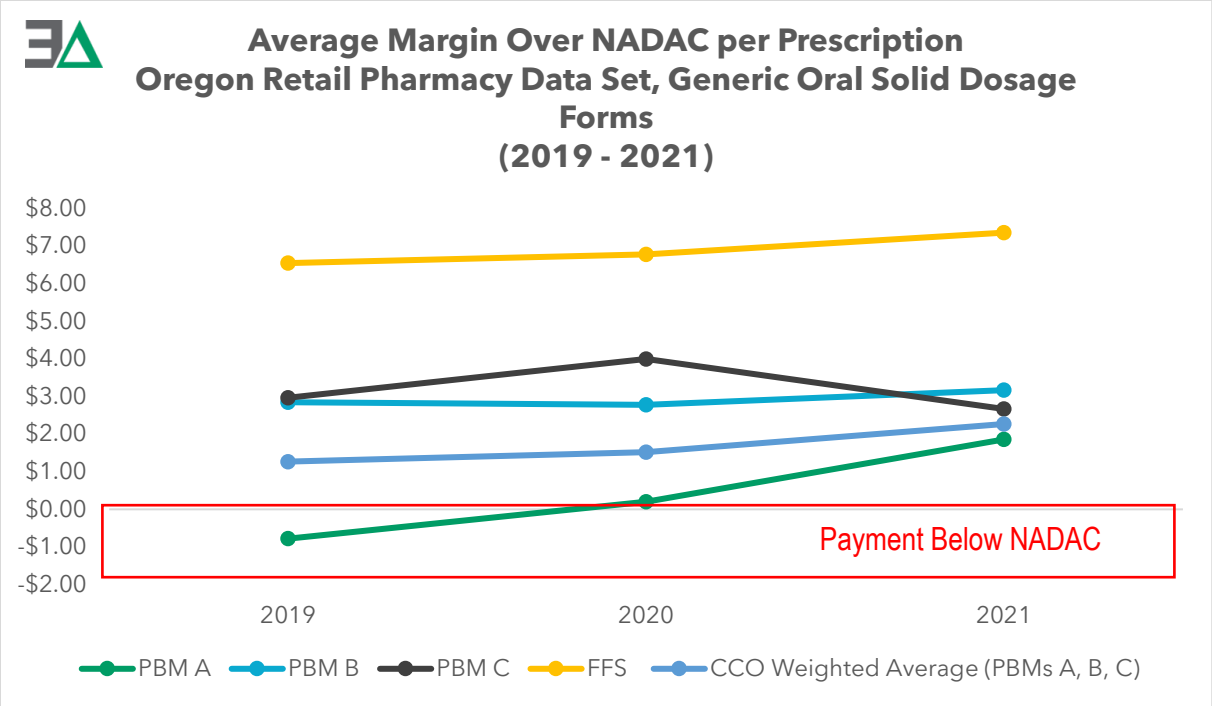
Sources: 72 Oregon retail pharmacies in study, Medi-Span Drug Definitions, 3 Axis Advisors, LLC

Oral solid dosage forms require the least data cleaning for analysis, as each billable unit is uniformly represented as a single integer. For example, one tablet (an oral solid dosage form) of atorvastatin would be represented as one billable quantity. This is not always the case with liquids, topicals, devices, or packages, whose billable units may be counted differently by different systems. A government study performed by the GAO has previously confirmed the issues with unit mismatches between systems (i.e., billing units vs. unit of use vs. rebate units, etc.). (52) Consider a generic EpiPen®, in which the standard package contains two pens. At times, one software system may recognize the billable unit as one box or two pens (one unit would equal two pens) while another may parse the box where one billable unit represents one pen (one unit would equal one pen). In such cases, additional data cleaning and filtering must be completed. We performed such a process in later analysis, but to offer a level of analysis as close to the raw data as possible, we felt there was value in performing a base analysis on the largest grouping of drugs. We initially compared how each PBM's provider reimbursement compared among one another by determining average *margin over NADAC* per prescription for each of the three CCO PBMs and the fee-for-service (FFS) program by taking:

Average Margin = Ingredient Cost Paid + Dispensing Fee Paid – NADAC

Analysis suggests that between 2019 and 2021, the mean FFS margin over NADAC increased 12.4% for generic oral solids ($6.55 to $7.36 per prescription) while the CCO average increased 44.0% ($1.27 to $2.27) (**Figure 21** on the next page). The FFS program's average margin over NADAC was 3.2 times higher than that of the CCO average ($7.36 vs $2.27) in 2021. The payer with the largest dispensing fee provided the greatest overall margin over NADAC (i.e., FFS performance in **Figure 21**). The comparison between FFS performance and CCO performance (i.e., PBMs A, B, C in **Figure 21**) further suggest that as pharmacy payment relies on subjective reimbursement predicated on highly variable and fungible drug ingredient cost calculations, equitable margin payments among the diversity of drugs dispensed may diminish.

Figure 21: Average Margin for Generic Oral Solids in Medicaid for Oregon Retail Pharmacies (2019 – 2021)



Medicaid Payer	2019	2020	2021
CCO PBM A	-$0.78	$0.20	$1.86
CCO PBM B	$2.85	$2.78	$3.17
CCO PBM C	$2.97	$4.00	$2.67
FFS	$6.55	$6.78	$7.36
CCO Weighted Average	$1.27	$1.52	$2.27

Sources: 72 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

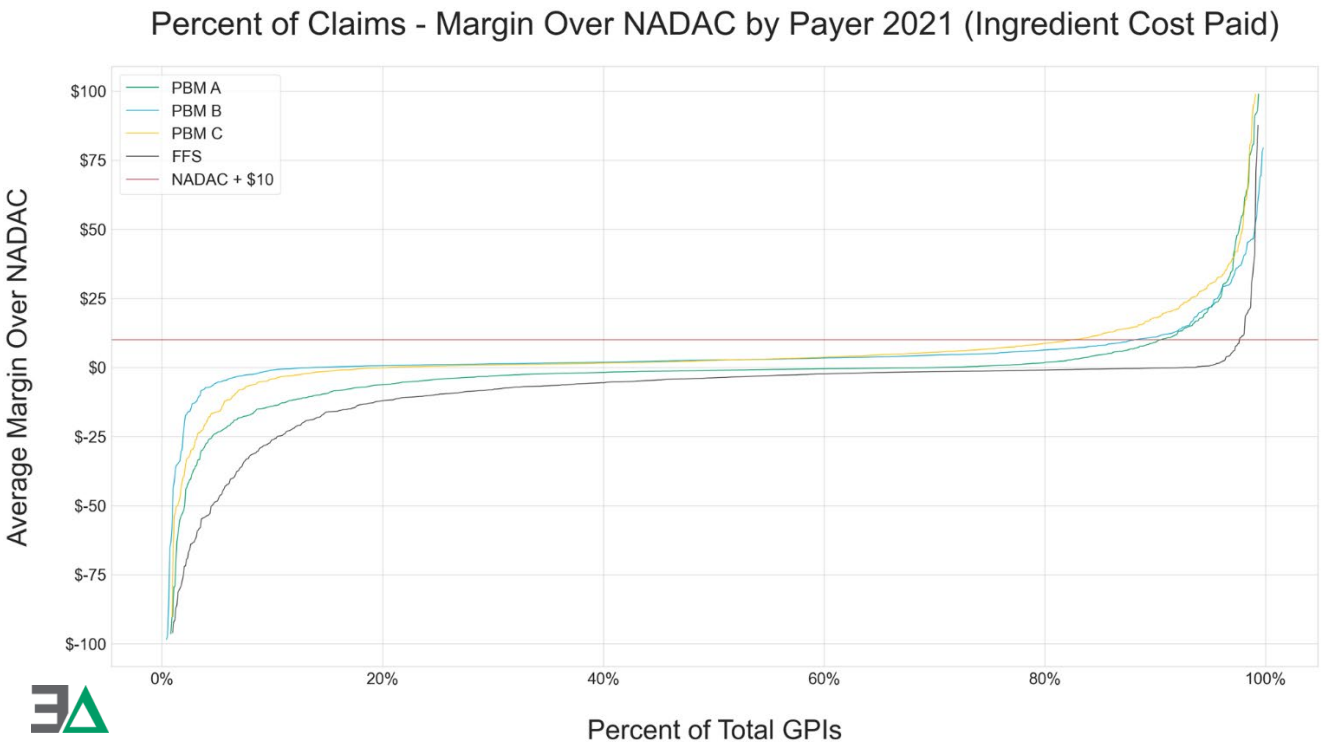
Generic margin over NADAC

Now that we have established margin above the pharmacy's acquisition cost, we need to identify how ingredient cost payment compared to *cost of goods sold (COGS)* to estimate pharmacy gross margin. To do so, we will use NADAC to estimate COGS. As previously mentioned, NADAC provides an estimated retail invoice cost for pharmacies to acquire medications based on voluntary pharmacy pricing survey results conducted on behalf of CMS. Using NADAC does have limitations, as some drugs are not captured within the survey, some pharmacies do not respond to the survey, and off-invoice discounts that pharmacies can receive from wholesalers are not captured. However, the benchmark is still the best publicly available pricing benchmark to approximate average pharmacy invoice acquisition costs and track directional trends of drug costs over time.

We first determine the margin over or under NADAC for all NDCs (excluding dispensing fee). To do so, the actual ingredient cost paid to the pharmacies in our study was subtracted from each NDC's NADAC and divided by the number of prescriptions to get to an average margin over NADAC for each NDC. Next, a graph was constructed (**Figure 22**) in which the average margin over NADAC for each NDC was graphed on the y-axis. The x-axis represents the cumulative running percent of claims for a given PBM. A red dotted line was horizontally placed at the $10 mark to provide a visual representation of the national estimated cost to dispense (NADAC plus a $10 margin). The data was sorted in ascending ranking by margin over NADAC. The chart contains only solid dosage forms. Both brand and generic drugs

are represented, as the cost to dispense (i.e., pharmacy labor and overhead costs) should not vary significantly between the two drug categories.

Figure 22: Oregon Retail Pharmacies Margin Over NADAC by Medicaid Payer - Distribution of Claims (2021)



Sources: 72 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

The figure illustrates an extreme cliff and peak at the respective ends of potential products, illustrating how a few products either offered significant margins below or above NADAC regardless of payer. Most transactions did not provide enough of a margin over NADAC to cover the national estimated pharmacy cost to dispense, as indicated by the portion of lines that fall below the red line. Ingredient cost paid does not exceed estimated cost of dispensing until roughly the 97th percentile (roughly 3% of all NDCs).

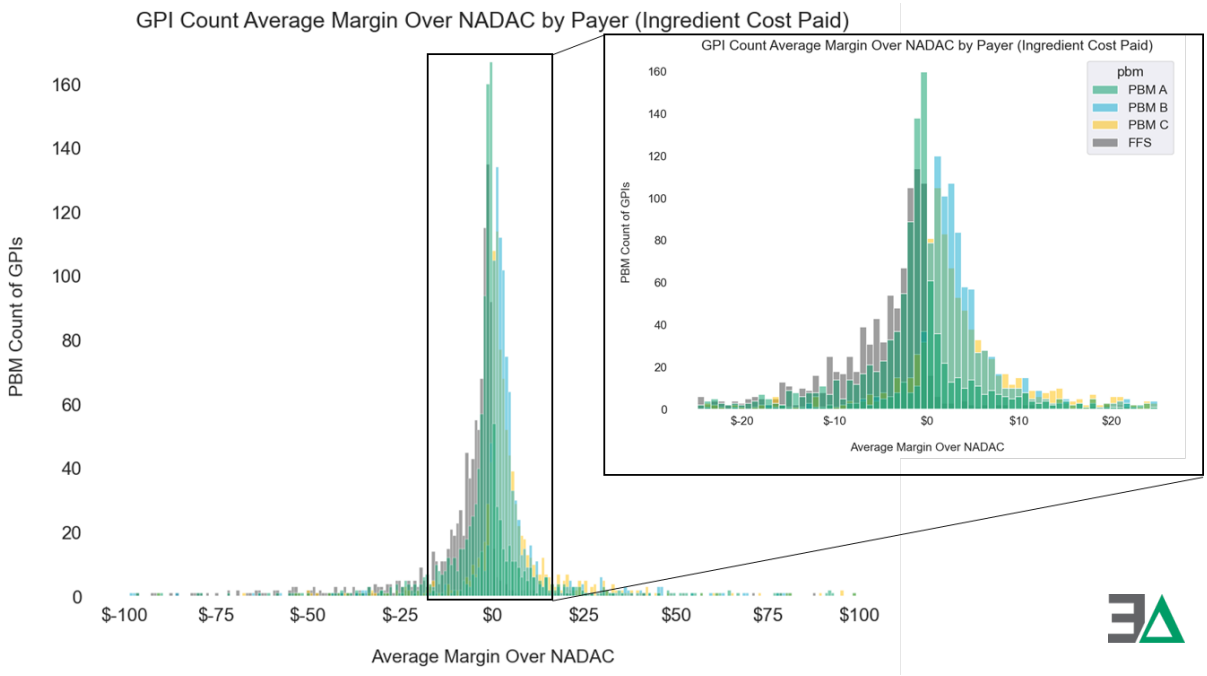
The extreme cliff and peak at the ends of the chart illustrate the lack of equity in the setting of price both from a pharmacy reimbursement perspective. An equitable chart would be one that has a relatively flat slope with no meaningful cliffs or peaks. In such a scenario, the provider would not be placed in a situation where a single transaction may decimate (cliff) or balloon (peak) financial fortunes. In the current Oregon Medicaid CCO market as illustrated, subjective reimbursement relative to the drug's cost is pervasive. The PBM acting as the price setter has an immense role in determining how and where reimbursement margins will be distributed. It may be worth considering if such an arrangement optimizes value for all stakeholders and if incentives are aligned in an adequate way to meet plan sponsor goals and broader public health priorities.

The above data was graphed a second time as a histogram to provide an alternative lens to view the data (**Figure 23** below). A histogram looks like a bar chart but provides insight into frequency distribution. Specifically, in the case of the analyzed data, the frequency of the average margin over NADAC for each GPI by a specific PBM. We included

two variations. The first is a zoomed-out view while the second is a zoomed-in view. Regardless of view, both represent the same data.

Figure 23 illustrates that the tallest bar by PBM B has a y-axis peak near 160 GPIs and an x-axis bar position between (-$0.50) and $0. One may conclude from this data point that PBM B had around 160 GPIs that reimbursed providers at an average margin over NADAC between (-$0.50) and $0. The histogram further illustrates most products (on a GPI basis), regardless of PBM, reimburse below an estimated cost to dispense of $10 per prescription. This is visually illustrated by the majority of the histogram bars occurring to the left of the $10 mark. Additionally, for some PBMs, most GPIs result in payments that fall short of a pharmacy's estimated cost to acquire medications identified with bars that are left of the $0 mark.

Figure 23: Histogram of Average Margin Over NADAC by Oregon Medicaid Payer, Oregon Retail Pharmacy Data Set (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

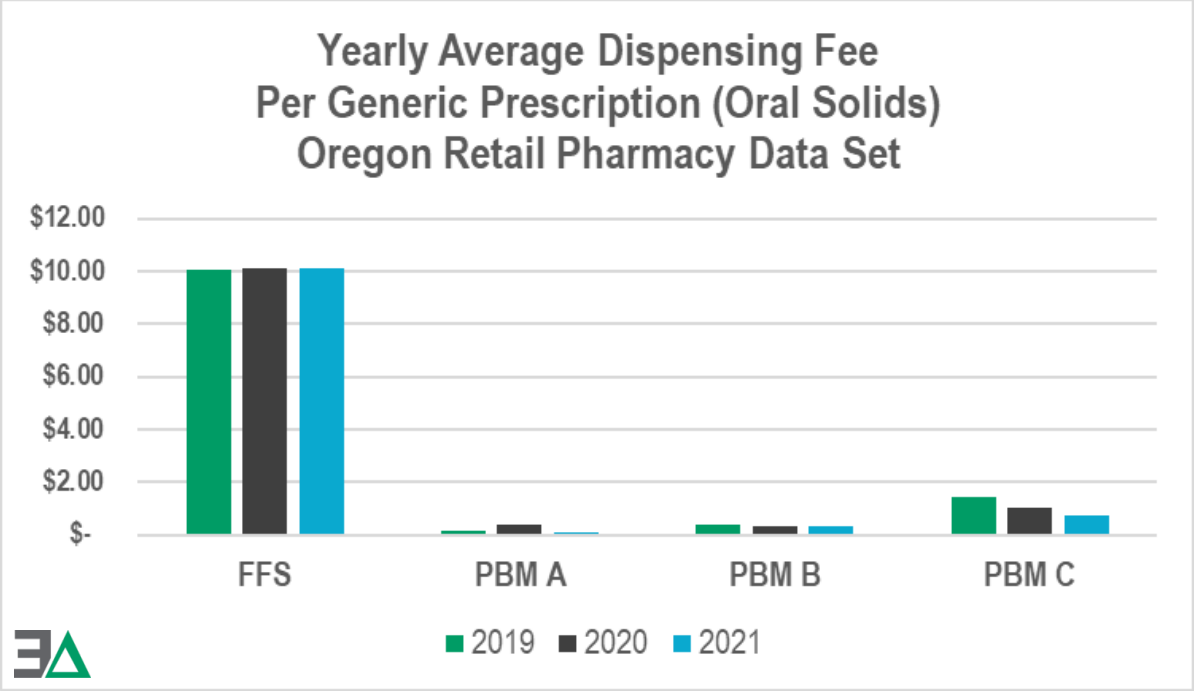
Brand and generic dispensing fee payments

Thus far, we have focused on how much money a pharmacy is making relative to its acquisition cost via the payer set ingredient cost reimbursement. However, we know from our prior review of how pharmacy claims are paid that many claims will include reimbursement beyond just the cost of goods. The next most common form of reimbursement a pharmacy receives is a dispensing fee. A dispensing fee is a fixed cost per service (the service may be differentiated by brand, generic, retail, mail, etc.) that covers costs outside the dispensed product. For pharmacies, this is often the labor, supplies, and overhead component of reimbursement. However, as will be seen, dispensing fees within pharmacy are on a downward trajectory in Oregon.

To aid in understanding, we will keep the dispensing fee analysis to generic oral solids like we started our previous analysis of ingredient cost reimbursement. An analysis of claims data from the 72 Oregon retail pharmacies in our study determined that the mean dispensing fee paid within Medicaid FFS for generic prescriptions ranged between $10.03 to $10.11 per transaction yearly (see **Figure 24**). However, dispensing fees through the Medicaid CCO plans

were significantly less and varied by PBM from a low of $0.11 to a high of $1.44 per transaction. In addition, the weighted mean dispensing fees for CCO plans declined 50% between 2019 and 2021 from $0.63 to $0.32 per transaction, as can be seen in **Figure 24**.

Figure 24: Oregon Retail Pharmacies Generic Oral Solid Dispensing Fee Trends in Oregon Medicaid (2019 – 2021)

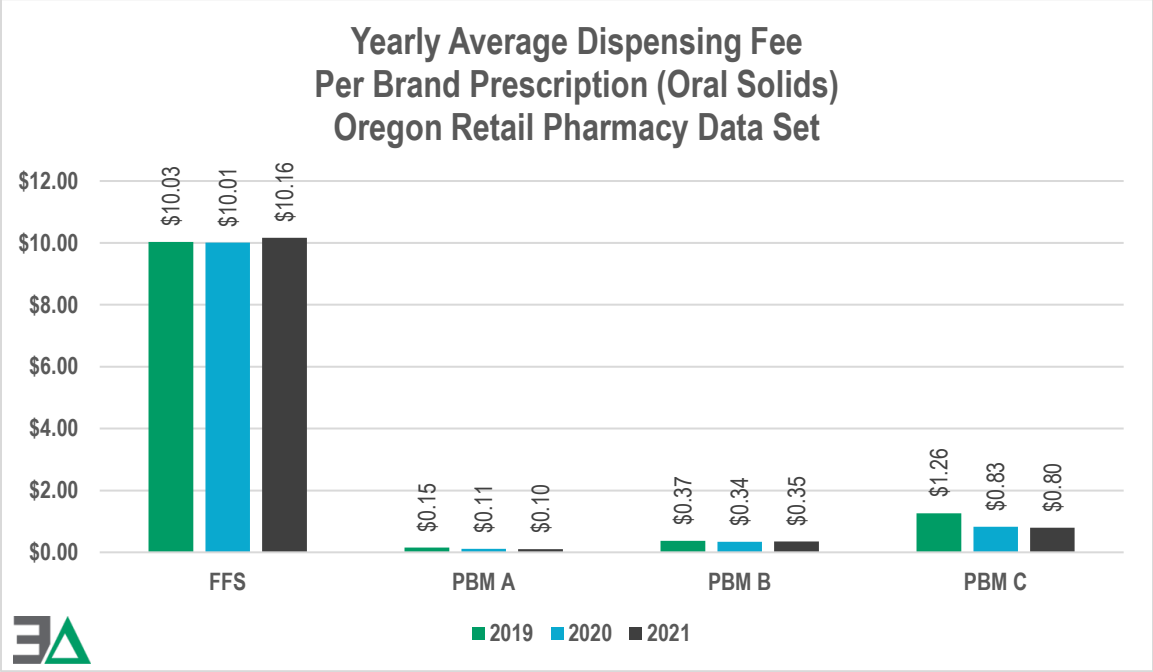


Year	FFS	PBM A	PBM B	PBM C
2019	$ 10.03	$ 0.15	$ 0.37	$ 1.44
2020	$ 10.08	$ 0.37	$ 0.33	$ 1.01
2021	$ 10.11	$ 0.11	$ 0.33	$ 0.72

Sources: 72 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

While the above analysis is limited to generic drugs, the learnings are not significantly different if we analyze brand oral solids. As can be seen in **Figure 25**, the Medicaid FFS program dispensing fees increased slightly between 2019 and 2021 from $10.13 to $10.16 per prescription while CCO plans varied from a high of $1.26 per prescription from PBM C in 2019 to a low of $0.10 per prescription from PBM A in 2021. The weighted CCO average dispensing fee per prescription declined in a similar fashion as with generics, from the high of $0.58 in 2019 to a low of $0.31 in 2021.

Figure 25: Oregon Retail Pharmacies Generic Oral Solid Dispensing Fee Trends in Oregon Medicaid (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

If dispensing fees are intended to cover pharmacy costs outside of the drug itself, the value of pharmacy services being recognized in Oregon has declined over the last three years in the aggregate based upon the dispensing fee data (outside of the FFS program, which is the only program associated with a net increase over the three-year period).

While we have thus far broadly contained our analysis to the information available to us from the 72 Oregon retail pharmacies within this study, Medicaid provides a unique opportunity to compare trends within our approximate 13.5% of the retail pharmacy market in Oregon to the broader Oregon pharmacy marketplace.

Retail pharmacy to SDUD comparison

One of the few public tools available to research retail drug payments to outpatient pharmacies is the Medicaid State Drug Utilization Database (SDUD) hosted by CMS. Each state Medicaid agency is required to report drug payment information to CMS on a NDC level. Payment is broken out by whether the dispensed drugs were paid for by fee-for-service (FFS) or managed care (MCO) models. Included in payment information are units reimbursed and number of prescriptions on a per quarter basis. The raw files are publicly available and may be accessed at data.Medicaid.gov.

The database has known limitations. For example, reported transactions with low utilization (less than 11 transactions per quarter) are masked out of an abundance of caution to protect any approximation of the identity of the beneficiary. (53) As a result, researchers and analysts using the data files may be unable to match a degree of retail pharmacy claims to SDUD-reported payments. Furthermore, by CMS instruction, SDUD should not include payments for drugs acquired via the 340B program. (54) One of the primary purposes of SDUD is to monitor drug rebate collections by state Medicaid programs through the Medicaid Drug Rebate Program (MDRP). Medicaid programs have an obligation to identify and exclude *340B claims* from their rebate collection process; so, this requirement to exclude 340B claims from rebate calculations *should* result in SDUD not having these unique claims within the data. From our experience, most 340B claims are for brand drugs. (55)

Depending on payer arrangement, payments for 340B-eligible claims to a pharmacy may reflect substantial manufacturer discounts. For example, following the finalization of the Covered Outpatient Drug rules, Medicaid programs must ensure that payments they make do not exceed the 340B ceiling price. Such payment arrangements can be significantly less than typical market arrangements. We have already discussed how pharmacies acquire brands at a typical discount of WAC less 4% (based upon NADAC data, see **Figure 4**). The Texas Medicaid approach to 340B reimbursement suggests that 340B providers may acquire brand drugs for a WAC less 57% discount in the aggregate (based on their formula to pay 340B providers) (see **Figure 26** below). (56)

Figure 26: Texas Medicaid 340B Reimbursement, FFS program

Fee-For-Service Medicaid, CSHCN, HTW, and KHC

Beginning June 1, 2016, HHSC bases the reimbursement methodology for calculating the ingredient cost of 340B drugs for pharmacy claims paid to the covered entities on the Wholesale Acquisition Cost (WAC). The information below identifies the drug categories and reimbursement methodologies.

Category	Reimbursement
Human Immunodeficiency Virus products	WAC minus 40 percent
Hemophilia products	WAC minus 32 percent
Brands and generics	WAC minus 57 percent

New drugs on the market less than six months are added to the formulary at WAC minus 23.1 percent. This methodology is not all-inclusive, and HHSC may price some products manually.

Source: Texas Vendor Drug Program, Pharmacy Provider Manual p-13. 340B Resources

Ultimately, if claims paid at 340B acquisition prices are included with traditional payment data, potential discounted 340B payment may reduce reported aggregated retail pharmacy payment rates within the SDUD. For example, if the typical brand reimbursement off a $100 WAC price product is $100, the 340B acquisition cost payment for the same product would be only $43, pulling down the apparent average reimbursement for the product based upon the pharmacy provider type. For this reason, we excluded brand NDCs whose average AWP-reported discount in SDUD exceeded 35% (15% greater than the median AWP to NADAC equivalency, see **Figure 4**). In addition, to limit comparison to the most likely outpatient retail drug set, **only GPIs with established NADACs were included to limit products to community-based pharmacy usage**.

However, limiting the SDUD to just low aggregate brand payments was insufficient to address all identifiable issues with the comparable data (see GAO 17-173). At times, SDUD had clear variances in standardized reporting (ex: one pack vs number of billable units) when compared to the analyzed Oregon retail pharmacy claims (as highlighted earlier in the earlier EpiPen® example). In such cases, the NDCs were excluded from the analysis. SDUD reporting does not parse payment by PBM or managed care plan. For this reason, it is not possible to provide a comparison at the PBM or plan level. Payment is reported on gross expenditures and does not separate ingredient cost payment from dispensing fee payment. Therefore, **all payment analysis involving SDUD reporting are based on total reported reimbursement (dispensing fee paid + ingredient cost paid)**. Lastly, SDUD reporting for drugs that likely included bundled inpatient payment arrangements were excluded. For example, consider the drug methadone. Within the

analysis, it was identified that methadone was one of the top five generic drugs dispensed within the Oregon Medicaid system both in number of prescriptions and total generic spend. Further analysis determined that the analyzed retail pharmacy data set experienced a significantly lower payment rate per unit than average reported amounts in the Oregon SDUD. Further investigation by 3 Axis Advisors revealed that the SDUD reporting included both retail pharmacy payment and payment to rehabilitation facilities, which received a bundled rate for the drug and patient care. For this reason, methadone and other similar drugs with inpatient bundled payment arrangements were excluded.

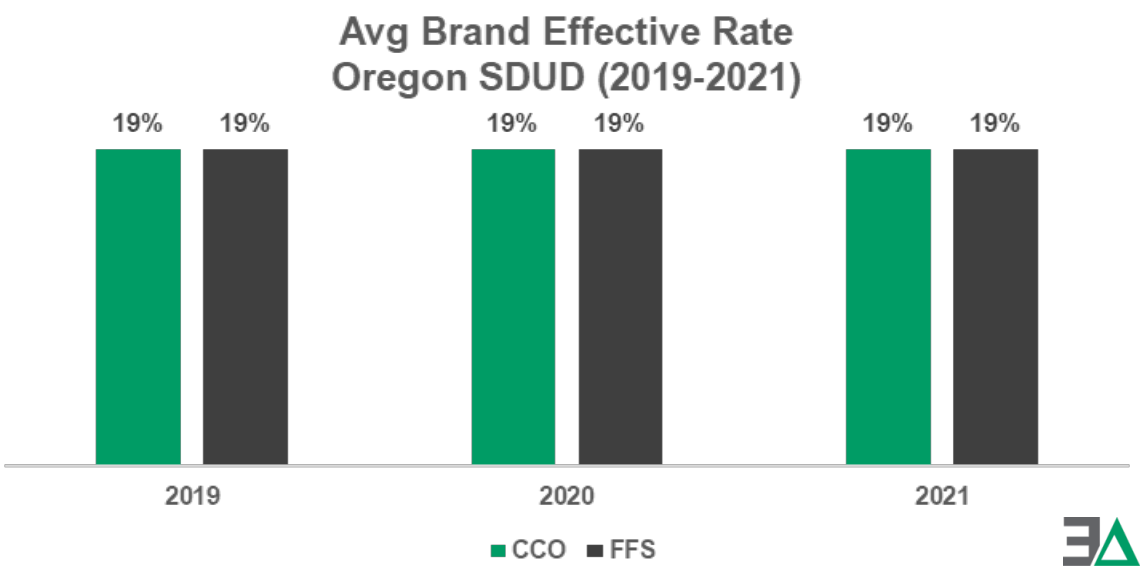
We encourage readers to review our detailed **Methods** section at the end of this report to fully understand what efforts were undertaken to ensure as reasonable of a comparison could be made. However, our assumptions underscore the potential need for a more precise analysis with a more comprehensive, state-specific data set.

Mean estimated SDUD reported AWP discount

Recall that despite its unreliability in reporting accurate drug acquisition costs, AWP is the pricing benchmark of relevance for most contracts within the drug supply chain (both in terms of what plan sponsors pay for medications from PBMs, and what PBMs pay to pharmacy providers as part of their network contracts). As a result, the average yearly AWP discounts for both brand and generic drugs were established for both the CCO and FFS programs from SDUD reporting. AWP discounts should be based on ingredient cost payment, omitting dispensing fee payments. Since SDUD reporting only provides total reimbursement information, we must account for dispensing fee payments in SDUD calculations. Comparing SDUD AWP discounts to any of the previous analysis will not yield a direct comparison, as AWP discounts up until now within the retail pharmacy data sets omitted dispensing fees from calculation. The result may produce a slightly lower AWP discount from SDUD reporting (higher pharmacy reimbursement) when compared to the retail pharmacy data set. Fortunately for our analysis, the inclusion of CCO dispensing fees is unlikely to have a significant impact on our analysis given the low-on-average dispensing fees realized by pharmacy providers ($0.32 per claim in 2021, see **Brand and Generic Dispensing Fee Payments** section previously).

Even with SDUD dispensing fee inclusion, brand AWP discounts (i.e., *brand effective rates (BER)*) were found to be similar for both FFS and CCO programs when compared to the analyzed Oregon retail pharmacy data set (**Figure 27** on the next page). Again, we note that total reimbursement amounts in SDUD include dispensing fee payment, which may slightly reduce effective rate calculations in actual experience, and result in slightly higher perceived retail pharmacy payments relative to the brand effective rate in **Figure 27.**

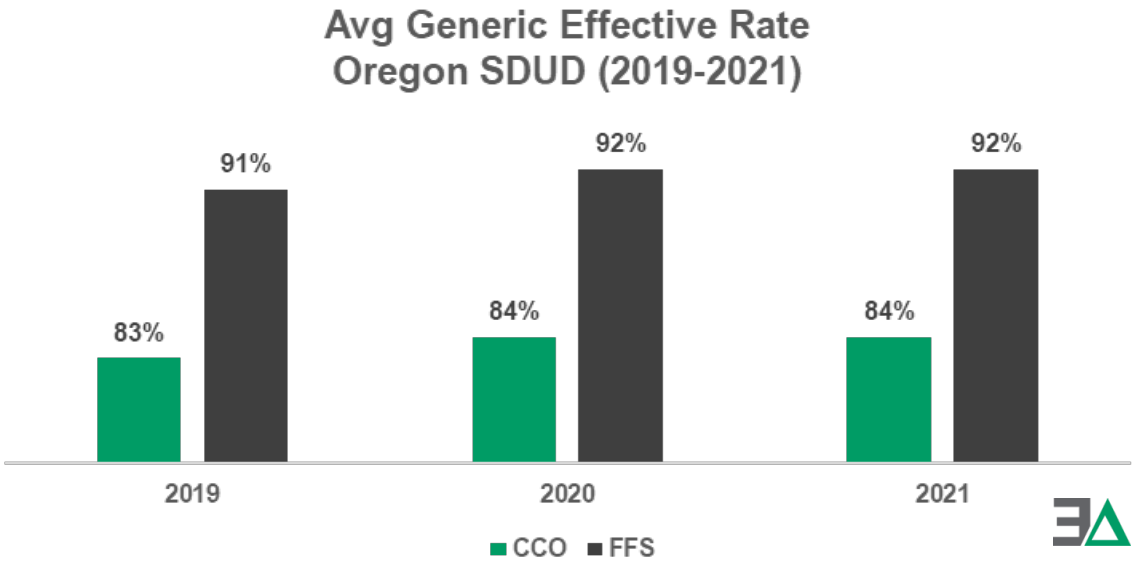
Figure 27: Oregon CCO vs FFS SDUD Reported Brand Effective Rate (2019 – 2021)



Sources: CMS Oregon SDUD, Medi-Span AWP, 3 Axis Advisors, LLC

Despite the overall experience of Oregon Medicaid data within SDUD being similar for brand medications, there was a noticeable difference in generic AWP discounts between CCO and FFS. FFS experienced a more favorable overall *generic effective rate (GER)* (**Figure 28**) from a payer perspective (meaning FFS achieved a steeper discount off AWP) despite the calculation including the significantly higher dispensing fee payments (which as stated previously are nearly $10 higher per prescription than the average fees paid within CCOs; see **Figure 24** previously).

Figure 28: Oregon CCO vs FFS SDUD Reported Generic Effective Rate (2019 – 2021)



Sources: CMS Oregon SDUD, Medi-Span AWP, 3 Axis Advisors, LLC

We know that the approach to drug claims management and payment differ from the CCO program to the state-run FFS program. Arguably, the FFS program is more transparent in its approach given that state statutes dictate its ability to set drug coverage and drug reimbursement levels. The results of **Figure 28** demonstrate that there is an appreciable payment difference between the FFS and CCO programs as it relates to generic drugs. This observation led us to inquire further as to the extent of these differences. Said differently, we believe that financial incentives will drive the business of pharmacy and we have identified potential differences in the financial incentives between the CCO and FFS programs.

Access to claims

When it comes to prescription medications, the opportunity for pharmacy providers to generate revenue is broadly limited to dispensing medications. The prescription market is increasingly segmented, with the most obvious examples involving specialty medications. Specialty medication is a nebulous term given to products whose common trait is that they are expensive. Specialty medications may be defined in any number of ways, such as special storage or handling requirements, specific testing or monitoring in conjunction with dispensing, among other factors above and beyond costs. Ultimately, the definition that is most important to the typical patient is whether the patient's PBM has designated the product as specialty, as generally those products will have restrictions on which pharmacy provider is eligible to deliver the service to the patient. As a result, this differentiation potentially limits pharmacy margin opportunities.

Specialty and narrow network arrangements between PBMs and providers are common in Medicare Part D, with some advocating greater expansion to other payor segments such as Commercial. (57) Approximately 95% of all Medicare Part D plans have a preferred network in place. Furthermore, all the major PBMs own pharmacy fulfilment services, such as mail-order and specialty pharmacies. Unsurprisingly, PBMs may seek to direct plan sponsors to restrict certain pharmacy claims to these PBM-affiliated pharmacies. (58) In the case of specialty networks, providers are often affiliated with the PBM or vertically integrated. The Drug Channels Institute offers a visual representation of vertical integration within the specialty pharmacy market (**Figure 29**). (59)

Figure 29: Specialty Pharmacy Vertical Integration (2022)

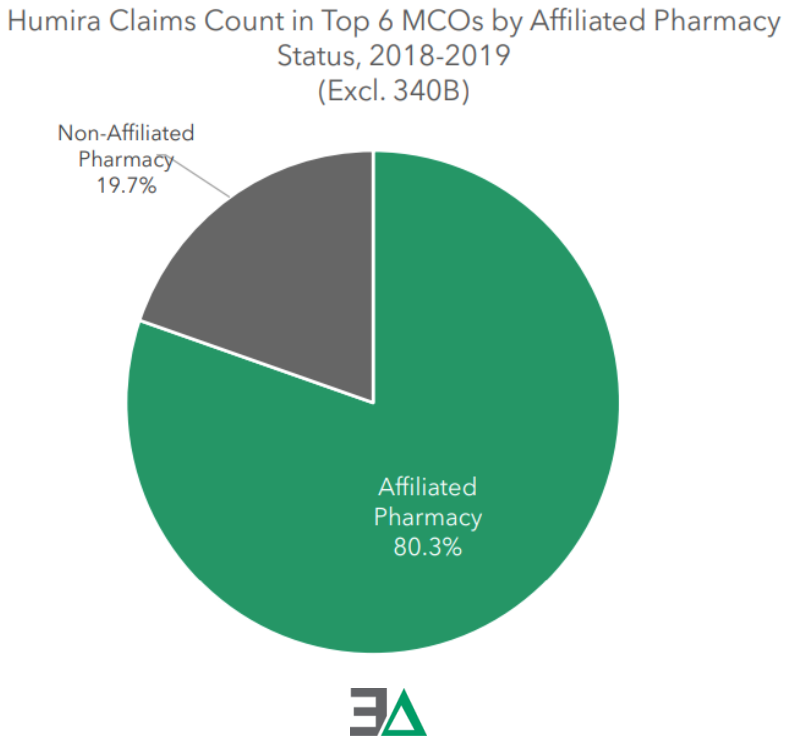
Source: Drug Channels Institute (59)

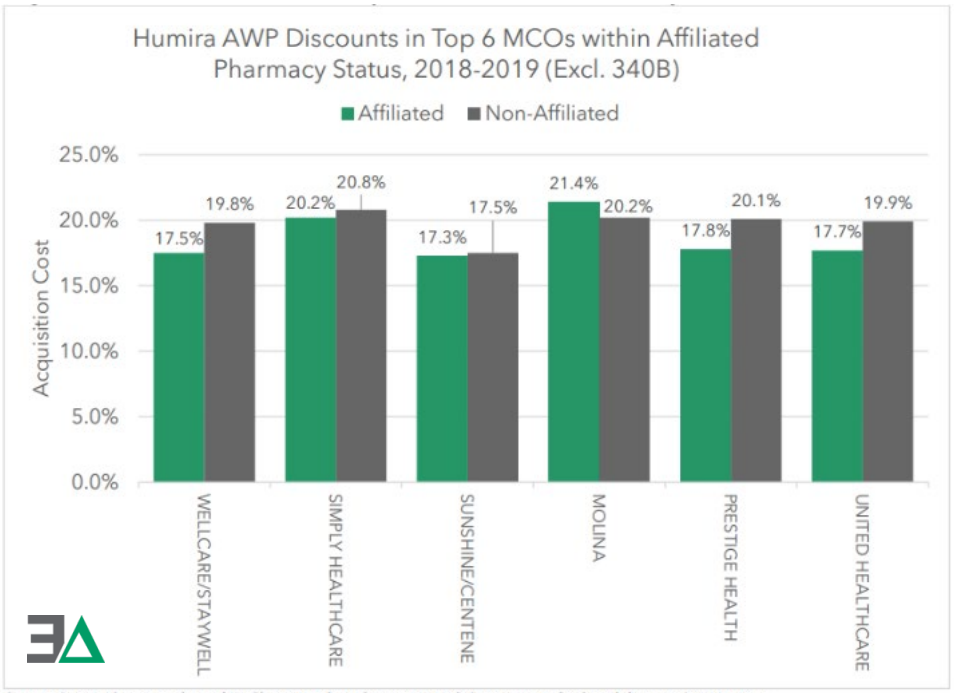
Research has demonstrated that fulfillment of pharmacy services, such as specialty medication dispensing, are an increasingly larger aspect of a PBM's bottom line. (60) For example, research from the PBM Accountability Project found that gross profit for PBM mail and specialty pharmacies (i.e., fulfillment of pharmacy services) grew 13% in two-years (increased from $8.9 billion in 2017 to $10.1 billion in 2019). (61)

The subjective ability for the PBM to designate a drug as "specialty" may be conflicted when drugs are moved away from retail networks that do not truly require atypical or special handling, monitoring, or education that cannot be provided by a traditional community pharmacy provider. There are concerns regarding potential conflicts of interest that arise when both the price setter (PBM) and the price taker (pharmacy) are owned by the same enterprise.

3 Axis Advisors, and others like the NCPA, California Pharmacists Association (CPhA), and the Wall Street Journal, have examined potential patient steerage. (62) (63) (64) (65) Patient steerage is the practice of restricting access to certain classes of medication to select pharmacy providers or enticing patients to use one provider over another. This can include limiting 90-day supplies of medications to PBM-owned mail pharmacies or restrictions that limit certain medications to being dispensed only at PBM-approved pharmacies. In our previous Florida Medicaid analysis, we found 80% of all prescriptions for Humira from 2018 to 2019 within the six largest Medicaid managed care plans were dispensed by pharmacies that had affiliations with the PBM or health plan. Despite filling a disproportionate share of Humira prescriptions relative to competitor pharmacies, for each of those plans (except Molina, the only large managed care plan that did not have an affiliated pharmacy conflict), the reported cost to the state was higher when Humira was dispensed at *affiliated pharmacies* compared to non-affiliated pharmacies (see **Figure 30** below and continued onto the next page).

Figure 30: Florida Medicaid Humira Claim Distribution and Payment Experience (2018 – 2019)





***Source:** 3 Axis Advisors analysis of FL Claims Database, leveraging Medi-Span PriceRx for drug definitions & AWP prices*

Source: Sunshine in the Black Box of Pharmacy Benefits Management: Florida Medicaid Pharmacy Claims Analysis, 3 Axis Advisors, January 2020 (66)

Potential steerage of Oregon patients

Based on this history, we attempted to identify the extent to which narrow or specialty networks may exist within Oregon Medicaid CCO plans. To do so, all GPIs for brand and generic transactions reported to Oregon's SDUD that had an established NADAC were identified. As a survey of retail pharmacy invoice acquisition cost data, a drug with a reported NADAC by federal definition has a history of retail dispensing data, and therefore should be accessible for distribution by most community pharmacies (i.e., reasonably not a specialty medication). Next, we checked to see if the drug was present in our Oregon retail pharmacy claims database, indicating that at least one of the 72 retail pharmacies in the database had processed a claim for the drug at least once over the three-year period. Drugs without a billing reflected in the Oregon retail pharmacy data set between 2019 and 2021 were grouped together and flagged as "No Retail Claims." Lastly, we compared the total Oregon MCO SDUD spend (i.e., aggregate CCO spend) of the drugs in the "No Retail Claims" bucket to total Oregon MCO SDUD spend. The result provided an estimated percent of Oregon SDUD spend on drugs that had a NADAC data point (i.e., the drug had general retail pharmacy availability beyond our study) which were not actually present in the retail data set of 13.5% of Oregon pharmacies.

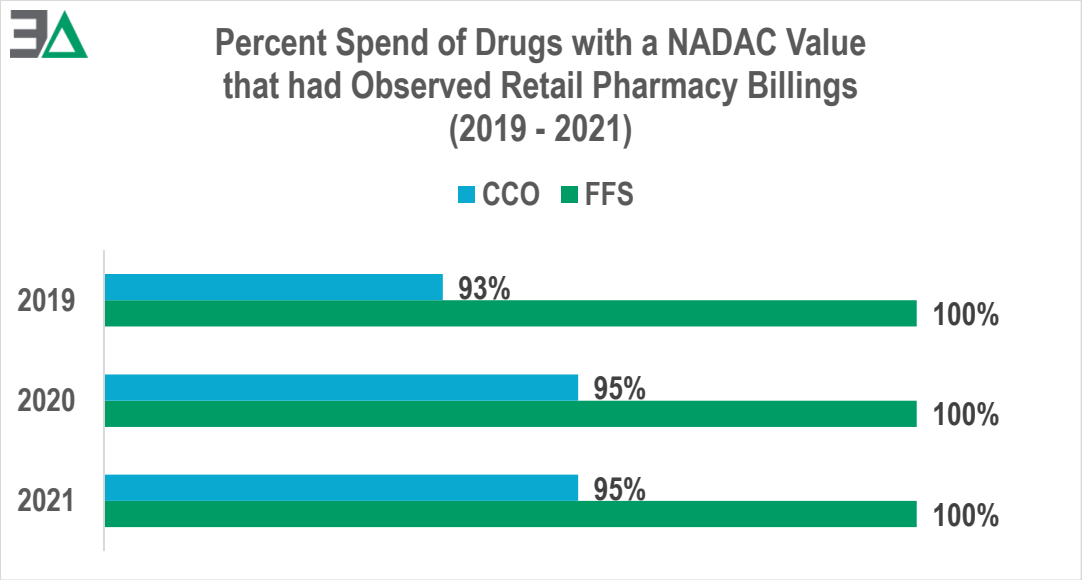
We acknowledge that based on this methodology, some drugs with limited retail pharmacy dispensing frequency may be *transition fills* subsequently steered to narrow networks. Transition fills occur when a PBM authorizes a one-time fill at a retail pharmacy to provide a member access to a medication as soon as possible. Additional fills are then restricted (i.e., not eligible to be refilled by the original dispensing pharmacy) and transitioned to a preferred narrow network pharmacy provider. To be clear, steering can take a variety of forms, such as when a prescription is nudged or mandated to be dispensed by one provider over another despite both providers being network pharmacies. At times, steering happens *after*, and not before, the initial fill occurs. Our attempt at analyzing steerage here will not account for claims steered after the initial fill.

To demonstrate how our methodology played out, consider the following example. It was identified within Oregon CCO SDUD reporting that the state was billed for a total of 5,652 claims for Mavyret® 100-40 mg between Q1 2019 and Q4 2021. Of this total, the analyzed 72-retail pharmacy data set had just six billed claims over the same time frame (~0.1% of all claims). Since the retail pharmacy data set had the presence of billed claims (six total), the drug **was *not* placed in the bucket of "no retail claims**" (though steerage after initial fill of the six identified claims may have occurred). If our 72 retail pharmacies filled approximately 10% of all of Medicaid's prescriptions during our study timeframe but only filled 0.1% of Medicaid's Mavyret® prescriptions, we believe it's obvious that the study pharmacies do not have equitable access to fill this drug. Despite the suspicion of steerage, for the purposes of this specific analysis, it would not be reflected as such. As a result, we believe it is safe to call the following steering analysis a very conservative look at steering practices in Oregon Medicaid.

As an alternative example, dimethyl fumarate 240 mg (generic Tecfidera®), in which Oregon SDUD reported 745 dispensed prescriptions from Q1 2019 to Q4 2021, had zero fills present in the 72-retail pharmacy data set for the CCO program over the same timeframe. Based on the absence of this drug within our data set relative to its existence within Oregon SDUD, we **placed the total amount of billed dimethyl fumarate prescriptions in the bucket of "no retail claims."**

Essentially, all GPIs reported to SDUD by the Oregon Medicaid FFS program with NADACs had claim history within the analyzed pharmacy data set. However, the CCO analysis suggested roughly 5% of total SDUD billings for drugs with NADAC values did not show up in the 72-retail pharmacy data set (**Figure 31**). The findings suggest that the subset of prescription drugs that are available at community pharmacies across the country are likely restricted to narrow/specialty networks in Oregon, because our 72-retail pharmacy data set did not register any claims for that subset of medicines. As we progress into the analysis, we will dive deeper into how payment on the 5% may compare to broader retail pharmacy averages.

Figure 31: Oregon Medicaid Drug Spend by Program, Drugs with NADAC that had Observed Retail Pharmacy Billings (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, Medi-Span GPI, 3 Axis Advisors, LLC

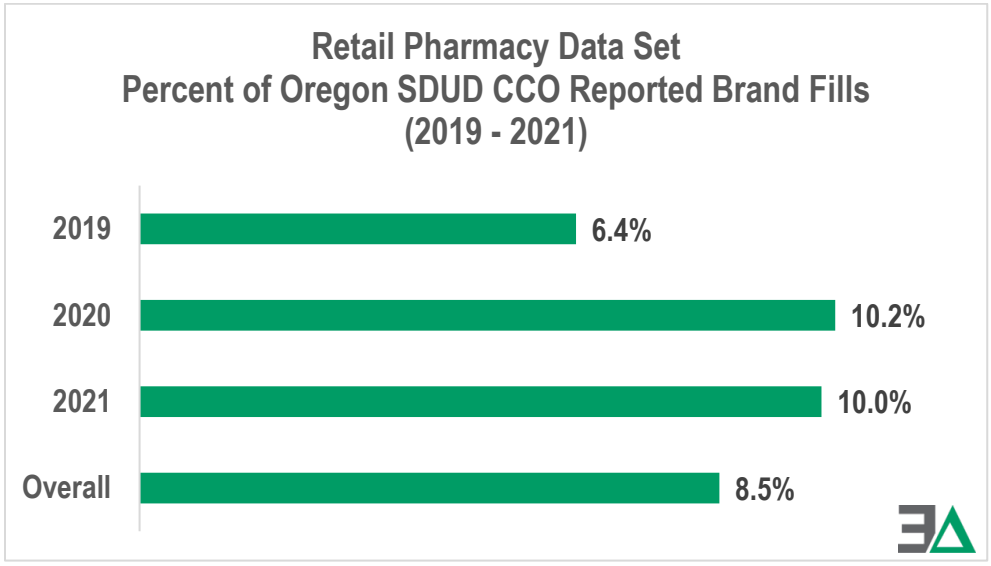
Oregon retail pharmacy data set versus Oregon CCO SDUD

Up until this point, pricing and utilization comparisons have included Oregon Medicaid FFS program data. FFS reimbursement is based on a published actual acquisition cost (AAC) per unit and a set dispensing fee, and as such, payment should not materially vary among providers. Our investigations confirmed that this payment methodology was the experience of 72 of the 86 Oregon retail pharmacies in our study (recall in the **Comparing Oregon Medicaid pharmacy reimbursement** section on page 32 that 14 of the pharmacies in our study had insufficient data for SDUD comparison purposes; more on this in the **Methods** section). Moving forward, we will spend much of this report diving deeper into CCO payments and costs and will revisit FFS intermittently as a benchmark to compare prices between the two programs.

As previously mentioned, in addition to our analyses of public and private drug pricing benchmarks, we have also integrated and analyzed data supplied by 72 Oregon retail community pharmacies to learn how their experience may compare to the broader Oregon pharmacy marketplace as reflected by SDUD. Such experience can provide insights into how incentives or disincentives can impact pharmacy business models in Oregon. It is estimated that the 72 pharmacies represent approximately 13.5% of all Oregon retail community pharmacies. We determined this value based upon figures provided in the 2021 NCPA Digest published by the National Community Pharmacists Association (NCPA), which identified that in 2020, Oregon had 534 retail pharmacies. (5)

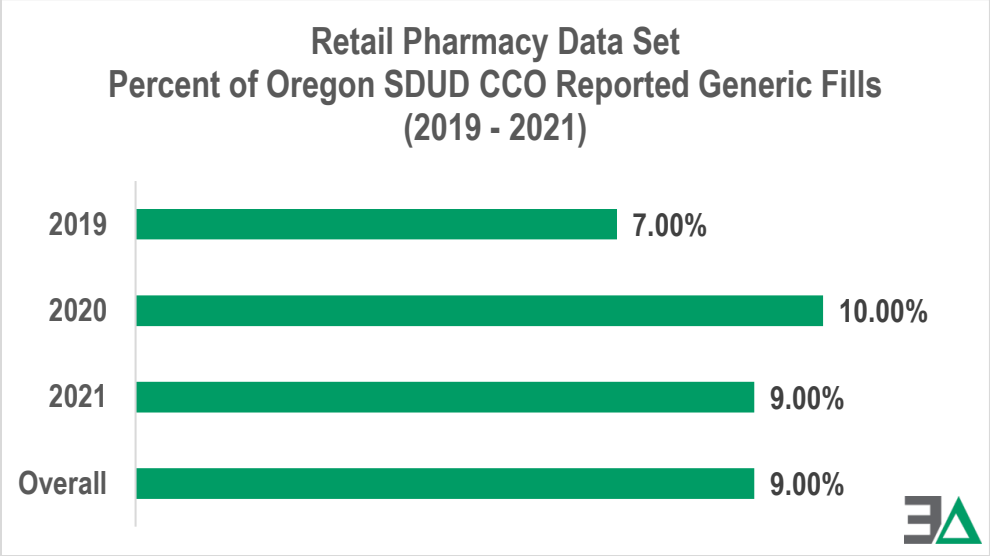
We began our focus on Medicaid CCO prescriptions by approximating the percentage of claims represented within these pharmacies relative to the broader retail CCO experience. By using NADAC as a proxy to delineate which drugs are consistently dispensed at retail pharmacies (see prior **National Average Drug Acquisition Cost (NADAC)** section on page 18), we can limit both our SDUD and 72-retail pharmacy data set to CCO claims with NADAC prices (i.e., retail pharmacy claims). We can then compare the prescription drugs Oregon paid for broadly to the 72-retail pharmacy data set sample. Ultimately, this comparison identifies that our 72-retail pharmacy data set represents 8.5% of all brand retail claims and 9.0% of all generic retail claims in the Oregon Medicaid CCO program (**Figures 32 & 33** below and continued on the next page).

Figure 32: Oregon Retail Pharmacy Data Set Percent of Reported CCO Brand Fills (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, Medi-Span GPI, 3 Axis Advisors, LLC

Figure 33: Oregon Retail Pharmacy Data Set Percent of CCO Reported Generic Fills (2019 – 2021)



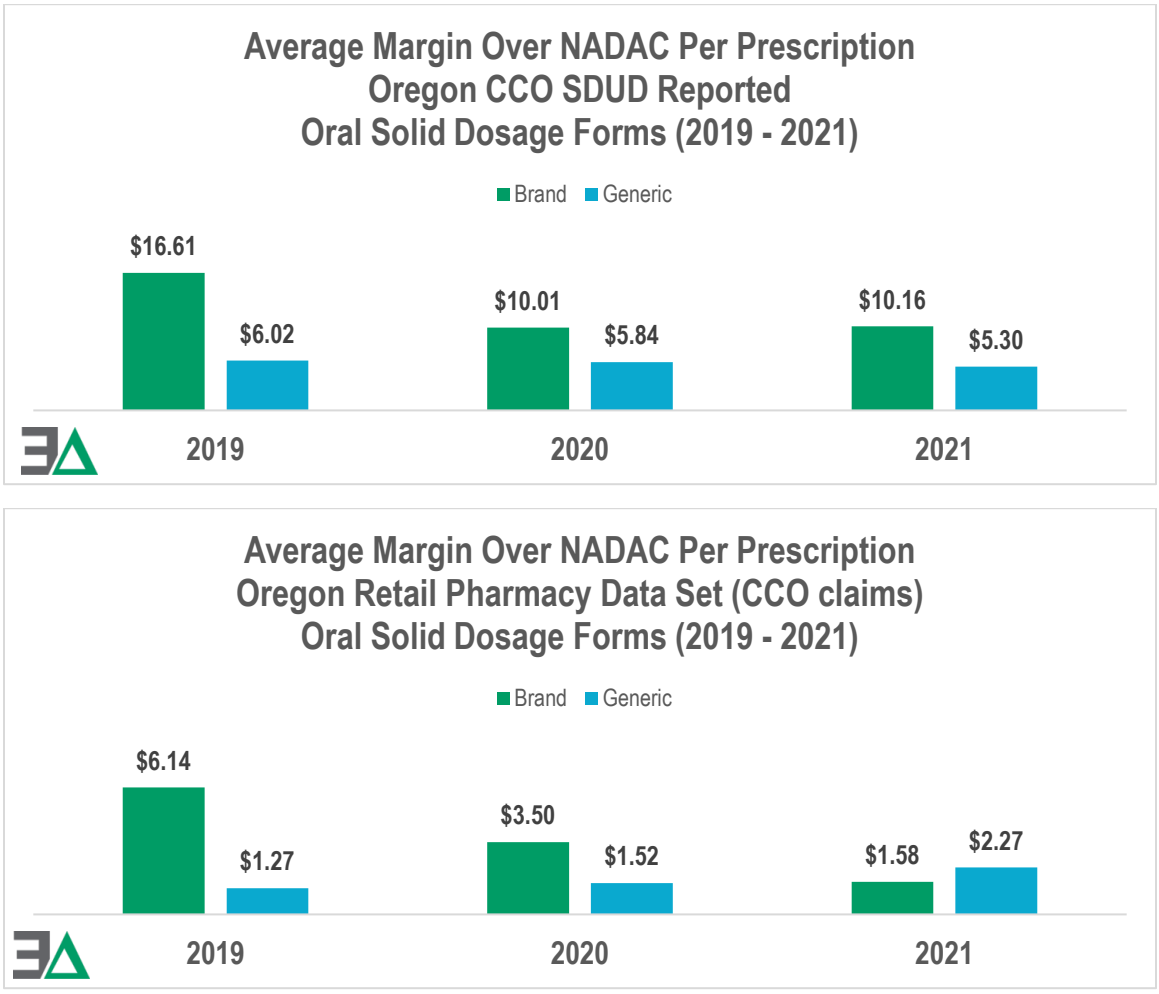
Sources: 72 Oregon retail pharmacies in study, CMS SDUD, Medi-Span GPI, 3 Axis Advisors, LLC

This utilization percentage is surprising when we reconsider that our 72 retail pharmacies represent approximately 13.5% of the available retail pharmacy locations in Oregon. The fact that our sampled pharmacies are getting less than 9% brand fills or 8.5% of generic fills (**Figures 32 & 33**) may indicate steerage impacting access to pharmaceuticals in Oregon CCOs. Oregon CCOs pay for millions of prescriptions annually. Even a 1% reduction in claim access can be associated with tens of thousands of claims, which can have significant repercussions for pharmacy provider economics in the state. Ultimately, our analysis is limited by available data, so further investigation would be required to confirm these high-level findings of potential steerage within the Oregon CCO retail pharmacy channel.

Baseline Oregon CCO estimated margin per prescription

Following the observations of differences in access to claims between the Oregon SDUD and the 72 pharmacies in our study, we undertook an analysis to compare the SDUD margins for the entire CCO group. The average yearly margin over NADAC was estimated **from SDUD reporting** for both brand and generic prescription transactions for oral solid dosage forms. In the case of brand drug utilization, claims were included if the effective rate (i.e., the discount to AWP) was between 10% and 35% off AWP. This was done in an effort to exclude prescriptions that may be errant 340B claims or errors in reporting. We choose this number based on our earlier analysis in **Figure 17** that demonstrates CCO PBMs largely reimbursed brand products between a 19-20% effective rate within the Oregon retail pharmacy data set. The 10-35% range would allow for a degree of variance in payment while excluding extreme outliers. From 2019 to 2021, the average margin over NADAC reported for Oregon according to the SDUD, decreased from $6.02 to $5.30 (-12%) per generic prescription while brand margin declined from $16.61 to $10.16 (-38.8%) between 2019 and 2021 per prescription (**Figure 34** on the next page).

Figure 34: Average SDUD vs Pharmacy Reported Margin Over NADAC Per Prescription, Oral Solid Dosage Forms (2019 – 2021)



Sources: CMS SDUD, CMS NADAC, 3 Axis Advisors, LLC

A noticeable 133% ($3.03 per prescription) difference in average Oregon CCO generic margin over NADAC per prescription exists between the Oregon retail pharmacy data set of $2.27 in 2021 and CCO SDUD average estimates of $5.30 (blue bars in **Figure 34** for year 2021 above).

What this means is that overall, the state of Oregon reported to CMS via the SDUD that the average amount that CCOs reported as the amount paid on a per prescription basis was $5.20 more than the approximate costs of the drugs themselves (i.e., NADAC). However, for the 72 pharmacies that we examined, it was less than half that amount at $2.27 per prescription.

The reason for the variance may be explained by any one or combination of the following scenarios:

- **Spread pricing exists. Spread pricing occurs when providers are paid one rate and clients are charged another. The intermediary, in this case, the PBM and/or the CCO, pockets the difference.**
- **The 5% of drugs with established NADACs not observed in the retail pharmacy data (see section 'Access to Claims') but are reported within the CCO program are generating margins significantly**

above the retail pharmacy data sample's mix of goods in which narrow/specialty networks may be impacting the 72 pharmacies' access to the significantly more profitable prescriptions.

- **Providers are receiving significantly different payment rates to dispense the same drugs within Oregon, and the 72 pharmacies in our study are getting on average, the much shorter end of the stick.**

To conceptualize the potential impact to state expenditures from **Figure 34**, we performed a comparative analysis based upon the number of brand and generic claims for oral solid dosage forms paid for by Oregon CCOs in each year and multiplied by the differences in margin between the data sources (Oregon SDUD vs. our study retail pharmacies). We perform this analysis to assess how margin differentials may contribute to healthcare inequality. It could be argued that one of the ways to combat healthcare inequality is to ensure margins are equitable claim-to-claim to ensure financial incentives do not promote certain patients to be prioritized over others. Said differently, if your job paid you $100 to perform the task of shuffling cards and $10 to perform the task of watering plants, we would wager there would be a lot more attention given to decks of cards in the office and not the plants. We see in **Figure 34** that some groupings of claims, in the aggregate, are associated with higher margins. In **Table 3**, we see that an equitable approach to margin, where all claims get the same margin over acquisition cost, could potentially impact up to $68 million in state expenditures over the three-year period of our study. To be clear, this table doesn't identify clear savings opportunities to the state but is representative of existing margin disparities within pharmacy CCO claims.

Table 3: Analysis to Conceptualize the Aggregate Difference in Pharmacy Margin Opportunity, Oral Solid Dosage Forms (2019 – 2021)

Year	Brand/Generic	CCO SDUD Reported Number of Prescriptions (Oral Solid Dosage Forms)	Yearly Margin Over NADAC Difference Between CCO SDUD Reported and Oregon Retail Data Set [Sourced from Figure 34]	Total Difference (Prescription Count x Yearly Margin Over NADAC Per Prescription)
2019	Brand	123,465	$10.47	$1,292,679
2020	Brand	132,605	$6.51	$863,259
2021	Brand	131,451	$8.58	$1,127,850
2019	Generic	5,337,013	$4.75	$25,350,812
2020	Generic	5,496,133	$4.32	$23,743,295
2021	Generic	5,341,454	$3.03	$16,184,606
Total		16,562,121		$68,562,499

Sources: CMS SDUD, CMS NADAC, 72 Oregon retail pharmacies, 3 Axis Advisors, LLC

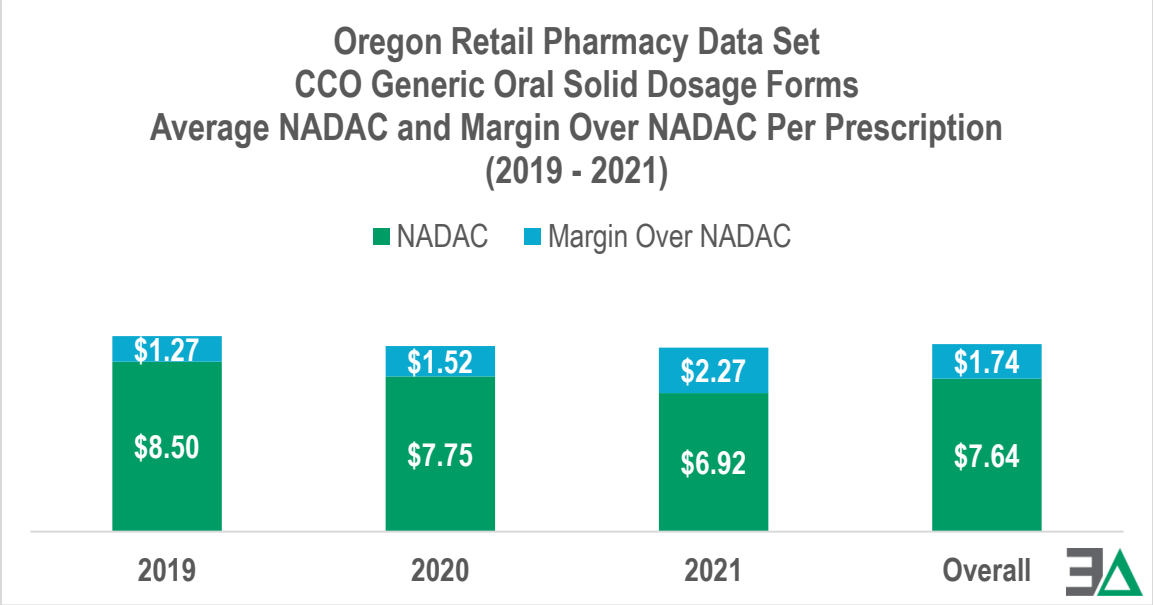
Generic drug reimbursement from CCOs to Oregon retail pharmacies

Digging deeper into generic reimbursement, we placed all generic oral solid drugs within their respective GPI number. As discussed earlier, GPIs enable the ability to group all like-generic drugs to a single identifier as opposed to managing many NDCs, which all correspond to the same drug. Aggregation was performed at the GPI level to calculate total pharmacy reimbursement, total NADAC cost, total units reimbursed, and total number of prescriptions on a yearly basis.

For transactions of like-generic GPIs (generic drugs that are considered equivalent), the Oregon retail pharmacy data set had a 2.6% lower average NADAC (estimated COGS) per transaction ($7.64 vs. $7.80) when compared to average Oregon CCO SDUD reporting. This means that our study retail pharmacies were arguably better buyers of the same products than the overall retail pharmacy market in Oregon (by nature of the lower average NADAC on the GPI level). However, our study pharmacies generated a margin over NADAC that was 69.5% less ($1.74 vs $5.71 per prescription) than the aggregate pharmacy experience as reflected through rates charged by Oregon CCOs reported in SDUD

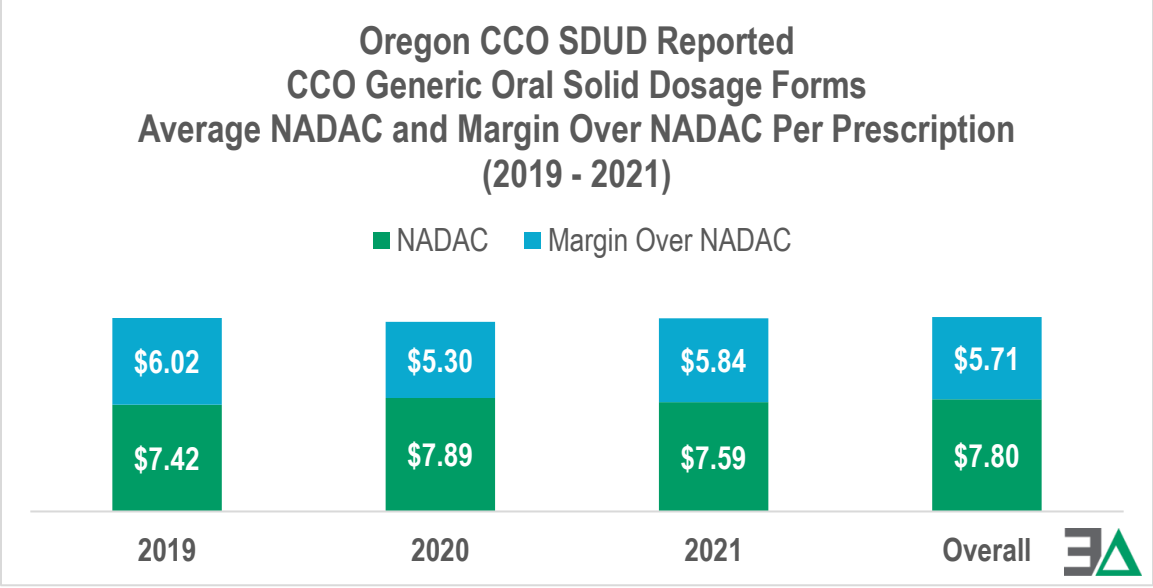
(**Figures 35 & 36**). If we were to assume that spread pricing does not exist in Oregon to explain these comparable differences, the results suggest that despite managing COGS to lower levels, our study pharmacies were less financially rewarded for their efforts.

Figure 35: Oregon Retail Pharmacy Data Set Average NADAC and Margin Over NADAC Per CCO Generic Prescription, Oral Solid Dosage Forms (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

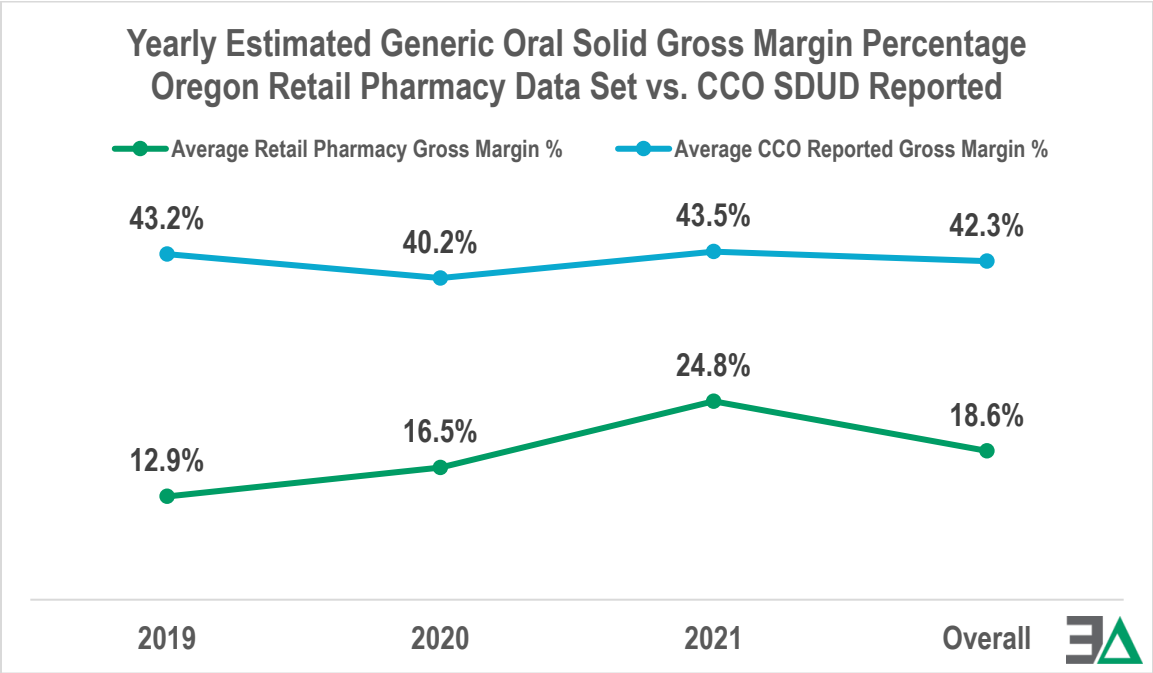
Figure 36: Oregon CCO SDUD Reported Average NADAC and Margin Over NADAC Per CCO Generic Prescription, Oral Solid Dosage Forms (2019 – 2021)



Sources: CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

We used these figures to identify the average gross margin percent over NADAC. Our analysis suggests that on average, Oregon CCO SDUD reporting produced a gross margin over NADAC percentage that was 2.3 times higher (42.3% vs 18.6%) than what was realized by the 72 Oregon retail pharmacies in our study (**Figure 37**).

Figure 37: Estimated Generic Gross Margin Percent – Oregon Retail Pharmacy Data Set vs. CCO SDUD Reported (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

Figure 37 continues to identify that there are potentially large discrepancies within the retail pharmacy experience in Oregon. As already identified, the pharmacies in our study had a lower typical cost of prescription drug products dispensed (**Figures 35 & 36**), potentially demonstrating their efforts to "buy better" to make reimbursement rates sustainable for their businesses. However, there is very little room for them to continue to improve their purchases. For example, consider that the 2021 difference in generic margin above NADAC was $3.03 (**Table 3** previously). According to **Figure 35**, the average ingredient cost of a generic drug prescription in 2021 (as quantified by NADAC) was $6.92 per prescription. The $3.03 difference in margin represents 44% of the existing product's acquisition cost. It is unlikely that any business could improve its current purchasing power by 44% (as the business would have already moved to do this if such an option was available). Ultimately, if the data is demonstrating the pharmacy reimbursement rates are not at sustainable levels (i.e., not producing sufficient margin over NADAC to cover labor costs) it seems unreasonable to expect pharmacies to "buy better" to improve their economics. We will explore this topic in greater detail later in the report (see **Margin over NADAC distribution** section).

Brand reimbursement from CCOs to Oregon retail pharmacies

We next analyzed the oral solid dosage forms for brand reimbursements in Oregon SDUD compared to our 72-retail pharmacy study group. Brand reimbursement was calculated on an NDC per-unit basis for both CCO SDUD reporting and the Oregon retail pharmacy data set. The average price paid per prescription and margin over NADAC was determined. In addition, a gross margin percent was estimated utilizing NADAC as the basis for an estimated cost of goods sold (COGS).

As with our initial brand oral solid dosage form analysis, brand billings were limited to effective rate payments ranging between 10% to 35% to account for claims which may be 340B or have errors in reporting due to discrepancies in billing unit reporting.

Within this view, we found that the average NADAC per prescription (estimated pharmacy cost to acquire) was nearly double in the Oregon MCO SDUD than observed in the 72-retail pharmacy data set ($1,063 vs $541). The findings are illustrated by **Figures 38 & 39** below**.** The value at the base of the green bar is the average NADAC per prescription while the number at the top of the bar represents the average margin over NADAC per prescription.

Figure 38: Oregon Retail Pharmacy Data Set Average Brand Margin Over NADAC Per Prescription (2019 – 2021)

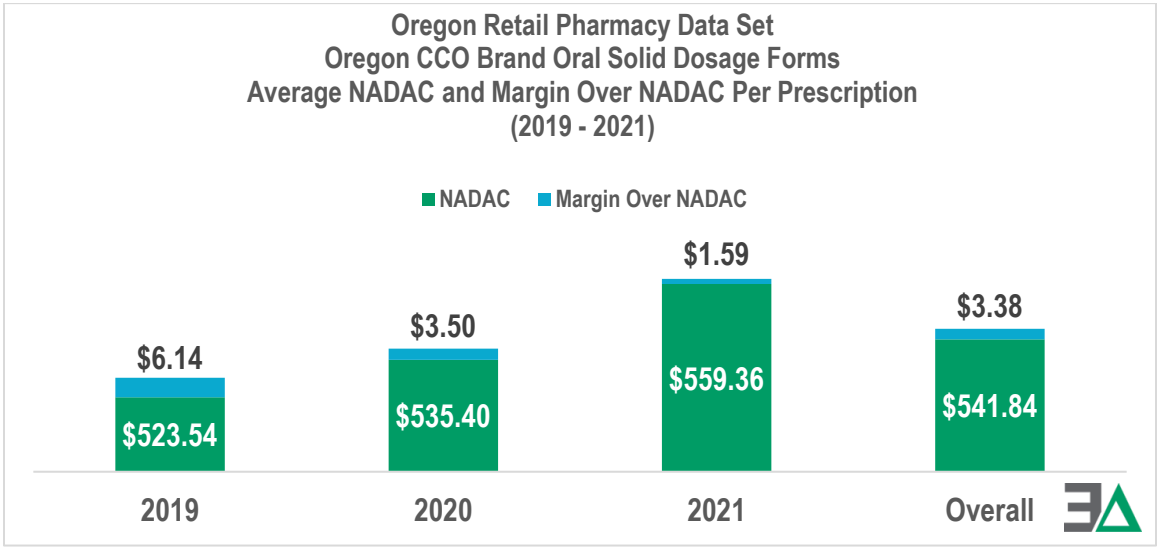
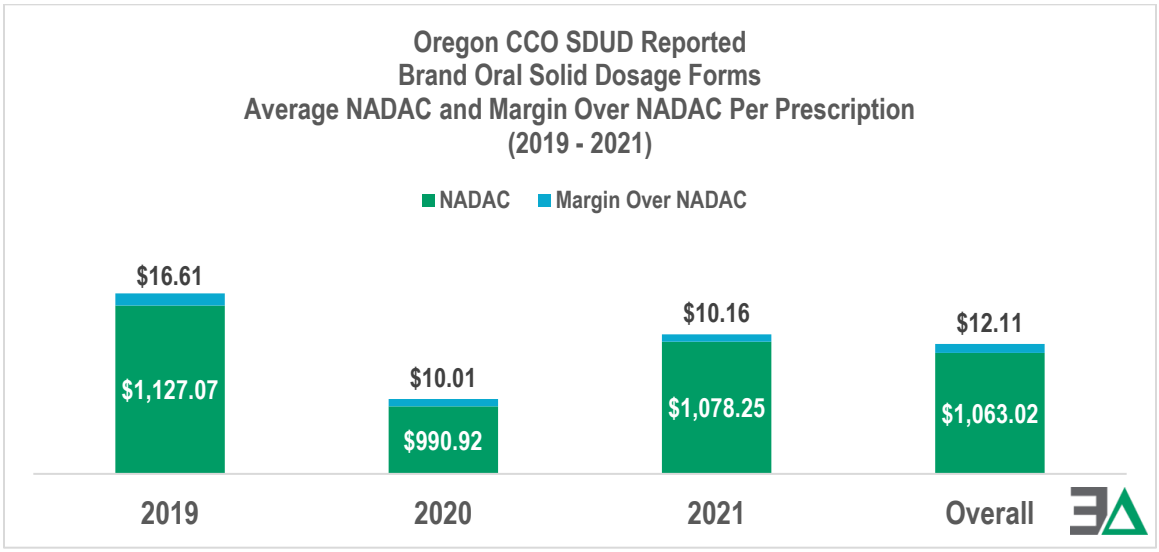


Figure 39: SDUD Reported CCO Average Brand Margin Over NADAC Per Prescription (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

We may conclude from the above figures that higher cost medications are being fulfilled more frequently outside the Oregon retail pharmacy data set available to us to what was experienced within the broader Oregon Medicaid CCO program. This could mean that the 72 retail pharmacies in our study dispensed lower cost brand drugs as a matter of chance, or more likely that independent and small chain pharmacies are receiving a disproportionately low degree of expensive brand medications relative to other pharmacies participating in the Oregon CCO program. Again, these findings raise questions regarding patient steerage within the Oregon CCO program.

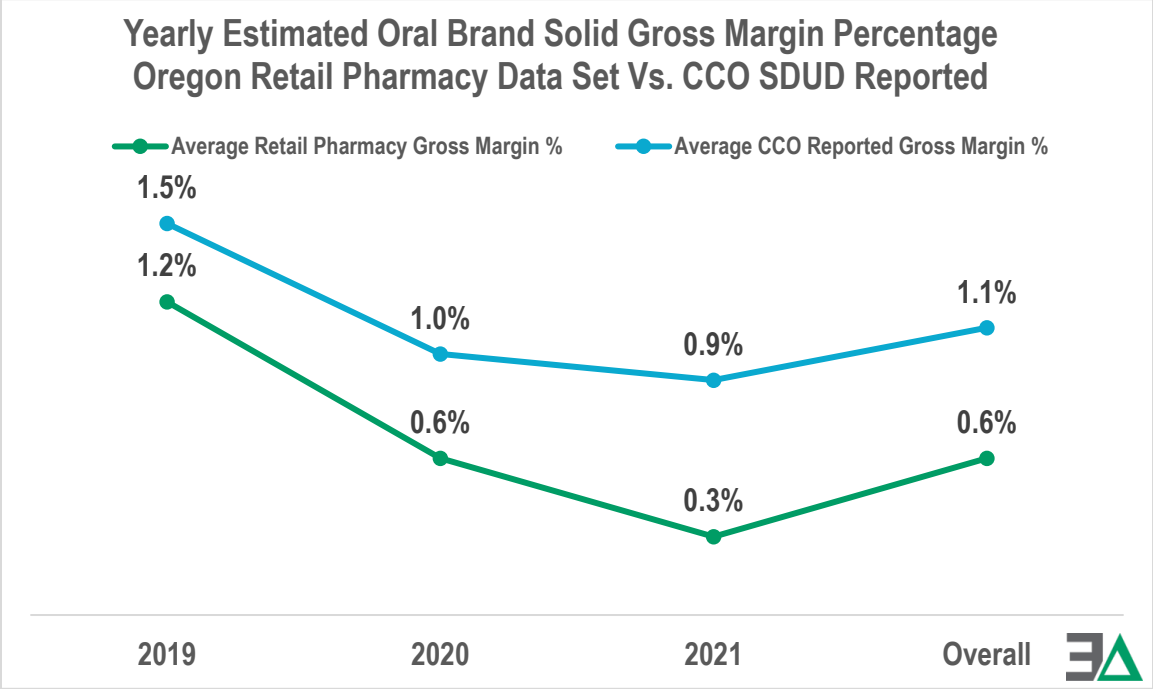
Figures 38 & 39 offer interesting perspectives on the financial incentives to dispense brand medications in Oregon. In the aggregate, the SDUD trends suggest brand payments are sufficient to cover the typical pharmacy costs to dispense. This is because the margin above acquisition cost in **Figure 39** is roughly $10 to $12, depending upon the year. This margin conforms with the state-set professional dispensing fees. (27) However, when we examine our study pharmacies (**Figure 38**), we see that their brand reimbursements are not sufficient to cover their known labor costs. In fact, the margin is often a fraction of the overall SDUD margin in a given year. Perhaps most surprising is that when comparing **Figures 38 & 39** to one another, we see that the incentives being set for brand medications seem at odds to the health policy goals of affordable and accessible drugs. Why? Because despite dispensing brand medications that cost roughly half the statewide average, our pharmacies were not financially better off. If the goal of drug pricing is to obtain cheaper drugs, the data seems to suggest the business incentives to pharmacy would be better served with higher, not lower, drug costs.

Brand drug gross margin percent estimate

Based on the learnings of the prior section, we undertook an analysis to investigate the degree to which higher cost products may lead to higher margins to pharmacy providers. To offset COGS discrepancies between the two data sets (Oregon CCO SDUD vs 72 retail pharmacies sample, see **Figures 38 & 39**), we may compare the average estimated gross margin percent. To do so, each observation's margin over NADAC was divided by total revenue (NADAC + margin over NADAC) to estimate gross margin percent. For example, take the first bar of the retail pharmacy chart in **Figure 38**. The margin over NADAC of $6.14 was divided by the total revenue $529.68 ($523.54 + $6.14) to arrive at an estimated gross margin of 1.2%.

The line graph in **Figure 40** (on the next page) compares brand gross margin percentages over time. In each year, the average estimated gross margin percentage for brand drugs was greater in the Oregon CCO SDUD than observed in the retail pharmacy data set. The findings seem to confirm that providers not included in our study received a more favorable brand reimbursement rate. Alternatively, we may say that there seems to be material differences in gross margin depending upon type of pharmacy, not just the type of drug dispensed.

Figure 40: Estimated CCO Yearly Brand Gross Margin Percent Per Prescription, Oregon Retail Pharmacies vs SDUD (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

So, in both gross dollars and a gross margin perspective, SDUD indicates that the financial experience of the 72 retail pharmacies in our study is lower than what was reported by Oregon CCOs and the broader Oregon pharmacy experience.

Investigating drug-specific payment trends

While the prior sections focused on aggregate payment differences between groups of drugs broadly categorized as "brands" or "generics," we have found that the individual examples are just as important to understand as aggregate trending. We've attempted to broadly convey this idea through our milk examples earlier, where the aggregate reimbursement for milk can seem normal, but individual results can be highly varied. For the following sections, we break out individual products within the brand and generic categories to better understand how the aggregate results are being realized.

Top 20 utilized brand drugs as reported from Oregon SDUD reporting

The top 20 brand NDCs by utilization with published NADAC pricing from 2019 to 2021 were identified from Oregon SDUD reporting. The average reported CCO margin over NADAC was determined by aggregating total reimbursement over the three-year period, subtracting average estimated NADAC, and then dividing by total number of prescriptions.

The 72 Oregon retail pharmacy margins were determined in a similar fashion while adjusting the per prescription unit count such that the count was equivalent to CCO SDUD reporting. For example, if a particular NDC in the Oregon SDUD was determined to have an average of 65 units per prescription, but the retail pharmacy data set yielded only 60 units per prescription, an adjustment was made to prorate the retail pharmacy comparison to 65 units as means to allow for a more "apples-to-apples" assessment between the two data sets. This was accomplished by totaling the reported SDUD units for each NDC and dividing by total SDUD prescriptions per NDC to provide the average number

of units per NDC from SDUD reporting.[ix] The average reimbursement per unit per drug within the 72 Oregon retail pharmacies data set was then calculated using the same method as used in determining the average per unit reimbursed prices as reported in the Oregon CCO SDUD. In addition, as with the Oregon CCO SDUD, the average retail pharmacy data set NADAC per unit per drug was calculated. Effectively, this may change the margin over NADAC slightly, as the prorated effect changes the actual experience of the retail pharmacy data set in order to facilitate the more direct comparison. To offset the variation in margin that may occur due to differences arising from higher or lower cost of goods sold (utilizing average NADAC as an estimated COGS), the estimated gross margin percentage per drug in both the reported Oregon CCO SDUD and the 72 Oregon retail pharmacies data set was calculated by taking margin over NADAC and dividing it by the total reimbursement. Finally, the number of prescriptions for each drug in the Oregon retail pharmacy data set was compared to the total number of prescriptions from reported Oregon CCO SDUD to determine the percentage of fills the 72 Oregon retail pharmacies experienced as compared to Oregon CCO SDUD totals. The percentage was calculated by taking the total number of prescriptions for each drug observed in the Oregon retail pharmacy data set and dividing it by the total number of prescriptions reported for the same drug in the Oregon CCO SDUD. The number will provide insight into the percentage of dispensed prescriptions for each drug in the Oregon retail pharmacy data as compared to SDUD reporting. Recall from the **Oregon retail pharmacy data set versus Oregon CCO SDUD** section (page 54), we determined that the analyzed Oregon retail pharmacy data set had a fill percentage of 9.0% for generic drugs and 8.5% for brand drugs when compared to the total Oregon CCO SDUD utilization trends**.** A normal distribution of prescription drug claims would suggest the 72 Oregon retail pharmacies should receive roughly 8.5% (brand) to 9.0% (generic) of the prescriptions for any given drug (**Figures 32 & 33** previously).

For this analysis, we attempted to include the largest number of drugs, so the data set was not limited to oral solid dosage forms. We still utilized a brand inclusion in which the effective rate payment for either the Oregon retail pharmacy data set or the CCO SDUD averages be between 10% and 35% in an attempt to minimize inclusion of 340B billings or discrepancies due to mismatched billing units.

For example, in **Table 4** (on page 65 due to its size), the first drug is Basaglar® KwikPen (an insulin used to control diabetes). The total Oregon CCO SDUD reported dispensed prescriptions were 161,020 from 2019 to 2021. We would expect based on the calculated 8.5% brand fill rate that the Oregon retail pharmacy data set would fill roughly 13,687 Basaglar® KwikPen prescriptions. Overall, the 72 Oregon retail pharmacies filled slightly less at 12,743 (7.9%), a reasonably close figure that would not suggest meaningful patient steerage being exercised by CCO PBMs.

It is worth considering that as the number of prescriptions increase, the distribution of claims should move closer to the 8.5% while drugs with a limited number of fills may deviate from normal. To illustrate, consider flipping a coin. In general, it is expected that 50% of the time, heads would appear, and 50% of the time, tails would appear. If a coin is flipped five times, the chances of not having a 50/50 split is much greater than if the coin was flipped 100 times. As we review the data, it is worth keeping in mind that drugs with very a limited number of fills may have deviation which may be nothing more than simple chance, and not external influences. That said, isolating the top 20 brand drugs by utilization (total number of prescriptions between 2019 and 2021) from Oregon CCO SDUD reporting, the Oregon retail pharmacy data set on average represented 8.5% of total reported prescriptions, exactly what was expected based upon our prior analyses.

[ix] For example, if total the Oregon CCO SDUD units reported for a drug was 3,000 and the total Oregon CCO SDUD number of prescriptions reported for the drug was 50, the average number of units per Oregon CCO SDUD prescription for the drug would be 60 (3,000 units / 50 prescriptions).

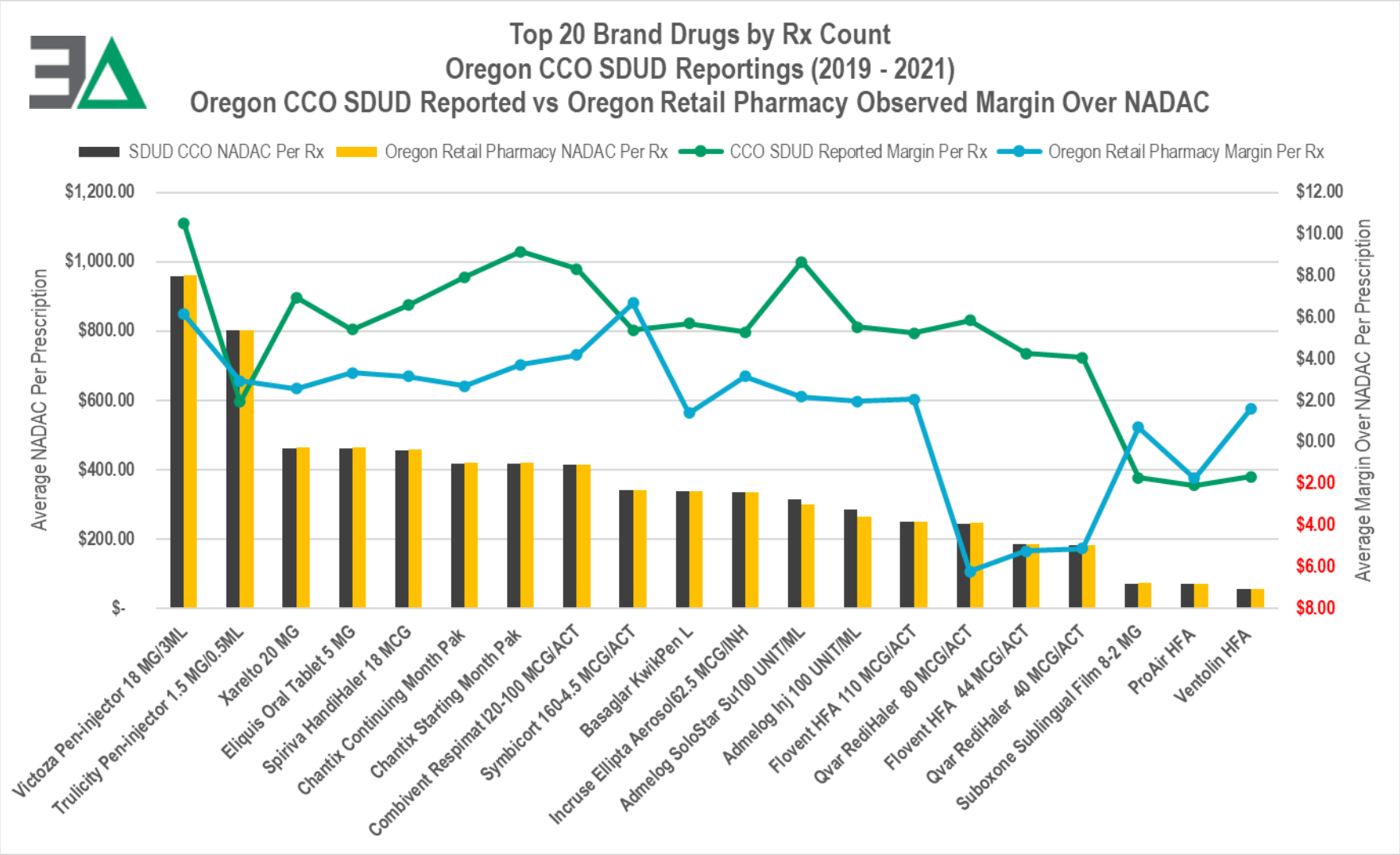
Of those top 20 brand drugs, to compare COGS, the average NADAC per prescription of each of the top 20 NDCs were added together for each grouping (Oregon CCO SDUD reporting and the Oregon retail pharmacy data set). The CCO SDUD reporting had a slightly higher 0.12% average COGS ($7,066.46 vs $7,057.74) for the basket of top 20 brand drugs when compared to the Oregon retail pharmacy data set, resulting in an $8.72 difference. The $8.72 (average $0.43 per drug) should not be significant enough to justify any noticeable discrepancy in payment between the two data sets (Oregon retail pharmacies and the broader market as reflected by Oregon CCO SDUD). **However, the Oregon CCO SDUD reported average margin over NADAC per prescription for the basket of top 20 brand drugs was $101.36, while the retail data set received on average just 29.7% of the overall total (at $30.15)** (**Figure 41** on page 66 due to its size).

Table 4: Top 20 Brand Drugs by Oregon CCO SDUD Utilization (2019 – 2021)

Product Name	CCO SDUD Reported Margin Per Rx	Oregon Retail Pharmacy Margin Per Rx	CCO SDUD GM (%)	Oregon Retail Pharmacy GM (%)	CCO SDUD Rx Ct	Oregon Retail Pharmacy Rx Ct	Oregon Retail Pharmacy Fill (%)	CCO SDUD NADAC Per Rx	Oregon Retail Pharmacy NADAC Per Rx
Basaglar KwikPen®	$5.71	$1.39	1.7%	0.4%	161,020	12,743	7.9%	$339.03	$339.03
Ventolin HFA	-$1.65	$1.60	-2.9%	2.7%	55,458	2,191	4.0%	$57.67	$57.73
Eliquis® Oral Tablet 5 MG	$5.42	$3.32	1.2%	0.7%	50,516	5,286	10.5%	$461.26	$463.92
Flovent HFA® 110 MCG/ACT	$5.23	$2.06	2.1%	0.8%	41,117	3,825	9.3%	$249.11	$250.30
Admelog® SoloStar Su100 UNIT/ML	$8.66	$2.17	2.7%	0.7%	41,070	3,084	7.5%	$315.10	$301.14
Qvar® RediHaler 80 MCG/ACT	$5.85	-$6.22	2.3%	-2.6%	39,837	3,983	10.0%	$244.76	$246.37
Admelog® Inj 100 UNIT/ML	$5.52	$1.97	1.9%	0.7%	33,919	2,587	7.6%	$285.08	$265.77
Spiriva® HandiHaler 18 MCG	$6.59	$3.17	1.4%	0.7%	28,974	3,037	10.5%	$454.85	$459.13
Combivent® Respimat I20-100 MCG/ACT	$8.33	$4.18	2.0%	1.0%	24,799	2,347	9.5%	$414.08	$416.25
Flovent® HFA 44 MCG/ACT	$4.25	-$5.24	2.2%	-2.9%	22,506	1,918	8.5%	$186.21	$187.19
ProAir® HFA	-$2.08	-$1.74	-3.0%	-2.5%	20,783	812	3.9%	$70.71	$70.82
Trulicity® Pen-inj 1.5 MG/0.5ML	$1.94	$2.95	0.2%	0.4%	20,444	2,138	10.5%	$801.02	$802.31
Chantix® Starting Month Pak	$9.15	$3.71	2.1%	0.9%	19,565	1,967	10.1%	$418.28	$420.66
Symbicort® 160-4.5 MCG/ACT	$5.38	$6.68	1.6%	1.9%	19,564	2,315	11.8%	$340.07	$340.52
Suboxone® Sublingual Film 8-2 MG	-$1.70	$0.70	-2.4%	1.0%	19,494	88	0.5%	$72.53	$72.97
Qvar® RediHaler 40 MCG/ACT	$4.07	-$5.10	2.2%	-2.9%	18,651	2,227	11.9%	$181.53	$183.16
Xarelto® 20 MG	$6.96	$2.57	1.5%	0.6%	16,569	1,873	11.3%	$462.88	$463.80
Incruse® Ellipta Aerosol62.5 MCG/INH	$5.29	$3.15	1.5%	0.9%	15,938	1,960	12.3%	$336.27	$335.32
Victoza® Pen-injector 18 MG/3ML	$10.50	$6.14	1.1%	0.6%	14,736	1,703	11.6%	$957.04	$959.95
Chantix® Continuing Month Pak	$7.94	$2.69	1.9%	0.6%	13,620	1,643	12.1%	$418.99	$421.40
Total For Basket Of Drugs	**$101.36**	**$30.15**	**1.4%**	**0.4%**	**678,580**	**57,727**	**8.5%**	**$7,066.47**	**$7,057.74**

Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

Figure 41: Margin Comparison for Top 20 Brand Drugs by Oregon CCO SDUD Utilization (2019 – 2021)

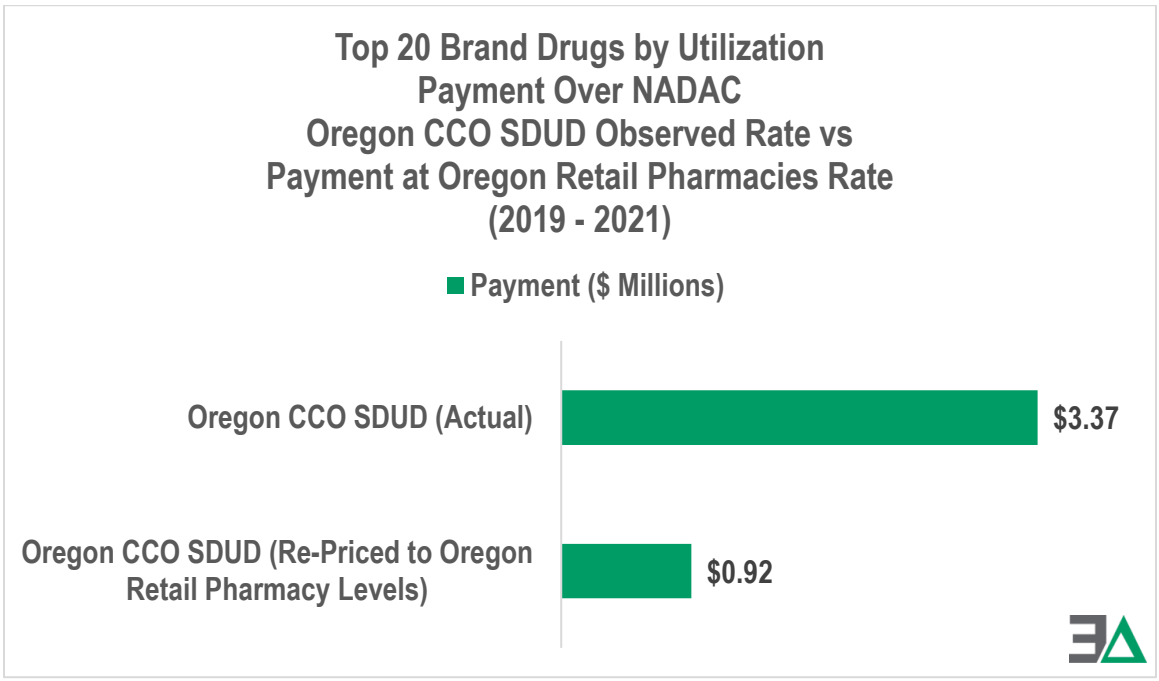


Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

Next, we need to determine how the more than 60% increase in reported margin over NADAC on the top 20 brand drugs in the reported Oregon CCO SDUD compared to the Oregon retail pharmacy data set when translated to overall spending. To do so, the Oregon CCO SDUD reported average margin over NADAC and the Oregon retail pharmacy margin over NADAC was multiplied by the total CCO prescription count for each drug. For example, Basaglar® was found to have an average margin over NADAC from Oregon CCO SDUD reporting of $5.71 per prescription while the Oregon retail pharmacy data set yielded just $1.39 per prescription. According to Oregon SDUD, the state paid for 161,020 Basaglar® prescriptions through its Medicaid CCO program from 2019 to 2021. Multiplying the total Basaglar® prescription count (161,020) by the calculated margin over NADAC in each data set (Oregon CCO SDUD and the 72 Oregon retail pharmacies in our study), we may estimate total state payment over NADAC versus the total pharmacy yield over NADAC. We can conclude the total observed payment over NADAC for Basaglar® from Oregon CCO SDUD data was $919,424 ($5.34 margin over NADAC per prescription x 161,020 prescriptions). However, if Oregon CCOs reimbursed all prescriptions at the Oregon retail pharmacy data set average of $1.39 margin over NADAC per prescription, the total charge to the state would have been just $223,817 ($1.39 x 161,020)**, a decrease of $695,607 in payment for just one drug**.

We performed the same calculation for the entire bucket of top 20 most utilized brand drugs as reflected in the CCO SDUD. Overall, it is estimated that if the top 20 brand drugs were reimbursed at payment rates that equated to the actual amounts paid to the 72 Oregon retail pharmacies in our study, **a reduction in payment of $2.45 million ($3.37 million - $0.92 million) would have been realized by the state over three years** (**Figure 42**)**.**

Figure 42: Top 20 Oregon CCO SDUD Brand Drugs by Utilization, Re-Priced to Oregon Retail Pharmacy Levels (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

Top 20 brand margin over NADAC drugs as reported by Oregon SDUD

While the prior section assessed the trends of the top 20 most utilized brand drugs in the Oregon CCO program, we wanted to do a similar analysis but instead examine the top 20 brand drugs that had the **highest reported average margin over NADAC** as reflected in the Oregon SDUD. In essence, this is an examination of the brand medicines that yielded the highest mark-ups relative to their cost from the state's perspective. Overall, there were significant differentials in payment. **In fact, 35% (7 of 20) of the highest margin transactions as reported by Oregon CCO SDUD resulted in underwater claims for the Oregon retail pharmacy data set** (**Table 5** on the next page)**.**

Comparing the price of the basket of 20 drugs, the Oregon retail pharmacy data set experienced a $481.79 (0.80%) higher average COGS as approximated by average NADAC ($60,562.00 vs $60,080.21 on the basket of 20 drugs). **Despite the higher COGS, the 72 Oregon retail pharmacies experienced just 37% of the calculated payment over NADAC than what was reflected in the broader Oregon CCO SDUD average on the basket of 20 drugs ($529.09 vs $1,426.78).** Note, this is the exact opposite of our earlier observations. We saw earlier with **Figures 38 & 39** that higher COGS products were associated with higher margins, but that is not what is occurring here.

The 72 Oregon retail pharmacies in our study did not always receive lower compensation on like drugs when compared to the Oregon CCO SDUD. For the highest margin over NADAC drug identified from Oregon CCO SDUD reporting (Mavyret® 100-40 mg; a drug used to treat Hepatitis C), the retail pharmacy data set's average margin over NADAC was $193.84 greater (1.24 times) than the SDUD CCO average reported rate ($349.52 vs $155.68). However, the 72 Oregon retail pharmacies in our study seldom had access to such a transaction. Over the three-year study period, only six of the 5,652 prescriptions for Mavyret® that Oregon Medicaid paid for (0.11% of all Mavyret® CCO claims) had dispensed claims reflected in the Oregon retail pharmacy data set. Based on the 8.5% overall brand fill rate as calculated in the **Oregon retail pharmacy data set versus Oregon CCO SDUD** section (page 54), it would be expected that equitable access would have resulted in 480 fills at the 72 Oregon retail pharmacies in our study as opposed to just the six that were realized. Said differently, it would have been more profitable for the 72 Oregon pharmacies to receive equitable access to Mavyret® dispensing (480 fills) and be paid at the SDUD average than be paid a greater per prescription rate but only get six prescriptions.[x]

To be clear, the majority of products in **Table 5** are not producing Mavyret®-style margins for our study pharmacies. Take for example the drug Symtuza® 800-150-10 mg (a drug used to treat HIV). The Oregon retail pharmacy data set fulfilled 16.72% (97 of 580) of the Symtuza® prescriptions that Oregon CCOs covered from 2019 to 2021 but had an overall net underwater margin relative to NADAC experience of a -$6.59 loss per prescription for which the same NDC produced nearly a $60 per prescription margin over NADAC reflected in the Oregon CCO SDUD.

Ultimately, **Table 5** and **Figure 43** (on the next pages) demonstrate that **when the Oregon retail pharmacy group did receive equitable access to claims on the top 20 brand drugs with the highest reported margins, they were often paid less than the aggregate pharmacy marketplace's experience would suggest.**

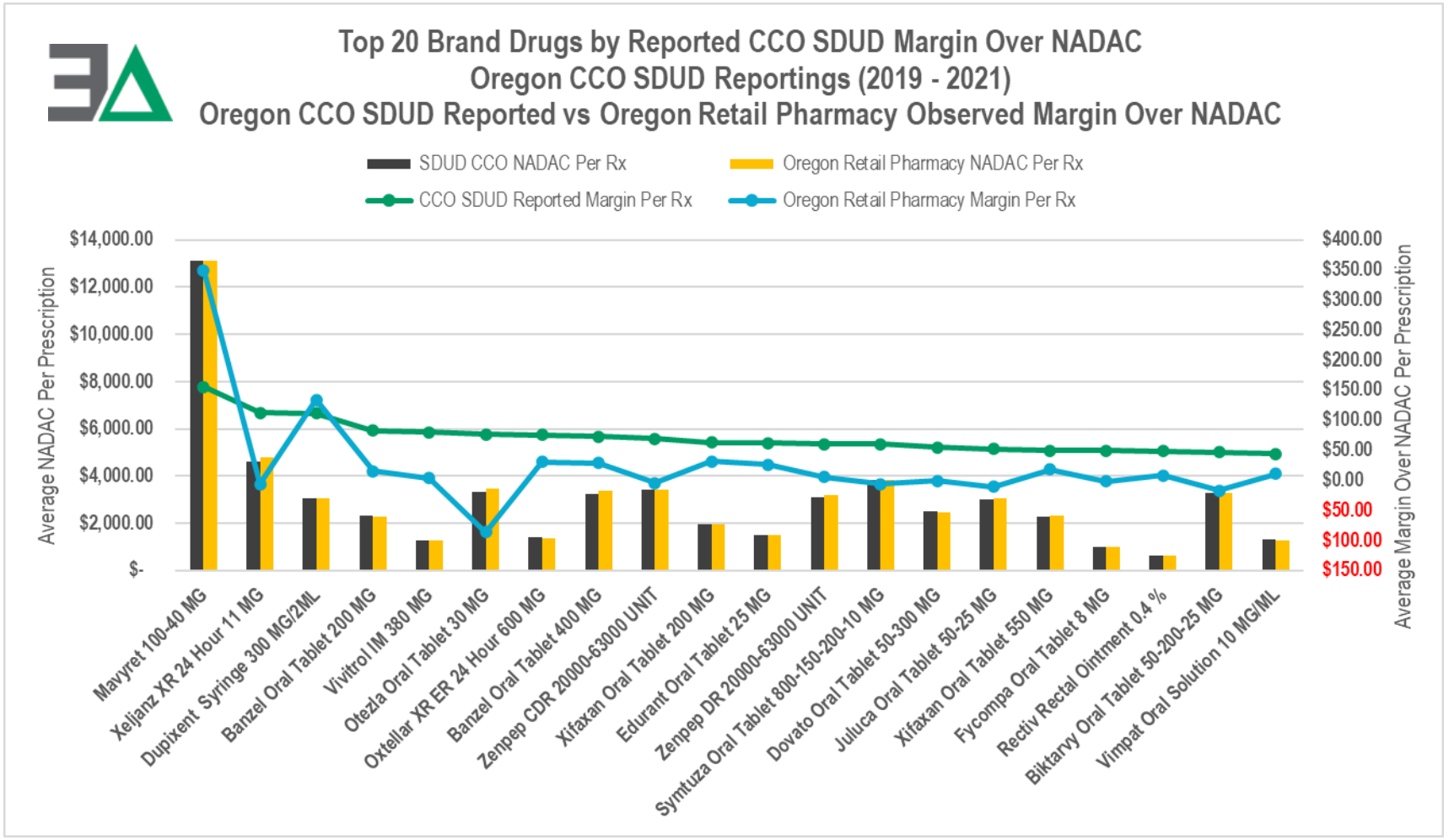
[x] Total Margin above NADAC for Mavyret® - Actual Experience ($349.52 * 6 = $2,097.12) vs. Total Margin above NADAC for Mavyret®-Equal Access with average margin ($155.68 * 480 = $74,726.40)

Table 5: Top 20 Brand Drugs by Oregon CCO SDUD Margin Over NADAC Per Prescription vs Oregon Retail Pharmacies Experience (2019 – 2021)

Product Name	CCO SDUD Reported Margin Per Rx	Oregon Retail Pharmacy Margin Per Rx	CCO SDUD GM (%)	Oregon Retail Pharmacy GM (%)	CCO SDUD Rx Ct	Oregon Retail Pharmacy Rx Ct	Oregon Retail Pharmacy Fill (%)	CCO SDUD NADAC Per Rx	Oregon Retail Pharmacy NADAC Per Rx
Mavyret® 100-40 MG	$155.68	$349.52	1.2%	2.6%	5,652	6	0.1%	$13,133.98	$13,139.39
Xeljanz® XR 24 Hour 11 MG	$112.54	-$5.79	2.4%	-0.1%	830	9	1.1%	$4,603.71	$4,769.49
Dupixent® Syringe 300 MG/2ML	$111.56	$134.09	3.5%	4.2%	1,497	3	0.2%	$3,041.80	$3,038.45
Banzel® Oral Tablet 200 MG	$82.78	$15.78	3.4%	0.7%	342	3	0.9%	$2,337.61	$2,267.60
Vivitrol IM 380 MG	$79.62	$3.97	6.0%	0.3%	4,506	29	0.6%	$1,248.39	$1,249.24
Otezla® Oral Tablet 30 MG	$76.00	-$86.06	2.2%	-2.6%	532	1	0.2%	$3,324.15	$3,451.84
Oxtellar® XR ER 24 Hour 600 MG	$75.39	$30.97	5.0%	2.2%	350	3	0.9%	$1,426.83	$1,378.03
Banzel Oral Tablet 400 MG	$72.59	$29.02	2.2%	0.9%	464	31	6.7%	$3,253.26	$3,373.30
Zenpep® CDR 20000-63000 UNIT	$68.84	-$4.33	2.0%	-0.1%	43	3	7.0%	$3,406.24	$3,402.88
Xifaxan)R) Oral Tablet 200 MG	$63.25	$31.41	3.1%	1.6%	12	5	41.7%	$1,945.97	$1,946.07
Edurant Oral Tablet 25 MG	$61.94	$26.28	4.0%	1.7%	290	1	0.3%	$1,484.40	$1,489.83
Zenpep® DR 20000-63000 UNIT	$60.50	$5.21	1.9%	0.2%	370	9	2.4%	$3,087.15	$3,171.44
Symtuza® Oral Tablet 800-150-200-10 MG	$59.97	-$6.59	1.5%	-0.2%	580	97	16.7%	$3,819.62	$3,833.59
Dovato® Oral Tablet 50-300 MG	$55.02	-$0.89	2.2%	0.0%	62	12	19.4%	$2,487.84	$2,468.62
Juluca® Oral Tablet 50-25 MG	$51.85	-$11.06	1.7%	-0.4%	760	14	1.8%	$3,012.39	$3,067.06
Xifaxan® Oral Tablet 550 MG	$49.63	$17.81	2.1%	0.8%	5,878	244	4.2%	$2,277.48	$2,315.37
Fycompa® Oral Tablet 8 MG	$49.58	-$1.81	4.8%	-0.2%	231	21	9.1%	$989.71	$1,008.16
Rectiv® Rectal Ointment 0.4 %	$48.62	$8.37	7.3%	1.3%	29	7	24.1%	$614.52	$614.37
Biktarvy® Oral Tablet 50-200-25 MG	$47.15	-$17.43	1.4%	-0.5%	16	1	6.3%	$3,284.70	$3,286.02
Vimpat® Oral Solution 10 MG/ML	$44.27	$10.62	3.3%	0.8%	355	28	7.9%	$1,300.46	$1,291.25
Total For Basket Of Drugs	$1,426.78	$529.09	2.32%	0.87%	22,799	527	2.3%	$60,080.21	$60,562.00

Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

Figure 43: Top 20 Brand Drugs by Oregon CCO SDUD Utilization vs Oregon Retail Pharmacies Experience (2019 – 2021)

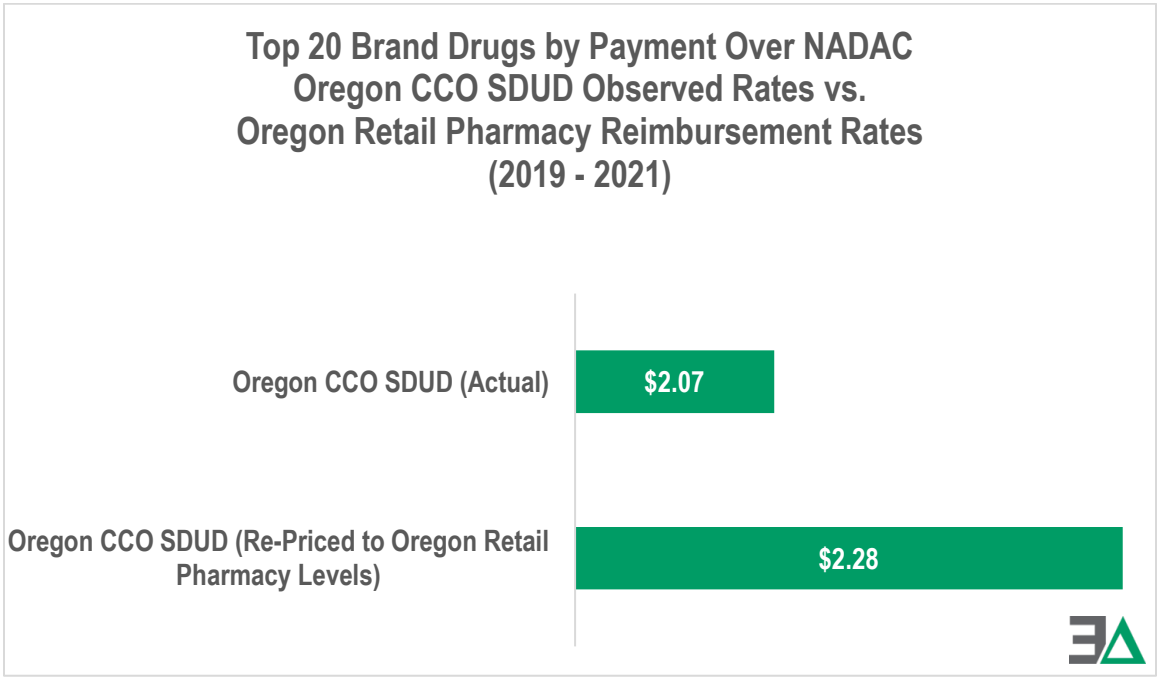


Source: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

As discussed previously, drugs are not dispensed on a 1:1 basis between any given set of pharmacies and therefore, utilization plays a role in net overall expenditures. We conducted an analysis to determine the differential in payment that may exist if CCO payments for all claims were at the Oregon retail pharmacy data set rate as opposed to the observed Oregon CCO SDUD rate.

The reimbursement rates realized by the 72 Oregon retail pharmacies for all prescriptions from the basket of top 20 highest-margin brand drugs from 2019 to 2021 would increase state spend over NADAC by $208,000 when compared to the observed CCO SDUD rates (**Figure 44**). This observation is driven entirely by the impact of Mavyret®, which our 72 pharmacies experienced a significantly higher per prescription reimbursement than the aggregate paid amounts reflected in the Oregon CCO SDUD. This finding demonstrates how seemingly outlier events can have disproportionate impacts on pharmacy expenditures. Mavyret® is one drug product out of thousands, and yet, its role can be this impactful to overall state expenditures as seen in **Figure 44**.

Figure 44: Top 20 Oregon CCO SDUD Brand Drugs by Margin Over NADAC Per Prescription Projected Payment Over NADAC (Oregon Retail Pharmacy Data Set Reimbursement Rates vs CCO SDUD Reported Rates (2019 – 2021)



Source: 72 Oregon retail pharmacies in study, CMS NADAC, CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

Top 20 generic drugs by Oregon SDUD CCO utilization

The analysis just completed on brand drugs was extended to generic drugs. First, the top 20 most utilized generic drugs from 2019 to 2021 according to Oregon CCO SDUD were identified. We replicated our prior methods with brands to calculate an average margin over NADAC, estimated gross margin percentage, and fill percentage and compared that data to what our 72 Oregon retail pharmacies realized. Overall, the retail pharmacy data set received 8.3% of total reported prescription fills, which is close to the 9.0% estimated fill percentage from the earlier section, **Oregon retail pharmacy data set versus Oregon CCO SDUD** (page 54).

The top 20 basket of most utilized generic drugs from the Oregon CCO SDUD between 2019 and 2021 had an average 1.3% lower observed NADAC price ($86.29 vs $87.39 per prescription) in the Oregon pharmacy retail data set when compared to the broader Oregon CCO SDUD averages (**Table 6** on the next page). This finding is consistent with our earlier observations of apparent efforts by our study pharmacies to control acquisition costs.

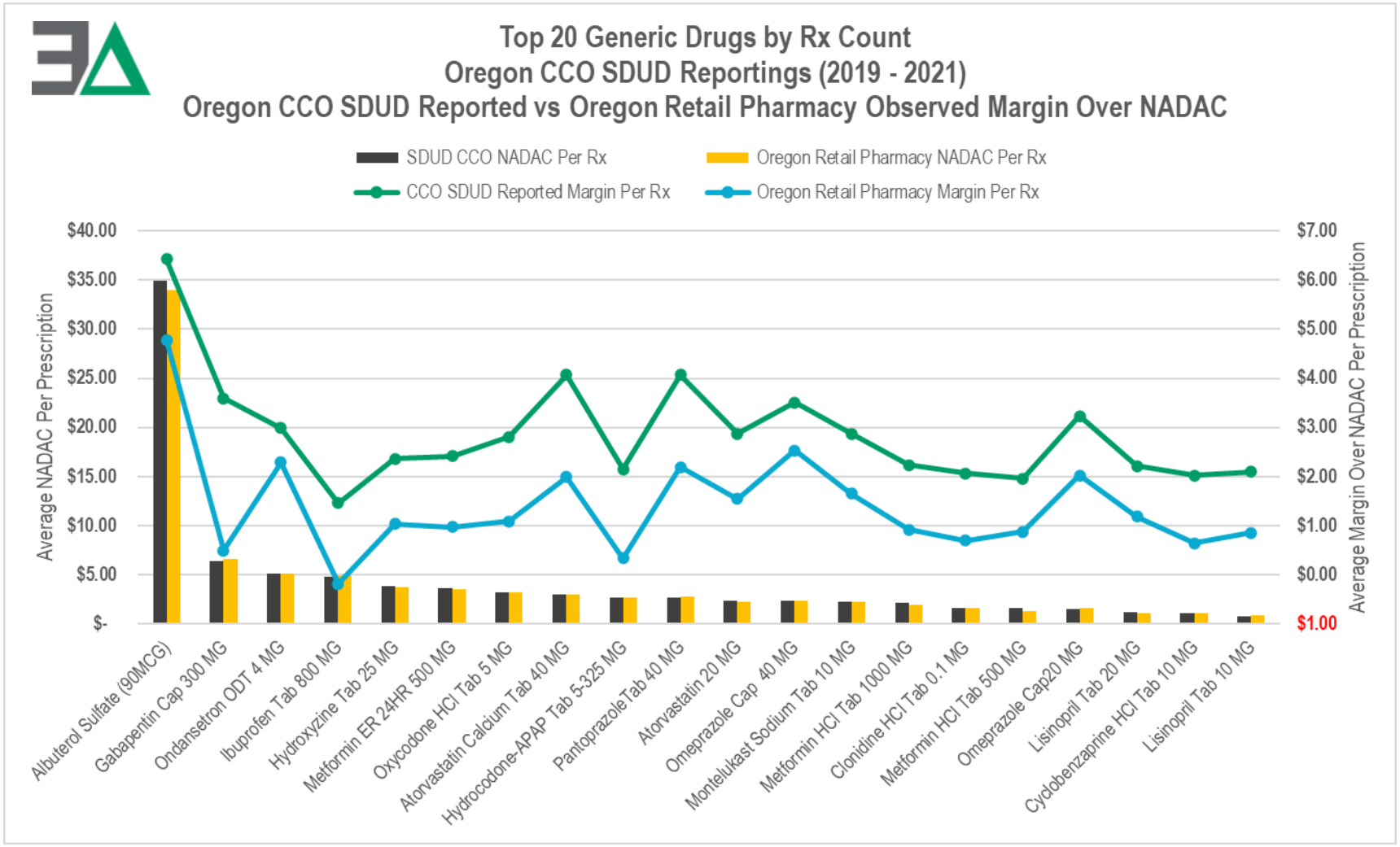
Overall, the 72 Oregon retail pharmacies in our study experienced payment rates which resulted in a margin over NADAC that was 48.7% lower than what was reflected in the Oregon CCO SDUD. **Of the top 20 most utilized generic drugs, there was not a single example in which the retail pharmacy gross margin over NADAC percent was greater than the average rates reported in the Oregon CCO SDUD** (**Figure 45** on page 74)**.** The average margin over NADAC per drug on the basket of top 20 most utilized drugs was $2.87 ($57.45 / 20 drugs) in Oregon CCO SDUD reporting and $1.40 ($27.99 / 20 drugs) for the Oregon retail pharmacy data set.

Table 6: Top 20 Generic Drugs by Oregon CCO SDUD Utilization vs Oregon Retail Pharmacies Experience (2019 – 2021)

Product Name	CCO SDUD Reported Margin Per Rx	Oregon Retail Pharmacy Margin Per Rx	CCO SDUD GM (%)	Oregon Retail Pharmacy GM (%)	CCO SDUD Rx Ct	Oregon Retail Pharmacy Rx Ct	Oregon Retail Pharmacy Fill (%)	CCO SDUD NADAC Per Rx	Oregon Retail Pharmacy NADAC Per Rx
Albuterol Sulfate (90MCG)	$6.42	$4.78	15.5%	12.3%	620,345	62,078	10.0%	$34.95	$34.01
Gabapentin Cap 300 MG	$3.60	$0.50	36.2%	7.1%	376,769	34,205	9.1%	$6.46	$6.59
Ondansetron ODT 4 MG	$2.99	$2.29	36.7%	30.7%	177,939	5,612	3.2%	$5.14	$5.16
Ibuprofen Tab 800 MG	$1.46	-$0.18	23.1%	-3.8%	188,175	16,649	8.8%	$4.84	$4.96
Hydroxyzine Tab 25 MG	$2.37	$1.04	38.4%	21.6%	148,323	12,900	8.7%	$3.85	$3.79
Metformin ER 24HR 500 MG	$2.42	$0.98	39.8%	21.7%	151,668	12,679	8.4%	$3.63	$3.53
Oxycodone HCl Tab 5 MG	$2.81	$1.09	46.7%	25.3%	190,373	12,248	6.4%	$3.21	$3.21
Atorvastatin Tab 40 MG	$4.07	$1.99	58.0%	40.2%	224,449	20,376	9.1%	$2.97	$2.97
Hydrocodone-APAP Tab 5-325 MG	$2.15	$0.34	44.3%	11.0%	276,056	21,745	7.9%	$2.71	$2.74
Pantoprazole Tab 40 MG	$4.07	$2.20	60.4%	44.3%	156,128	11,548	7.4%	$2.68	$2.76
Atorvastatin 20 MG	$2.87	$1.55	54.4%	40.1%	173,244	12,005	6.9%	$2.41	$2.31
Omeprazole Cap 40 MG	$3.51	$2.53	59.9%	51.2%	166,334	10,170	6.1%	$2.38	$2.42
Montelukast Sodium Tab 10 MG	$2.87	$1.65	56.3%	41.6%	184,111	14,510	7.9%	$2.23	$2.32
Metformin HCl Tab 1000 MG	$2.24	$0.92	51.0%	32.5%	175,300	14,867	8.5%	$2.13	$1.91
Clonidine HCl Tab 0.1 MG	$2.07	$0.70	56.0%	30.4%	149,069	10,824	7.3%	$1.61	$1.61
Metformin HCl Tab 500 MG	$1.96	$0.88	54.5%	40.8%	166,080	14,832	8.9%	$1.60	$1.28
Omeprazole Cap20 MG	$3.23	$2.03	67.2%	55.9%	458,485	29,144	6.4%	$1.56	$1.60
Lisinopril Tab 20 MG	$2.22	$1.19	65.2%	51.8%	177,967	19,615	11.0%	$1.19	$1.11
Cyclobenzaprine HCl Tab 10 MG	$2.03	$0.65	65.6%	36.1%	230,087	24,671	10.7%	$1.06	$1.15
Lisinopril Tab 10 MG	$2.10	$0.86	72.5%	49.9%	174,868	19,432	11.1%	$0.78	$0.86
Total For Basket of Drugs	$57.46	$27.99	39.7%	24.5%	4,565,770	380,110	8.3%	$87.39	$86.29

Source: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

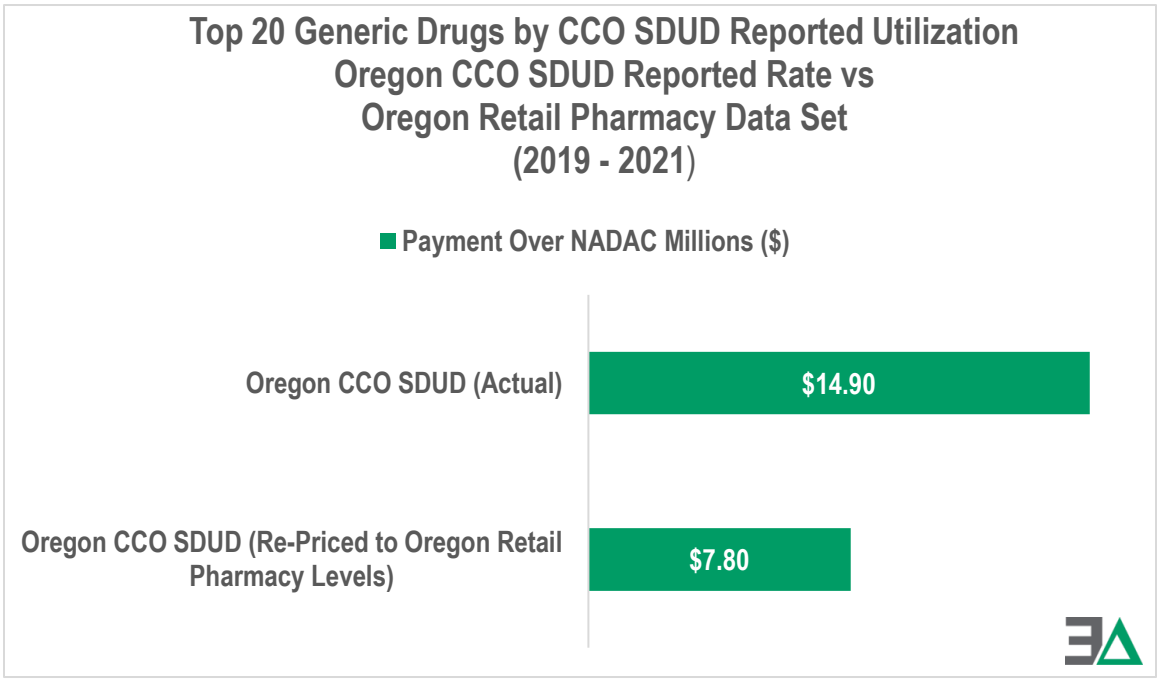
Figure 45: Top 20 Generic Drugs by Oregon CCO SDUD Utilization vs Oregon Retail Pharmacies Experience (2019 – 2021)



Source: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

As with brand transactions, a payment differential calculation was performed to determine the Oregon CCO SDUD overall payment difference if all prescriptions for the top 20 most utilized generic drugs were at a margin over NADAC rate paid to the 72 Oregon retail pharmacies in our study as opposed to what was reported as charged to the state in the Oregon CCO SDUD. **It is estimated that the state would have saved $7.2 million from 2019 to 2021 if they received the rates paid to the 72 Oregon retail pharmacies in our study on the top 20 most utilized generic drugs instead of the rates they were charged for the same drugs by Oregon CCOs** (**Figure 46**).

Figure 46: Top 20 Oregon CCO SDUD Generic Drugs by Utilization, Projected Payment Over NADAC (Oregon Retail Pharmacy Data Set Rate vs Oregon CCO SDUD Reported Rate (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

Top 20 generic drugs by reported SDUD CCO margin

In keeping with the studies of brand drugs, we hoped to conduct the same analysis for the grouping of generic drugs that generated the highest margin over NADAC as reported through the Oregon CCO SDUD, but we ran into a limitation. The 72 retail pharmacies in our study did not have any prescription fills for some of the highest margin over NADAC drugs identified within the Oregon CCO SDUD.

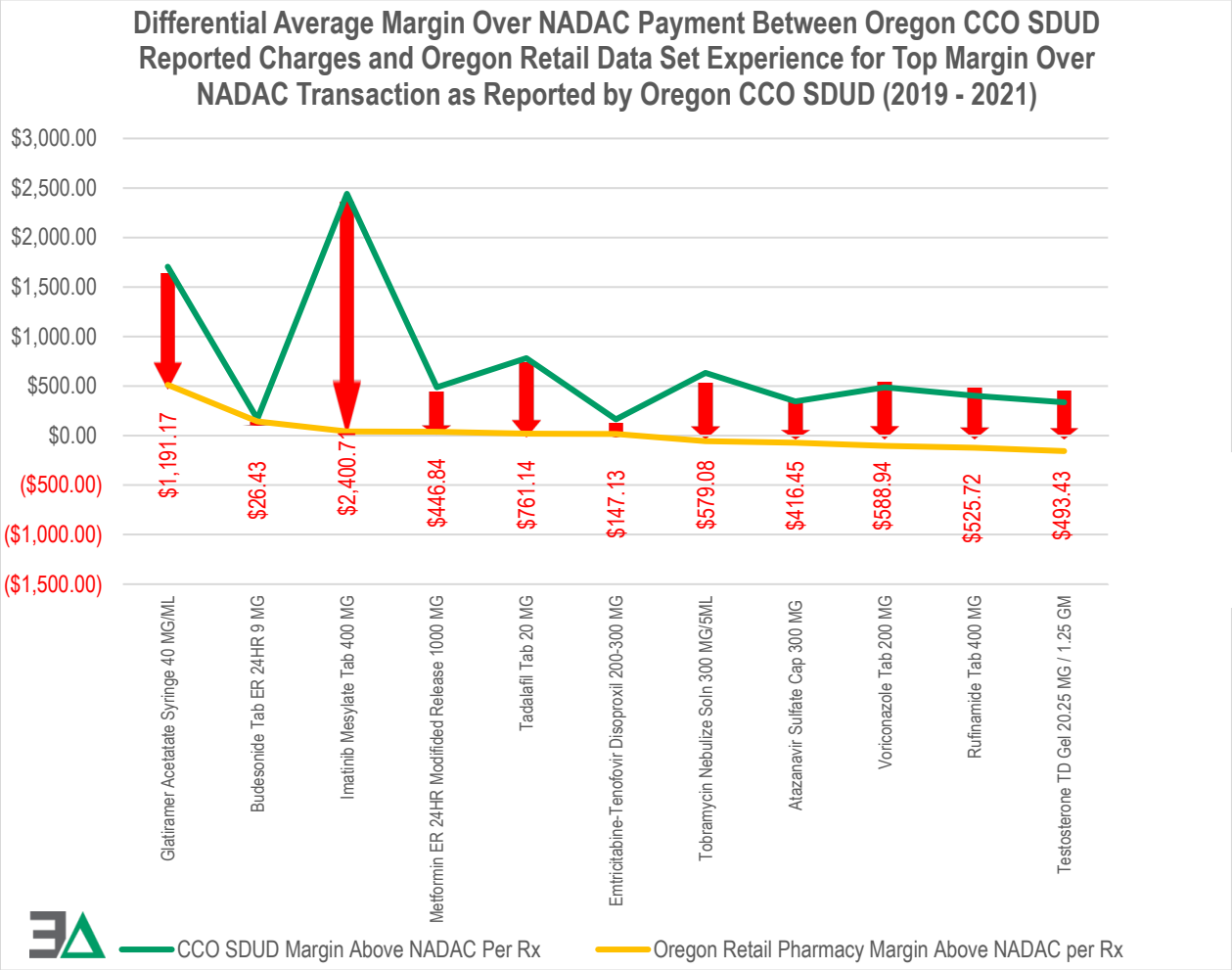
More specifically, we found a portion of the 5% of CCO SDUD drug spend alluded to in the **Access to claims** section (page 50) that did not appear in the Oregon retail pharmacy data set. As illustrated in **Table 7** on page 78, **nine of the top 20 most profitable generic drugs (45%) as reported in the Oregon CCO SDUD were never filled by any of the 72 retail pharmacies in our study, including 60% of the top 10 drugs. Overall, the 72 Oregon retail pharmacies in our study only had a fill rate of just 1.16% for this basket of over-priced medicines, significantly lower than the expected 9%** outlined in the **Oregon retail pharmacy data set versus Oregon CCO SDUD** section on page 54.

While the access differences between the broad Oregon retail pharmacy experience (as reflected in SDUD) and our 72 pharmacies were interesting for these high margin generic claims, arguably even more interesting was the

differential in payment for the drugs that were able to be compared. The data shows that **the gross margin percentage over NADAC for the top 20 highest margin generic drugs from 2019 to 2021 was 3.4% for the 72 Oregon retail pharmacies in our study while the Oregon CCO SDUD reported the margin for all pharmacies to be 59.2% – over a 17 times difference** (**Table 7** on page 78).

The average margin over NADAC for the top 20 highest margin drugs that the 72 Oregon retail pharmacies in our study dispensed was $24.10 ($265.13 / 11 drugs[11]) per drug while the CCO SDUD reported rates paid for the same drugs across Oregon was $913.59 ($18,271.81 / 20 drugs) per drug (**Figure 47**).

Figure 47: Differential Average Margin Over NADAC Payment Between CCO SDUD Reported Charges and Oregon Retail Data Set Experience for Top Margin Over NADAC Transactions as Reported by Oregon CCO SDUD (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

The observations in **Figure 47** are the opposite of what was observed in the brand drug analysis; here, higher margin claims appear associated with higher access. Take for example brand name drug Mavyret®, in which the margin over NADAC in the Oregon retail pharmacy data set was 2.24 times higher than the Oregon CCO SDUD average ($349.52

[11] The 72 Oregon retail pharmacies data set had dispensing for 11 of the 20 highest CCO SDUD average margin over NADAC prescriptions; therefore the sum of the Oregon retail pharmacy data set was divided by 11 as opposed to 20.

vs $155.68), while at the same time, access to Mavyret® prescriptions in the studied retail pharmacies was significantly restricted at just 0.11% of Mavyret® fills (5 of 5,652 fills).

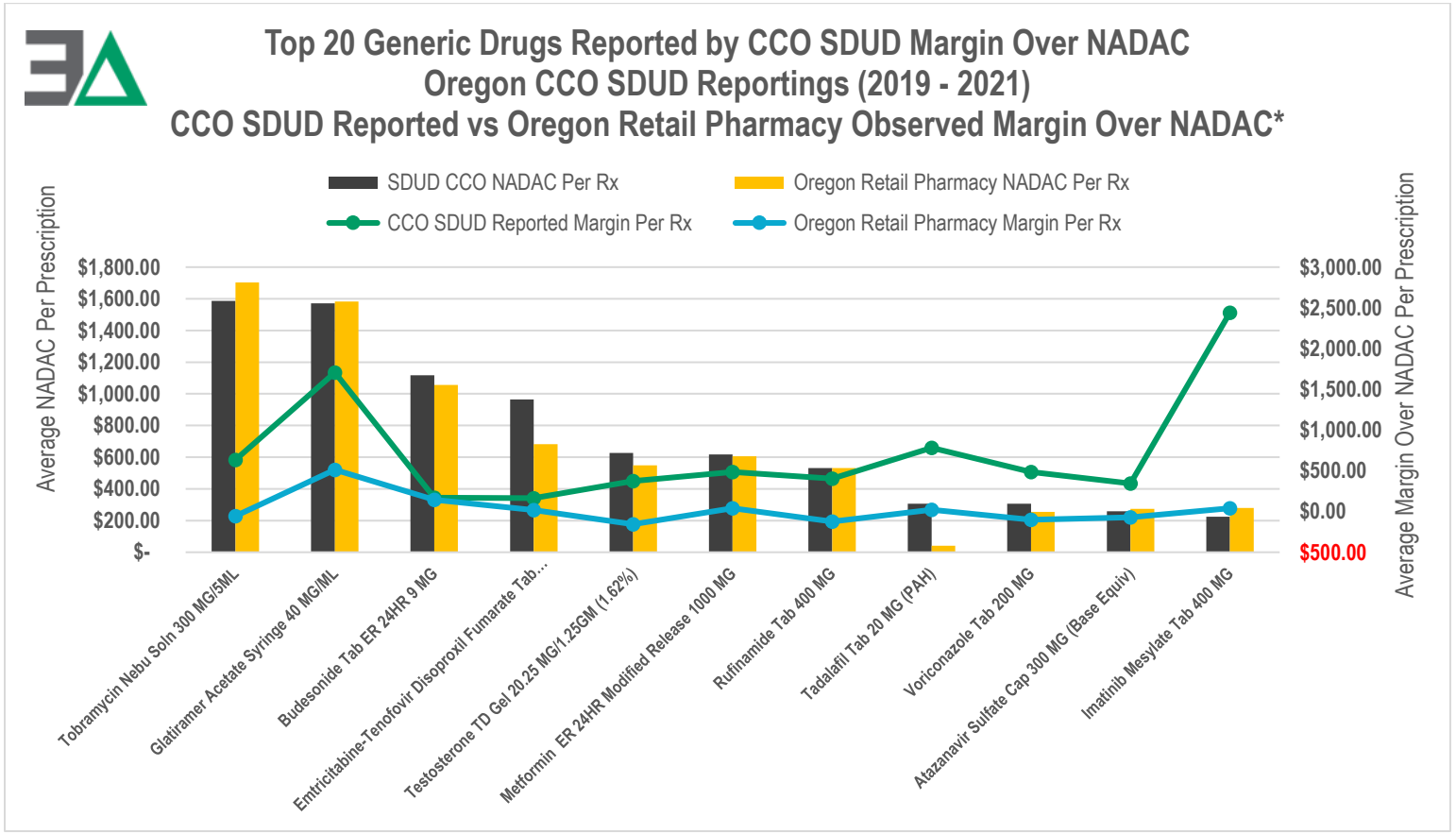
Now consider the $40.75 per prescription margin over NADAC for generic Gleevec® (imatinib mesylate 400 mg, a cancer medication) observed from the 72-retail pharmacy data set. The $40.75 margin is 60 times lower than the Oregon CCO SDUD average cost of $2,441.46 per prescription for the same drug despite the Oregon CCO average NADAC being 20% lower ($223.80 vs $279.53). That said, the percentage of imatinib mesylate 400 mg prescription fills for the 72 Oregon retail pharmacies in our study was just 0.23% – just one out of the total 441 prescriptions reportedly paid for by the Oregon Medicaid CCO program from 2019 to 2021. **State payment rates that would have matched the margins paid to the 72 Oregon retail pharmacies in our study for imatinib mesylate 400 mg would have reduced overall spend on this single drug by $1.06 million over just 441 transactions ($2,400 per prescription).**

Table 7: Top 20 Generic Drugs by Oregon CCO SDUD Margin Over NADAC Per Prescription vs Oregon Retail Pharmacies Experience (2019 – 2021)

Product Name	CCO SDUD Reported Margin Per Rx	Oregon Retail Pharmacy Margin Per Rx	CCO SDUD GM (%)	Oregon Retail Pharmacy GM (%)	CCO SDUD Rx Ct	Oregon Retail Pharmacy Rx Ct	Oregon Retail Pharmacy Fill (%)	CCO SDUD NADAC Per Rx	Oregon Retail Pharmacy NADAC Per Rx
Imatinib Mesylate Tab 400 MG	$2,441.46	$40.75	91.6%	12.7%	441	1	0.2%	$223.80	$279.53
Dimethyl Fumarate 240 MG	$2,362.48	$-	91.4%	0.0%	180	-	0.0%	$222.60	$-
Glatiramer AcetateSyringe 20 MG/ML	$1,822.77	$-	53.9%	0.0%	141	-	0.0%	$1,562.10	$-
Imatinib Mesylate Tab 100 MG	$1,713.99	$-	89.9%	0.0%	27	-	0.0%	$191.89	$-
Glatiramer Acetate Syringe 40 MG/ML	$1,704.01	$512.84	52.0%	24.5%	1,341	19	1.4%	$1,570.57	$1,582.06
Abiraterone Acetate 250 MG	$1,647.93	$-	78.8%	0.0%	206	-	0.0%	$443.17	$-
Capecitabine Tab 500 MG	$917.59	$-	83.2%	0.0%	1,127	-	0.0%	$185.47	$-
Tadalafil Tab 20 MG (PAH)	$781.91	$20.77	71.8%	33.2%	634	1	0.2%	$307.12	$41.87
Tobramycin 300 MG/5ML	$634.37	$(55.29)	28.6%	-3.4%	182	1	0.6%	$1,587.30	$1,702.27
DalfampridineER 12HR 10 MG	$597.06	$-	87.9%	0.0%	60	-	0.00%	$82.26	$-
Efavirenz-Emtri-Tenofovir 600-200-300 MG	$575.25	$-	25.5%	0.0%	116	-	0.00%	$1,682.71	$-
Voriconazole Tab 200 MG	$486.42	$(102.52)	61.4%	-67.0%	16	9	56.3%	$305.83	$255.55
Metformin ER 24HR Modified Release 1000 MG	$486.31	$39.47	44.1%	6.1%	62	5	8.1%	$616.47	$605.12
Rufinamide Tab 400 MG	$402.18	$(123.54)	43.0%	-30.2%	12	2	16.7%	$532.41	$532.05
Testosterone TD 20.25 MG/ 1.25GM	$373.03	$(156.40)	37.3%	-39.8%	37	12	32.4%	$626.10	$549.25
Atazanavir Sulfate Cap 300 MG (Base Equiv)	$345.20	$(71.25)	57.3%	-35.2%	102	3	3.0%	$257.70	$273.75
Entecavir Tab 1 MG	$323.61	$-	87.2%		13	-	0.00%	$47.70	$-
Chlordiazepoxide Cap 5-2.5 MG	$322.38	$-	86.2%	0.0%	12	-	0.00%	$51.70	$-
Budesonide Tab ER 24HR 9 MG	$169.82	$143.39	13.2%	12.0%	186	8	4.3%	$1,116.47	$1,055.85
Emtricitabine-Tenofovir Disoproxil 200-300 MG	$164.04	$16.91	14.5%	2.4%	3,643	38	1.0%	$964.58	$682.99
Total For Basket Of Drugs	$18,271.81	$265.13	59.2%	3.4%	8,538	99	1.2%	$12,577.95	$7,560.29

Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

Figure 48: Top 20 Generic Drugs by Oregon CCO SDUD Margin Over NADAC Per Prescription vs Oregon Retail Pharmacies Experience (2019 – 2021)



***Represents drugs with dispensed claims in Oregon retail pharmacy data set (11 of 20 total drugs)**

Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

Unfortunately, we do not have the opportunity to make a comparative utilization analysis as we did in the previous brand sections (we do not have any dispensed claims in the Oregon retail pharmacy data set to offer price comparisons for 45% of the most profitable generic drugs paid for by state CCOs). As an alternative, we chose to drill down into the highest margin over NADAC generic drug as reported in the Oregon CCO SDUD that did not have any dispensed claims from our 72 Oregon retail pharmacies. The identified product was generic Tecfidera® (dimethyl fumarate 240 mg), which yielded an average Oregon CCO SDUD margin over NADAC of $2,362.48 per prescription.

'Wreck-fidera'

Dimethyl fumarate 240 mg is the generic equivalent for Biogen's blockbuster multiple sclerosis (MS) medication, Tecfidera®, which lost patent exclusivity in August of 2020. The loss of exclusivity opened the drug up to generic competition shortly thereafter. Research into dimethyl fumarate's NADAC history revealed the first published NADAC price was a year after the generic drug's first initial launch in August 2020. Understanding the limitations of our database build, any prescriptions covered in the Oregon CCO SDUD for dimethyl fumarate prior to an established NADAC (in essence any prescriptions covered from the fourth quarter of 2020 through the third quarter of 2021) would not be captured. However, to capture all dimethyl futurate 240 mg transactions, a query was performed on the raw Oregon CCO SDUD file for any covered dimethyl fumarate 240 mg transactions paid for by the state Medicaid CCO program between 2020 to 2021. The total for all four quarters of 2021 was 745 prescriptions.

Table 8: Dimethyl Fumarate 240 mg Total Billed Claims in Oregon CCO SDUD (2021)

Product	Year	Oregon CCO SDUD Reported Units	Oregon CCO SDUD Reported Number of Prescriptions	Oregon CCO SDUD Reported Total Reimbursement	Average Oregon CCO SDUD Reported Payment Per Prescription
Dimethyl Fumarate 240 MG	2021	45,270	745	$2,181,639	$2,928

Source: CMS SDUD

In order for our analysis to proceed, an alternative method had to be used to estimate pharmacies' cost to acquire the drug prior to the existence of the NADAC data point. We chose to utilize manufacturer list price as quantified by wholesale acquisition cost (WAC) as of January 2021. Utilizing WAC as a cost of goods sold (COGS) estimate would most likely offer an inflated estimate of pharmacies' cost to acquire (recall, *generic drugs* are heavy discounted from the WAC price within the manufacturer/wholesaler/pharmacy relationship, as described in the **Introduction to drug pricing benchmarks** section on page 17). However, lacking another reliable benchmark, we felt this was the most reasonable approach to establish a "ballpark" basis for a pharmacy's cost to acquire the drug if for no other reason than the higher WAC price would lower margin estimations, therefore making an assessment of margin more conservative by default. WAC pricing data for dimethyl fumarate 240 mg suggests the price had already eroded by the end of January 2021, as four different manufacturers reported list prices (WACs) at or below $350 per bottle of 60 capsules.[12] Since four manufacturers offered a list price (WAC) at $350 or less by the end of January 2021, we felt confident that the typical pharmacy should be able to secure the product at price to acquire of $350 or less per 60-count bottle.

For the sake of simplicity and consistency, we choose to utilize the WAC price of $350 per 60 capsules as the basis of pharmacy acquisition cost for all dimethyl fumarate 240 mg prescriptions for this section of analysis. For that reason, if you were to refer to **Table 7** in the previous section, you would encounter a lower NADAC price (estimated pharmacy

[12] We should note that the WAC price continued to erode for the remainder of the year for this product, further reinforcing the reasonableness of the assumed acquisition cost for pharmacies

acquisition price) of $222.60. However, this price was only established for the 4th quarter claims. We could have attempted to integrate a blending of the two prices (WAC of $350 and NADAC of $220.60) but felt the result of the analysis would not be materially impacted. As we were already making an assumption regarding pharmacy acquisition price before NADAC, it seemed better to not complicate the matter through proportioning an estimate of acquisition cost across two different reference prices (i.e., NADAC and WAC).

To calculate the estimated CCO SDUD payment above an estimated pharmacy cost to acquire (by utilizing WAC) for dimethyl fumarate 240 mg, the WAC price of $350 per 60-capsule prescription was multiplied by the 745 prescriptions that the state paid for through the CCO program in 2021.[13] The total WAC ($260,750) was then subtracted from the total reported CCO SDUD payment of $2,181,649 from those same 745 covered claims. The result was an estimated payment above pharmacies' estimated cost to acquire of $1,920,889 or $2,578 per prescription (**Table 9**).

Table 9: Dimethyl Fumarate 240 MG CCO Estimated Payment Over NADAC Per Prescription (2021)

Product	Oregon CCO SDUD Reported Number of Prescriptions	COGS (WAC) ($350 x 745 Prescriptions)	Oregon CCO SDUD Reported Total Reimbursement	Oregon CCO SDUD Payment Over WAC	Estimated Payment Over WAC Per Prescription
Dimethyl Fumarate 240 MG	745	$260,750	$2,181,639	$1,920,889	$2,578

Sources: CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

To better illustrate what occurred with this product, the generic market worked as well as anyone may have hoped. The WAC price of brand Tecfidera® 240 mg in 2020 was $8,275 per 60 capsules. In a mere six months after launching the first generic version, multiple manufacturers were listing their generic equivalent of Tecfidera® 240 mg at a WAC price of $350 per 60 capsules, a 94% discount. In fact, by May 2021, further erosion had one manufacturer asking for a list price of approximately half of the established $350 used in our analysis – a 98% discount from the list price of the brand version. However, based on what Oregon CCOs charged the state for the generic product, the state's price was over eight times the lower end of manufacturers' asking price. While our analysis is not directly accounting for the pharmacy labor costs, it is obvious that if a pharmacy's cost to dispense is $10 to $12 per prescription, the estimated payment of $2,578 above WAC is more than sufficient to account for these costs. Said differently, if we take out $12 per prescription, the estimated margin becomes $2,566 per prescription.

As mentioned previously, we know the 72 Oregon retail pharmacies in our study **did not dispense a single dimethyl fumarate 240 mg prescription**. This suggests that the drug may have been restricted to narrow or specialty network pharmacies, which tend to disproportionately favor pharmacies that are owned by or affiliated with the companies establishing those networks (typically, the PBM). It would be advised for state officials to examine the competitive dynamics within the specialty drug marketplace and other limited distribution drugs at a more granular level than we have been able to provide to ensure conflicts are being appropriately addressed.

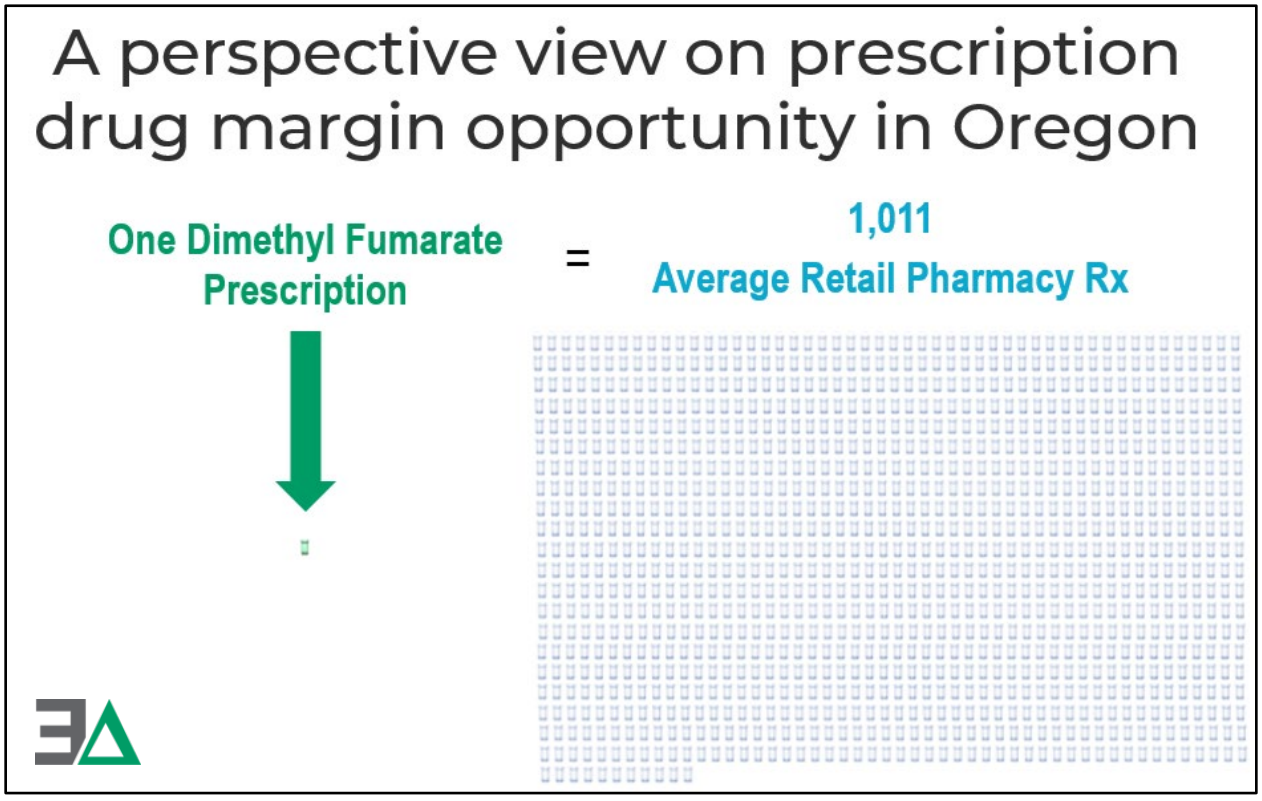
Regardless, SDUD suggests that Oregon's CCOs and their PBMs are yielding prices that are significantly higher than the going rate for the drug and a reasonable mark-up to cover the pharmacy's dispensing-related services. However, the data shows that regardless of the rationale for Oregon CCOs overpaying for the dimethyl fumarate, it is clear that the benefit to pharmacy providers was not shared equitably, as the 72 pharmacies in our study did not generate a single prescription despite representing 13.5% of all retail pharmacy locations in the state.

[13] The overall average units per prescription in Oregon MCO was reported to be 60 in 2021.

In the case of dimethyl fumarate 240 mg, significant savings would be realized if payment was based simply on an assumed manufacturer price of $350 per 60-count bottle. **Overall, even when using the inflated list price of the medicine as the basis for cost, state payment would have been reduced by $1.92 million ($260,750 vs $2,181,639) in 2021 on this one drug alone.**

To contextualize further, the entire analyzed Oregon retail pharmacy data set in 2021 consisted of approximately 586,000 Oregon Medicaid CCO prescriptions (brand and generic combined) from the 72 pharmacies. The total margin over NADAC on those 586,000 transactions was $1,492,588 ($2.55 per prescription). The 745 dimethyl fumarate prescriptions covered by the Oregon CCO program generated a conservative margin that was 29% greater ($1.92 million vs $1.49 million) than the margins obtained on all the CCO prescriptions dispensed by our 72 studied retail pharmacies for the entire year, with a cost of goods sold (COGS) that was just 1.0% ($260,720 vs $26,111,683) of the pharmacies', and labor expenditures of just 0.12% (745 prescriptions vs 585,944 prescriptions). **The value of a single dimethyl fumarate prescription transaction was equivalent to filling 1,011 average margin prescriptions within the Oregon retail pharmacy data set** (**Figure 49**).

Figure 49: At Scale Representation of Effective Margin Difference, Dimethyl Fumarate Claim vs. Average Retail Pharmacy Transaction



Sources: 72 Oregon retail pharmacies, CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

To recontextualize the value of generic Tecfidera®, the Oregon retail pharmacy data set had approximately 573,547 generic prescription claims in 2021 for Oregon Medicaid CCO plans. Assuming the average pharmacy was open six days per week and 52 weeks a year, we may estimate that the mean daily generic CCO prescription count at one of the 72 Oregon retail pharmacies in our study was 25 daily (574,547 generic prescriptions / 52 weeks / 6 days per week / 72 Oregon retail pharmacies). Therefore, a single dimethyl fumarate 240 mg prescription generated the same generic margin as 40 working days (1,011 prescriptions per 1 dimethyl fumarate 240 mg prescription / 25 Oregon SDUD CCO

average claims per day, per pharmacy) of filling the average CCO generic margin prescription for our Oregon retail pharmacy group. From a business perspective, it seems obvious that a pharmacy would want to service these prescriptions over the average CCO claim.

We attempted to determine what the impact on overall margin might have been to the 72 Oregon retail pharmacies in our study if they had received an equitable 9.0% generic fill rate as identified in the **Retail pharmacy to SDUD comparison** section (page 46). Overall, the Oregon retail pharmacy data set would receive an extra $172,726 payment over WAC (745 dimethyl fumarate 240 mg prescription x 9.0% generic fill rate (i.e., 67 dimethyl fumarate 240 mg prescriptions) x $2,578 average margin over WAC per prescription), increasing the average margin per prescription by $0.31 for all generic claims dispensed at the pharmacies. To refresh, the average NADAC per generic oral solid CCO prescription in the Oregon retail pharmacy data set was $6.92 in 2021 (as determined in the **Generic drug reimbursement from CCOs to Oregon retail pharmacies** section on page 57). The 67 dimethyl fumarate 240 mg prescriptions would increase the average COGS by $0.04 per prescription to $6.96. The average generic margin per oral solid prescription would increase from $2.27 to $2.58, a margin increase of 13.7% per prescription.

We were curious if this was an isolated instance with Oregon Medicaid CCO plans or a trend across Medicaid managed care programs in multiple states, as the PBMs operating in Oregon Medicaid service other managed care plans across the country. A query was performed to identify all dimethyl fumarate 240 mg prescriptions that all states paid for in 2021 as reported by SDUD for all U.S. Medicaid managed care programs. Once again, we used the WAC price of $350 per 60-count bottle to conservatively estimate the cost of those prescriptions in 2021 (**Table 10**).

Table 10: Dimethyl Fumarate 240 MG Nationwide Medicaid MCO Billed Claims (2021)

Product	Number Of States with State Medicaid MCO Billings	MCO SDUD Reported Number of Prescriptions	COGS (WAC) ($350 x 15,930 Prescriptions)	Total MCO SDUD Reported Reimbursement	Total MCO SDUD Payment Over WAC	Estimated Payment Over WAC Per Prescription
Dimethyl Fumarate 240 MG	31	15,930	$5,575,500	$52,537,059	$46,961,559	$2,948

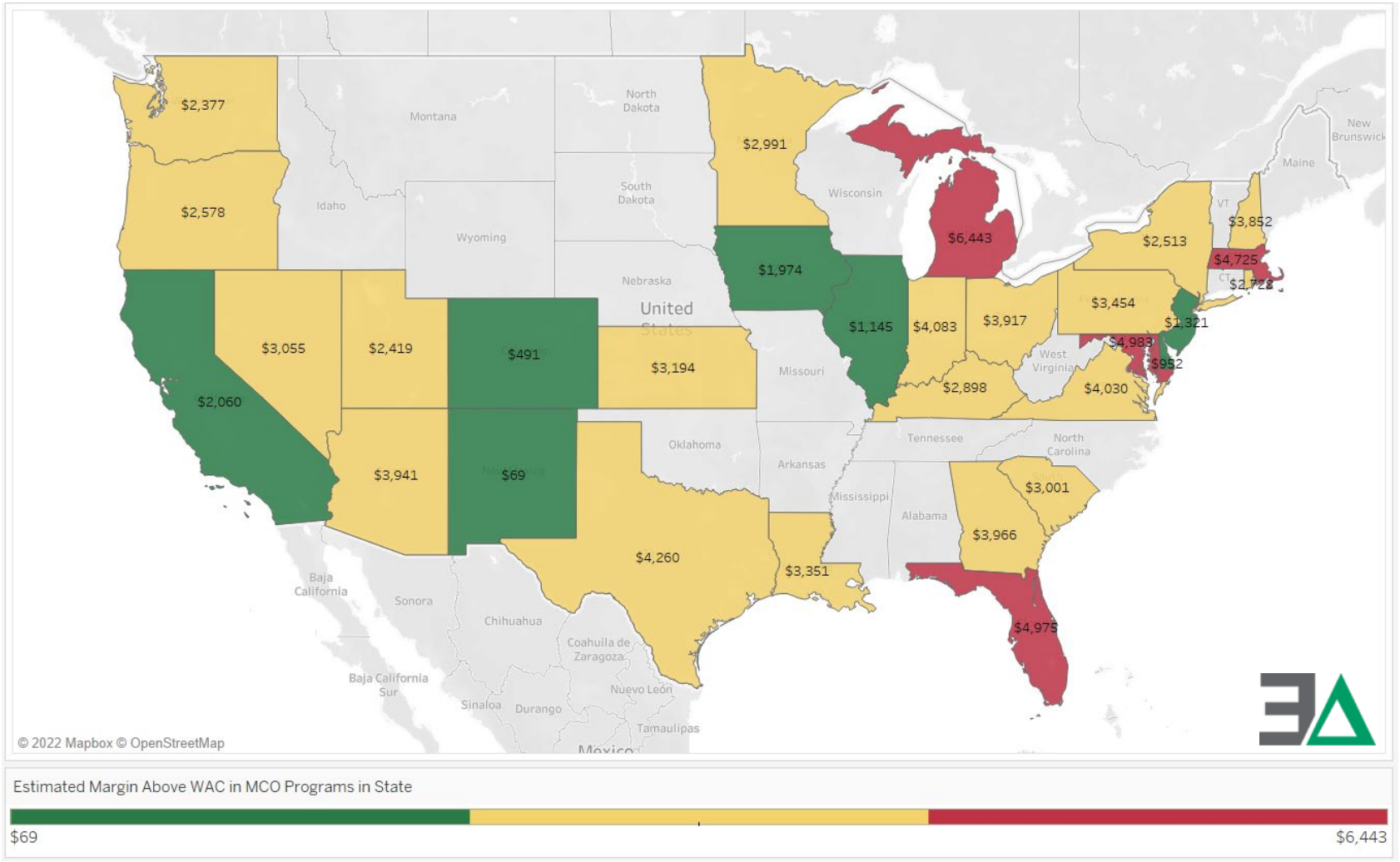
Sources: CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

As can be seen in **Table 10**, for 2021, there were a total of 31 states from which 15,930 Medicaid managed care prescriptions for dimethyl fumarate 240 mg were reported. The total reported payment reported for those claims was $52.5 million, of which estimated COGS was $5.6 million. This results in an estimated payment over the manufacturer list price (WAC) of nearly $47 million, or roughly $3,000 per prescription nationally. To better conceptualize the payment difference, we graphed each state's performance on a map (**Figure 50** on the next page).

As can be observed, the trends we observe with dimethyl fumarate are not unique to Oregon, as only one state (New Mexico) was charged a rate near (within 20%) the $350 list price set by several manufacturers.[14] In fact, despite the significant dimethyl fumarate CCO mark-ups we've identified above, a number of states are paying significantly more than Oregon, including Texas, Massachusetts, Maryland, and Florida. And then there's Michigan, which reportedly paid mark-ups that were more than double the rate in Oregon. States that attempt to control costs by benchmarking themselves against the performance of other states may fail to recognize the actual dynamics of drug prices within their programs.

[14] A prior version of this report incorrectly reported that New Mexico was the only state with a cost *below* the $350 list price. As can be seen in **Figure 50**, New Mexico is incurring a cost above the WAC, but just not to the same degree as other states.

Figure 50: Estimated Average Medicaid Managed Care Payment Above WAC for Dimethyl Fumarate 240 MG per 60 Capsules, Fixed WAC Cost of $350 per Rx (2021)



Sources: CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

Top 20 generic drugs from Oregon retail pharmacy data set (CCO)

We felt that it would be appropriate to investigate the highest margin over NADAC drugs from the Oregon retail pharmacy data set and compare those margins with Oregon CCO SDUD. The method was identical to that used in the previous section **Top 20 generic drugs by reported SDUD CCO margin,** except the analysis was performed in the opposite direction, starting with the most profitable generic drugs dispensed by our study pharmacies (and not the Oregon CCO program as a whole).

Overall, the SDUD average payment over NADAC for the basket of 20 high-margin generic drugs was slightly greater than that of the study pharmacies ($2,912.05 for CCO SDUD reported vs $2,805.05 for the 72 Oregon retail pharmacies in our study). However, a portion of the larger payment may be attributed to a higher average NADAC on the basket of 20 drugs ($6,599.03 for the Oregon CCO SDUD vs $6,074.03 for the Oregon retail pharmacy data). Despite the difference in NADAC COGS, the average gross margin was very similar (30.6% for Oregon CCO SDUD vs 31.6% for the Oregon retail pharmacy data set) (**Table 11** on the next page). The findings are interesting when considering the following:

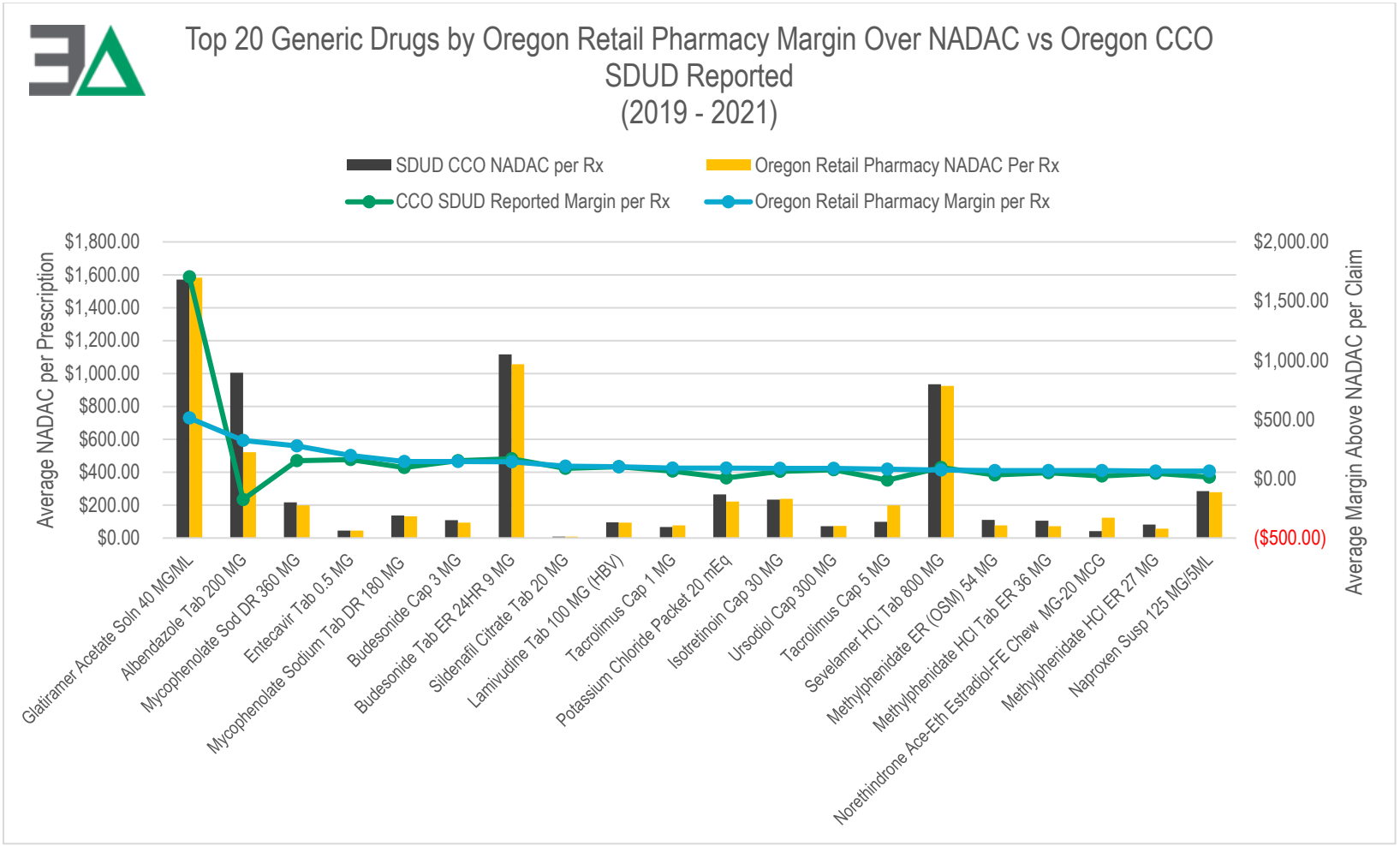
1. Despite identifying the drugs producing the highest margin over NADAC per prescription within the Oregon retail pharmacy data set, the pharmacies still did not achieve an overall gross margin on this highest performing basket of drugs (i.e., an enriched sample), when compared to the Oregon CCO SDUD **reported average** of over 40% (see **Figure 37** previously). Said differently, even when yielding peak profits on a claim, the pharmacies in our study were likely underperforming the average of everyone else in the state.
2. Despite varying payment rates for each drug between what was reported in Oregon CCO SDUD and the Oregon retail pharmacy data set, gross margin payment on the basket of drugs was nearly identical at a 1% difference. This is very different from what was observed in the section, **Top 20 generic drugs by reported SDUD CCO margin**, where the Oregon CCO SDUD payment rate was at an estimated gross margin percentage that was 55.8% higher than the Oregon retail pharmacy data set.
3. The CCO PBMs managed to maintain a similar basket payment rate above NADAC to the Oregon retail pharmacies and reported rates in Oregon CCO SDUD (31.6% vs 30.6%) despite an average 8.6% COGS difference ($6,074.03 vs $6,599.63).
4. The 72 Oregon retail pharmacies in our study did not realize an equitable share of claims on the 20 most profitable per prescription transactions (6.7% vs expected 9.0%).
5. Even the most profitable drug for the Oregon retail pharmacy data set, glatiramer 40 mg/ml, at an average payment over NADAC of $512.83 per prescription was not nearly as lucrative as the payment for the same Glatiramer 40 mg/ml prescription when compared to Oregon CCO SDUD reported averages of $1,704.01. The 72 Oregon retail pharmacies seldom had equitable opportunities to fill this highly profitable prescription despite the potential cost savings it would have offered the state if Oregon CCO PBMs would have charged the state based on the rate paid to our study pharmacies instead of the higher amounts that were paid out to other companies.

Table *11*: Top 20 Generic CCO SDUD Drugs by Margin Over NADAC Per Prescription within 72-Oregon Retail Pharmacy Data Set (2019 – 2021)

Product Name	CCO SDUD Reported Margin Per Rx	Oregon Retail Pharmacy Margin Per Rx	CCO SDUD GM (%)	Oregon Retail Pharmacy GM (%)	CCO SDUD Rx Ct	Oregon Retail Pharmacy Rx Ct	Oregon Retail Pharmacy Fill (%)	CCO SDUD NADAC Per Rx	Oregon Retail Pharmacy NADAC Per Rx
Glatiramer Acetate Soln 40 MG/ML	$1,704.01	$512.84	52.0%	24.5%	1,341	19	1.4%	$1,570.57	$1,582.06
Albendazole Tab 200 MG	-$175.26	$324.52	-21.1%	38.3%	159	36	22.6%	$1,005.26	$522.11
Mycophenolate Sod DR 360 MG	$153.16	$277.42	41.3%	58.4%	987	154	15.6%	$217.43	$197.87
Entecavir Tab 0.5 MG	$162.28	$196.73	78.1%	81.5%	2,299	69	3.0%	$45.57	$44.65
Mycophenolate Sodium Tab DR 180 MG	$94.30	$146.20	40.9%	52.6%	245	17	6.9%	$136.07	$131.69
Budesonide Cap 3 MG	$153.14	$145.76	58.5%	60.9%	2,697	233	8.6%	$108.72	$93.73
Budesonide Tab ER 24HR 9 MG	$169.84	$143.39	13.2%	12.0%	186	8	4.3%	$1,116.42	$1,055.81
Sildenafil Citrate Tab 20 MG	$88.30	$105.79	90.6%	92.0%	7,459	193	2.6%	$9.14	$9.21
Lamivudine Tab 100 MG (HBV)	$102.50	$102.87	52.0%	52.3%	63	26	41.3%	$94.49	$93.76
Tacrolimus Cap 1 MG	$65.59	$90.58	49.2%	53.9%	6,135	257	4.2%	$67.67	$77.49
Potassium Chloride Packet 20 mEq	$6.49	$90.12	2.4%	28.9%	1,241	105	8.5%	$265.59	$221.26
Isotretinoin Cap 30 MG	$63.43	$88.28	21.3%	27.0%	542	21	3.9%	$233.76	$239.14
Ursodiol Cap 300 MG	$76.49	$87.51	51.6%	54.5%	2,615	169	6.5%	$71.62	$72.98
Tacrolimus Cap 5 MG	-$12.35	$80.85	-14.3%	28.9%	23	1	4.3%	$98.78	$198.97
Sevelamer HCl Tab 800 MG	$94.87	$74.10	9.2%	7.4%	60	3	5.0%	$935.06	$924.68
Methylphenidate ER (OSM) 54 MG	$32.04	$70.23	22.6%	47.9%	18,189	1,246	6.9%	$109.44	$76.43
Methylphenidate HCl Tab ER 36 MG	$49.88	$69.95	32.3%	49.2%	21,150	1,673	7.9%	$104.58	$72.09
Norethindrone Ace-Eth Estradiol-FE Chew MG-20 MCG	$23.08	$68.47	35.3%	35.5%	25	16	64.0%	$42.25	$124.32
Methylphenidate HCl ER 27 MG	$46.33	$65.16	36.2%	53.4%	15,702	1,140	7.3%	$81.77	$56.97
Naproxen Susp 125 MG/5ML	$13.92	$65.10	4.7%	18.9%	300	44	14.7%	$285.46	$278.84
Total For Basket Of Drugs	$2,912.05	$2,805.85	30.6%	31.6%	81,418	5,430	6.7%	$6,599.63	$6,074.03

Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

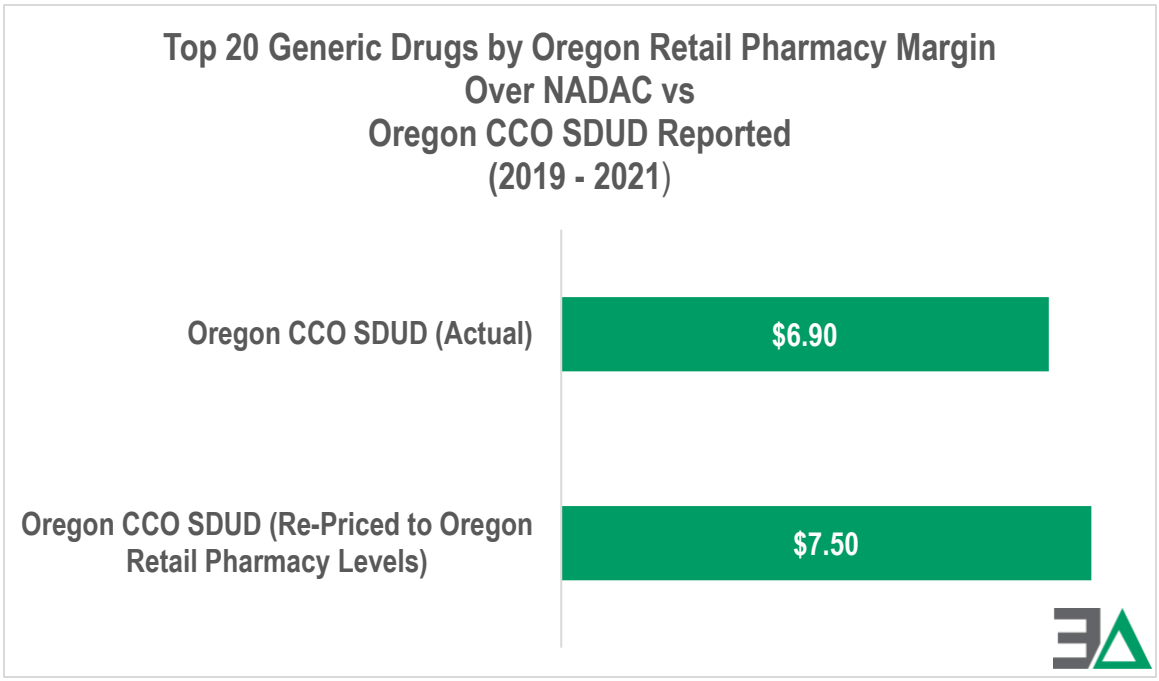
Figure *51*: Top 20 Generic Retail Drugs by Margin Over NADAC Per Prescription Within 72-Oregon Retail Pharmacy Data Set (2019 – 2021)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

As before, we finish our analysis of these top 20 drugs by performing a payment differential calculation to determine the overall change in state costs if payment for all prescriptions for the top 20 greatest margin over NADAC drugs were paid at the 72-Oregon retail pharmacies' experience. **It is estimated that the state would have increased expenditures by $533,673 if the observed payments on these top 20 generic drugs at our study pharmacies were extrapolated to all claims for those drugs in Oregon CCOs** (**Figure 52**). This is because the 15 out of 20 that were paid better to our pharmacies offset any state savings associated with the other five drugs.

Figure 52: Top 20 CCO SDUD Generic Drugs by Margin Over NADAC Per Prescription within Oregon Retail Pharmacy Data Set Projected Payment Over NADAC (Oregon Retail Pharmacy Data Set Rate vs Oregon CCO SDUD Reported Rate)



Sources: 72 Oregon retail pharmacies in study, CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

Overall generic margin over NADAC percentage analysis

Based upon our comparisons between our study pharmacies and Oregon SDUD average, it was perhaps unsurprising that we determined that the overall estimated generic gross margin percent in the three-year analysis was 15.1% for the 72 Oregon retail pharmacies in our study while the Oregon CCO SDUD reported average was more than double at 34.5% (**Table 12**).

Table *12*: Estimated Generic Payment at Oregon CCO Reported Effective Rate vs Oregon Retail Pharmacy Data Set (2019 – 2021)

Years	CCO SDUD Reported Charge	NADAC	CCO SDUD Estimated Margin Over NADAC Percent	Oregon Retail Pharmacy Data Set Margin Over NADAC Percent	Estimated CCO SDUD Charge at Oregon Retail Pharmacy Gross Margin (15.1%)	Difference
2019 – 2021	$334,448,409	$256,262,870	34.5%	15.1%	$294,958,563	$39,489,846

Sources: 72 Oregon retail pharmacies in study, CMS SDUD, Medi-Span, 3 Axis Advisors, LLC

An analysis was conducted to determine the net cost difference if all Oregon CCO SDUD-reported generic drug claims were reimbursed at the average Oregon pharmacy retail margin over NADAC percentage of 15.1% (as opposed to the observed CCO SDUD 34.5%). **Estimates suggest a reduction in overall payment of roughly $40 million.** As a reminder, the estimate only includes those drugs which had an established NADAC. The $40 million equally distributed over 534 pharmacy providers would result in ~$75,000 per pharmacy.

Contextualizing pharmacy payment variance by Median Income

This potential financial variance between groups of pharmacies can be difficult to fully appreciate. So as an alternative way of trying to contextualize pharmacy provider variance, we took the 72 Oregon retail pharmacies' overall Medicaid reimbursement experience and plotted their gross margin percentage against the median income of the area they were operating within. We did this because we would expect more economically challenged areas within Oregon to have higher Medicaid utilization and more affluent areas to have less. To be clear, we feel this is a reasonable assumption, because the Medicaid program is intended primarily to serve the economically disadvantaged.

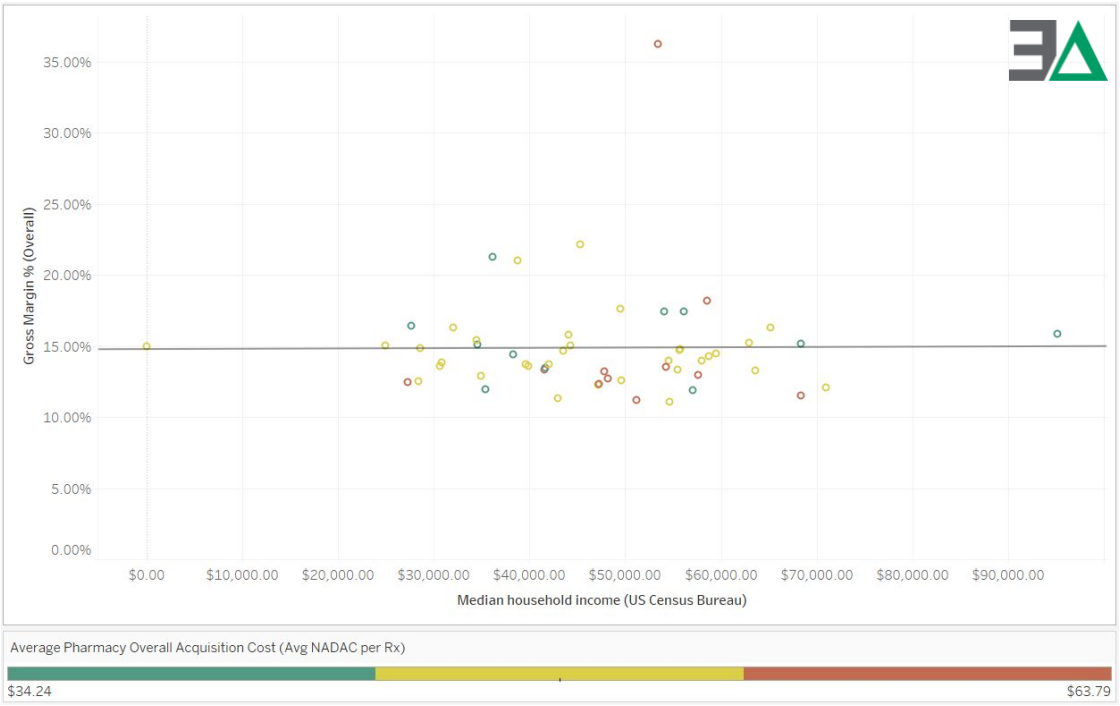
To perform this analysis, we used geocoding to identify the U.S. Census Bureau Median Income associated with a given pharmacy's street address. (67) We made this value the x-axis and then graphed the pharmacy's gross margin percentage within Oregon Medicaid as the y-axis in a scatter plot. We then color coded each pharmacy location based upon the average drug acquisition cost (i.e., NADAC). Green dots represent lower NADAC per prescription values on average at the pharmacy whereas red dots represent higher costs. Ultimately, this graph lets us compare how much gross margin pharmacies make based upon the income of the individuals the pharmacy is likely servicing within the Oregon Medicaid program (**Figure 53**).

Figure 53: Gross Pharmacy Margin % in Overall Oregon Medicaid Relative to Median Household Income in Geographic Area (Street Address of Pharmacy)

Sources: 72 Oregon retail pharmacies in study, CMS NADAC, Medi-Span, US Census Bureau, 3 Axis Advisors, LLC

What we see in reviewing **Figure 53** is that the trend is for pharmacies to make higher gross margins in more affluent areas. At the same time, a pharmacy generally makes higher gross margins when they have better control over a drug's costs (as represented by lower average NADAC per prescription costs). However, it is not always the case. For example, take the experience around the $50,000 Median Income mark in **Figure 53**. The best performing pharmacy financially (based upon gross margin percent), had a higher average drug acquisition cost (yellow dot) relative to the other pharmacy (green dot). To be clear, the general trend is that pharmacies were better positioned financially with lower average drug acquisition costs. But we should acknowledge that this is not always the case. This is especially true when we re-contextualize **Figure 53** but include all payers (and not just Medicaid). In **Figure 54** below, we perform the same analysis as **Figure 53** but don't restrict claims to just Oregon Medicaid.

Figure 54: Overall Gross Pharmacy Margin % Relative to Median Household Income in Geographic Area (Street Address of Pharmacy)

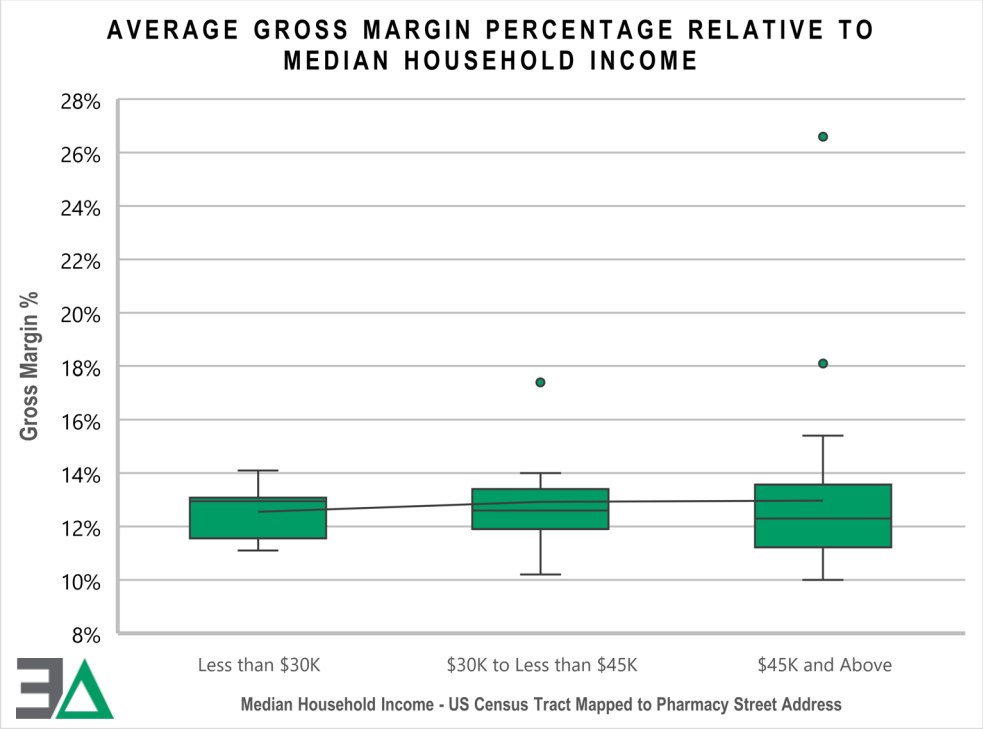


Sources: 72 Oregon retail pharmacies in study, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

As can be seen in **Figure 54**, pharmacies still tended to perform financially better (on a gross margin percentage) when the income of the residents they were serving was higher (though the trend is less extreme) and their cost of goods sold (i.e., average NADAC per prescription) was lower. However, we cannot help but identify that the best performing pharmacy in this view was the one that dispensed the most expensive medications on average (green dot at around the $53,000 Median Income mark and above 35% gross margin). We may better appreciate the findings of this graph by grouping pharmacies into the broad economic bands of the people they are servicing.

In **Figure 55** (on the next page), we kept our overall view of pharmacy financial performance, but grouped pharmacies into three bands based upon a range of median household incomes the pharmacies were serving. Rather than still graph individual providers on the street-address level, we present **Figure 55** as a box blot to contextualize what the median gross margin, average, 25th percentile, and 75th percentile performance is.

Figure 55: Overall Gross Margin Percentages Relative to Median Household Income, Income Groupings for Pharmacies



Sources: 72 Oregon retail pharmacies in study, CMS NADAC, Medi-Span, 3 Axis Advisors, LLC

Again, this view solidifies an understanding that the gross margin yields across pharmacy providers is highly differentiated. As a result, we will expand our analysis by examining payment differences across the various payer segments of the Oregon pharmacy market.

Medicare, Medicaid CCO, and Commercial introduction

While we spent many pages discussing the Oregon Medicaid experience, we should acknowledge that Oregon Medicaid represents less than 25% of all claims dispensed at a typical Oregon pharmacy (**Figure 56** on the next page). However, as with all states, the Medicaid program is often most interesting to our analyses at 3 Axis Advisors, because SDUD reporting enables comparisons of drug acquisition costs and sample pharmacy reimbursement data to overall reported program expenditures. Unfortunately, no such publicly available resource exists to evaluate Commercial and Medicare prescription drug transactions and costs (the larger portions of pharmacy claims) in the state.

However, a comparison may be made within the study pharmacy data itself to show how each segment (Medicare, Medicaid, and Commercial) compared to one another over the three-year period of 2019 to 2021. For this section, claims data from 14 additional pharmacies were included, bringing the total studied pharmacy count to 86. The 14 added pharmacies data were not included in the Medicaid analysis, because the data received did not include all needed components to complete all analysis in the earlier sections (see **Methods** section for exclusion rationale).

To begin, the 86 Oregon retail pharmacies claims in our study were categorized as Medicaid, Medicare, or Commercial. We relied on previously discussed methods to identify Oregon Medicaid claims. To identify Medicare transactions, we matched the CMS Part D published *bank identification number (BIN)* and *processor control number (PCN)* to claim processing parameters for each claim in the 86-Oregon retail pharmacy data set. (68) Claims not identified as Medicaid or Medicare were classified as Commercial.

> You may think of the BIN and PCN number as a ZIP code + 4 used in the U.S. to send mail, but in this case, the parameters are used to rout electronic claims to the correct PBM. The BIN may the thought of as the ZIP code (in this case representing a specific PBM) whereas the PCN provides a more precise destination once the claim reaches the PBM.

This broad categorization of Commercial claims does create limitations. For example, it is possible for Oregon retail pharmacies to be located close to other bordering states and in such case, may be eligible to participate as a provider in those state Medicaid programs (ex: California, Nevada, Idaho, or Washington). We did not research other state Medicaid systems' billing information for this study; therefore, it is possible a few of the Commercial bucket of claims we've created may include bordering state Medicaid claims. Also, discount card processing parameters resemble Commercial claims from an identification perspective. It is possible that a portion of the Commercial claims bucket may include transactions for discount cards (ex: GoodRx). However, discount cards often partner with PBMs and utilize the PBM's network of pharmacies and MAC rates to achieve a discount from a pharmacy's U&C price. (69) In such a case, the basis for discount aligns with Commercial PBM payer rates.

Despite the limitations, we believe the percentage of claims that would fall into any of these limitation categories would not materially impact what is otherwise a large collection of non-Medicaid and non-Medicare pharmacy claims that are comprised of a heavy majority of Oregon Commercial market prescription claims. However, because of these limitations, state-led investigations to confirm our findings may be warranted.

Medicare, Medicaid, and Commercial comparison

To begin, an analysis was conducted to determine the Oregon retail pharmacy data set's market makeup by utilization (Medicare, Medicaid, and Commercial). Over the three-year period, Medicaid represented the smallest portion of pharmacy trade from both a revenue and volume perspective within the Oregon retail pharmacy data set (**Figures 56 & 57** below). However, the Medicaid segment represented the largest growth as a percentage of filled prescriptions

over the three-year period among the 86 Oregon retail pharmacies in our study. Between 2019 and 2021, the percentage of Medicaid claims grew 26.1%, from 13.4% to 16.9% of total fills within the Oregon retail pharmacy data set (**Figures 56 & 57**).

Figure 56: Percentage of Rxs by Payer Segment, 86-Oregon Retail Pharmacies (2019 – 2021)

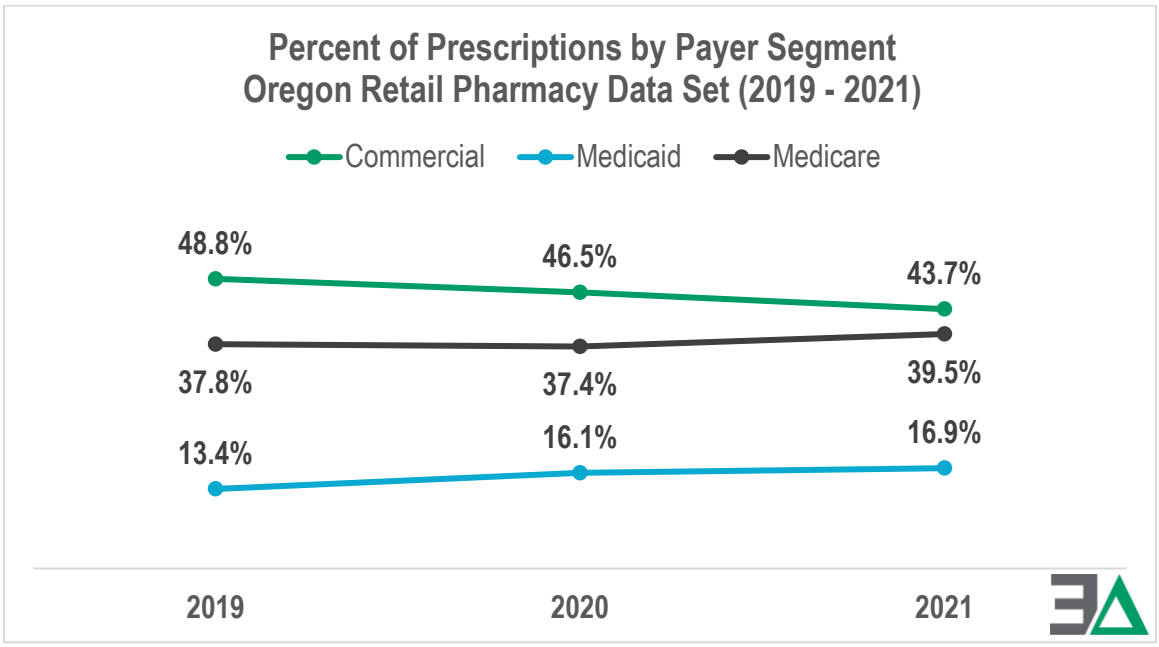
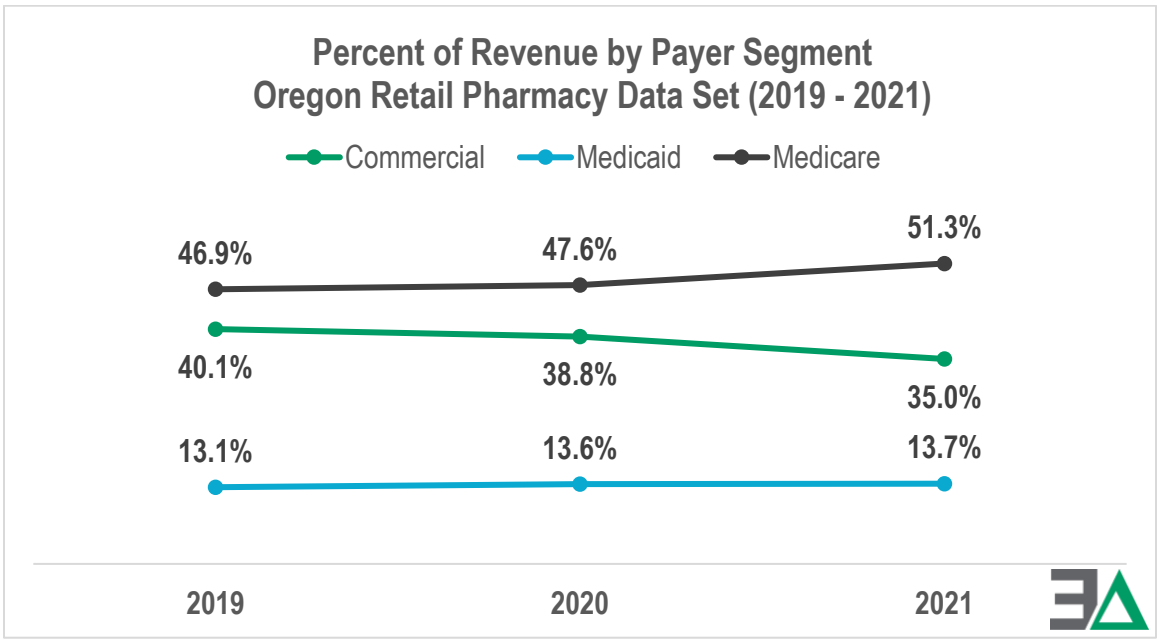


Figure 57: Percentage of Total Gross Revenue by Payer Segment, 86-Oregon Retail Pharmacies (2019 – 2021)

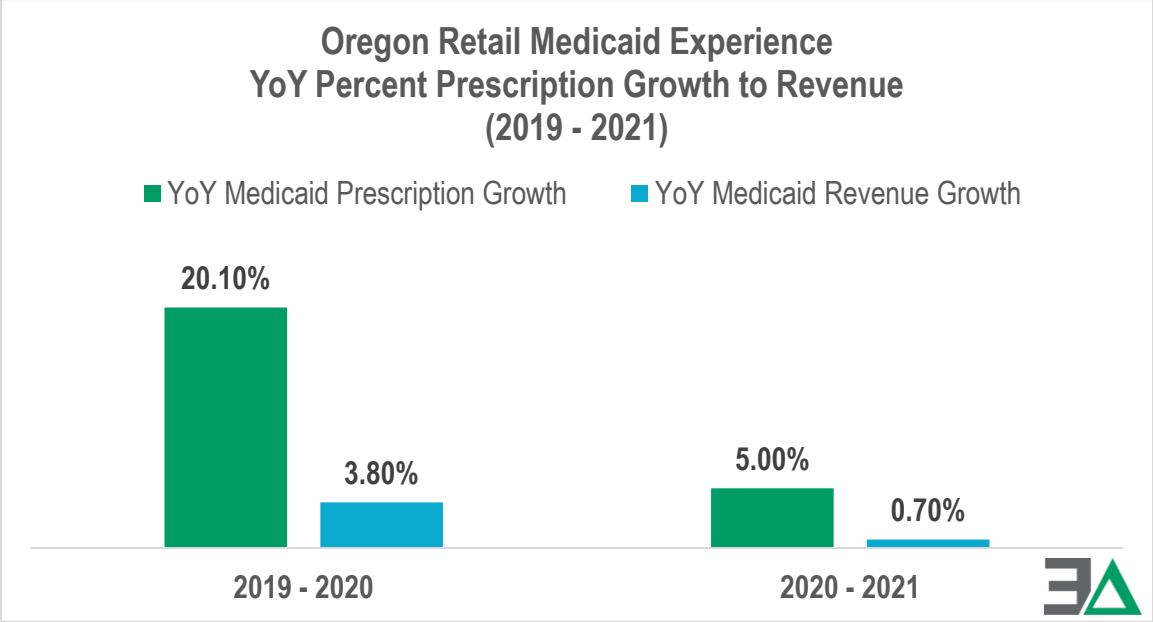


Source: 86 Oregon retail pharmacies in study

The Oregon retail pharmacy data set did not see a similar growth in revenue from Oregon Medicaid payers. In fact, the percentage of revenue generated by the 86 Oregon retail pharmacies in our study from Medicaid claims grew just 4.4% (13.1% to 13.7%) (**Figure 57**).

Figure 58 details the year-over-year (YoY) Oregon Medicaid percent shifts from the 86 pharmacies to illustrate that as providers pivoted to serving more Oregon Medicaid beneficiaries (green bar) their percentage of revenue was not equally matched (blue bar). The results suggest the 86 Oregon retail pharmacies must provide care to Oregon Medicaid beneficiaries with less revenue when compared to other market segments (Medicare and Commercial).

Figure 58: Oregon Retail Pharmacy Medicaid Experience, Prescription Growth Relative to Revenue Growth (2019 – 2021)



Source: 86 Oregon retail pharmacies in study

The Commercial segment experienced the largest decline in aggregated dispensing percentage in the Oregon retail pharmacy data set at -10.5% (48.8% to 43.7% of all prescriptions dispensed), highlighting the growing influence of government-sponsored health programs over a pharmacy's provider experience. There was a similar decline in the percentage of revenue from the Commercial segment at -12.86% (40.1% to 35.0%), suggesting that loss of Commercial claims had a similar impact on the revenue obtained by the 86 Oregon retail pharmacies in our study. Data suggests a portion in the observed decline in Commercial volume was replaced with less profitable Medicaid transactions.

Medicare reimbursement was the exception to the thus far reviewed trends, as the group of 86 Oregon retail pharmacies had a 4.4% (37.8% to 39.5%) increase in Medicare prescription growth accompanied by a larger 9.5% (46.9% to 51.3%) increase as a percentage of total gross revenue. However, this figure reflects only point-of-sale (POS) growth in revenue for the pharmacy. Medicare Part D negotiated prices at the pharmacy counter are often not the net final payment to the provider. *Direct and Indirect Remuneration (DIR)* are embedded in almost all Part D PBM-pharmacy relationships through the pharmacy network. DIR are price concessions paid to PBMs **by manufacturers and pharmacies**, which occur after the sale of the prescription. More specifically, fees, payments, or payment adjustments made after the POS that change the cost of Part D covered drugs for Part D sponsors or PBMs must be reported to CMS as DIR. DIR results from payment arrangements negotiated independent of CMS, between Part D sponsors, PBMs, and network pharmacies. All of this occurs because final plan payments by CMS are, per statute, to

be based on the **costs actually incurred** by Part D sponsors. Said differently, it is known that manufacturers provide drug rebates, so those rebate dollars are to be factored in to lower the amount the government pays to run the Medicare drug program. Similarly, it is known that pharmacies pay retrospective network fees to PBMs, and so those retrospective price concessions need factored in as well to prevent the government from overpaying for the Medicare Part D benefit.

DIR is apportioned only between Medicare and the Part D plan, generally based on the share of the total Part D drug costs that each is responsible for over the course of the payment year. Sponsors of Medicare plans must factor into their annual bids an estimate of the DIR expected to be generated in the bid year. Higher DIR estimates leads to lower bids and, therefore, puts downward pressure on beneficiary premiums. (70)

Our Medicare claims analysis initially is predicated solely on pharmacy POS data, **which does not include an estimate of pharmacy DIR**. As a result, this figure will overstate actual provider experience and net revenue on pharmacy transactions through the known limitation that retrospective price concessions exist but are not factored into POS payments.

The Drug Channels Institute estimates that pharmacy DIR reached an estimated $9.1 billion in 2019, increasing from 0.08% of total pharmacy revenue in 2013 up to 2.04% in 2019. As a percentage of pharmacy revenues, DIR is estimated by Drug Channels to have trended in the following direction since 2019: 2.03% in 2020 and finally an estimated 2.19% in 2021. (71) (72) The result is that higher gross Medicare drug expenditures are going to pharmacies at the point-of-sale, but increasing amounts are absorbed by PBMs in post-adjudication price concessions that can inflate beneficiary cost share responsibility and increase Medicare reinsurance payments (shifting costs to Medicare), while decreasing PBM/plan liability. (73)

Pharmacy DIR

As showcased in the prior section, any drug pricing analyses that utilize Medicare pharmacy POS reimbursement or Medicare reported gross spend without accounting for DIR significantly overstates ***net*** pharmacy prices (the price the pharmacy realizes after price concessions are reconciled). Gross pricing comparisons may be very useful when evaluating beneficiary cost exposure (the POS price that determines patient cost share) or gross retail pharmacy costs, but not net provider payment rates.

For this report, one of the goals was to understand how payment rates at retail pharmacies may vary among different lines of business. Since Medicare reimbursement includes significant provider price concessions (DIR), an adjustment to pharmacy POS data is needed to quantify the impact of pharmacy DIR on gross price and understand true net payments to pharmacies. We attempted to estimate DIR by utilizing a 2% estimate of total pharmacy revenue as provided by Drug Channels Institute estimates (a conservative estimate given the multi-year trend) and applying the figure to all Part D claims dispensed by the 86 Oregon retail pharmacies. (71)

To accomplish the DIR estimation, total revenue for all claims in the 86-Oregon retail pharmacy data set was summed for the year 2019. Next, 2% of the total revenue was classified as pharmacy DIR. We then divided the estimated DIR by the sum of reimbursement for all Medicare claims in the Oregon retail pharmacy data set for 2019. The result suggested that on average, 4.3% of total Medicare revenue in the Oregon retail pharmacy data set was recouped in DIR. Moving forward, we utilized the 4.3% of a Medicare Part D claims transaction as the estimated DIR (**Table 13**).

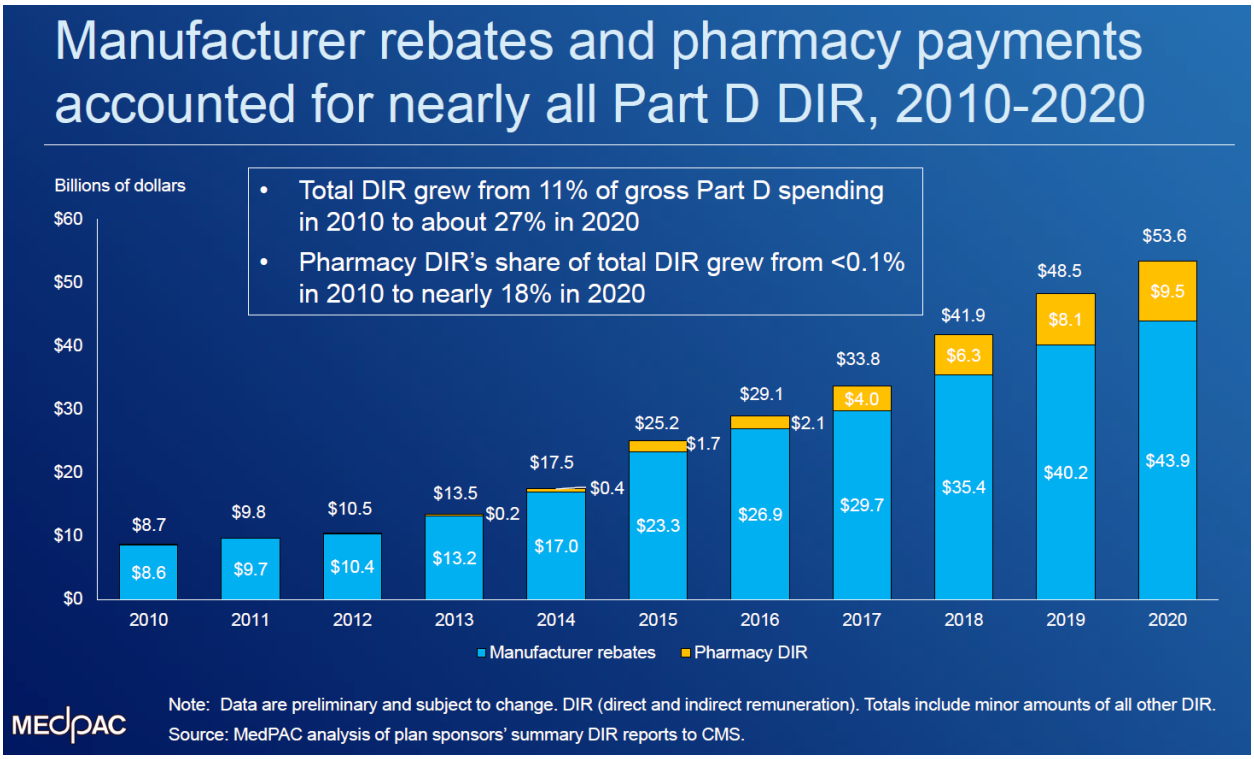
Table 13: Medicare DIR Estimate for Oregon Retail Pharmacies (2019)

Year	Gross Medicare Revenue	Estimated DIR	DIR as a Percent of Medicare Revenue
2019	$94,322,268	$4,024,926	4.3%

Source: 86 Oregon retail pharmacies in study

To validate this result, we can review the work of the Medicare Payment Advisory Commission (MedPAC). MedPAC is a nonpartisan independent legislative branch agency that provides the U.S. Congress with analysis and policy advice on the Medicare program. In their analysis of Medicare DIR payments over time, MedPAC prepared the following analysis on DIR (**Figure 59**).

Figure 59: Manufacturer rebates and pharmacy payments for Part D DIR (2010 – 2020)



Source: Initial findings from MedPAC's analysis of Part D data on drug rebates and discounts, Public Presentation Given April 7, 2022

As can be seen in **Figure 59**, pharmacy related DIR was $8.1 billion in 2019 (yellow bar). Medicare spent $168 billion on drugs at the POS according to the Medicare Part D dashboard. Consequently, pharmacy DIR in 2019 could be understood to represent 4.8% of aggregate Medicare drug spending ($8.1 billion divided by $168 billion). Returning to our estimate of DIR in Oregon, we arrived at a value of 4.3% (**Table 13**). The proximity of these estimates, arrived at independently of one another, gives us confidence to proceed with our estimate of DIR's impact on Oregon pharmacies. It goes without saying that further investigation by agencies with access to all the data necessary to perform the analysis with actual and not assumed values would be recommended.

Outside of 2019, our attempt to estimate DIR with an assumed 2% impact on total pharmacy revenue will result in the average DIR per claim increasing 12% ($2.94 to $3.27) between 2019 and 2021 (**Table 14** on the next page).

Table 14: 3 Axis Advisors Estimate of DIR Payment per Claim from 86 Oregon Retail Pharmacies (2019 – 2021)

Year	Estimated Average Pharmacy DIR Per Medicare Prescription
2019	$2.94
2020	$3.25
2021	$3.27

Sources: 86 Oregon retail pharmacies in study, 3 Axis Advisors, LLC

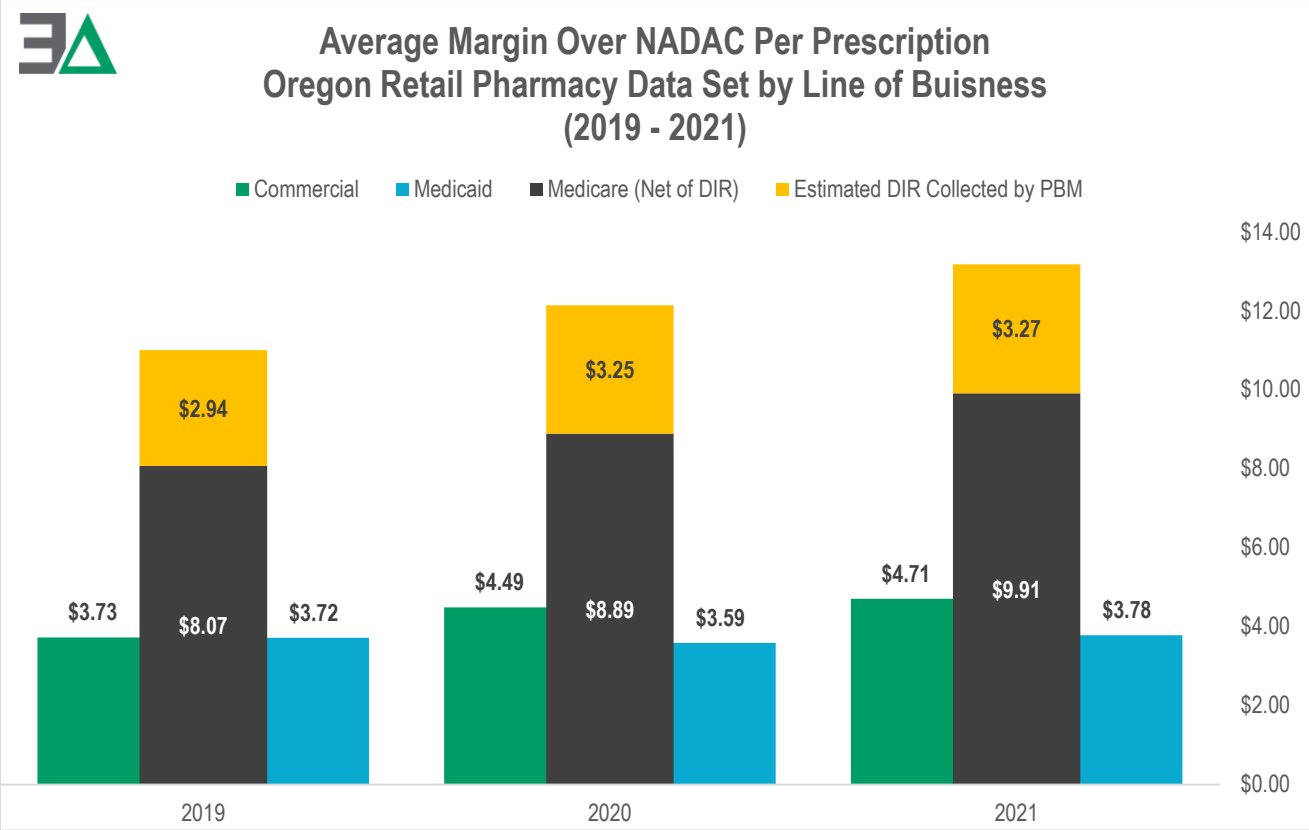
We acknowledge this methodology has some limitations, as plans vary price concessions, and if history is any indicator, it is likely 2020 and 2021 DIR rates inflated past the assumed 4.3% mark we can directly observe from the 2019 CMS data. Consider the Pharmaceutical Care Management Association (PCMA) estimate that in 2017, pharmacy DIR was 2.6% of gross Part D plan payments to pharmacies. (74) **If we compare PCMA's 2.6% pharmacy DIR figure for 2017 to MedPAC's calculated figure of 4.8% in 2019, the data suggests DIR as a percentage of pharmacy Medicare gross revenues grew 85% in two years (2.6% vs 4.8%).** However, we believe our 4.3% is a good, conservative "ballpark" number for purposes of showing directional trends.

Margin over NADAC per prescription

As we have already established, the margin over NADAC is an estimate of gross margin for a pharmacy. NADAC prices provide an estimated average invoice cost for a prescription and thus what a pharmacy paid to acquire the drug. As a result, margin above NADAC can be understood to be gross margin above cost of goods sold (COGS). To be precise, NADAC does not include off-invoice discounts, and it would be safe to assume that most pharmacies have negotiated some degree of their own concessions from drug wholesalers for many of the drugs they purchase. This, in turn, means that we will likely underestimate actual gross margins for pharmacies based upon our reliance on NADAC, so we want to be sure to acknowledge it.

Nevertheless, we proceeded with an analysis to identify pharmacy gross margins by payer segment in Oregon from 2019 to 2021. For each segment of the Oregon payer market, the margin over NADAC was calculated by taking the total revenue and subtracting the estimated COGS (via NADAC). In addition, for Medicare claims, the estimated pharmacy DIR (4.3% of total claim revenue) was subtracted to provide a better estimate of net provider reimbursement. The average margin over NADAC was greatest within the Oregon retail pharmacy data set for claims processed for Medicare, followed by Commercial, and finally Medicaid in each of the three years that we studied (**Figure 60** on the next page). For 2021, the estimated Medicaid margin was 61.9% less ($3.78) per transaction when compared to the most profitable Medicare segment ($9.91 net of estimated DIR). Similarly, the Commercial segment was 52.3% less than Medicare ($4.71). The overall weighted margin over NADAC for the three-year period across all payer segments was determined to be $7.90 per prescription.

Figure 60: Average Margin Over NADAC Per Prescription for Oregon Retail Pharmacies by Line of Business (2019 – 2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

Margin over NADAC distribution

Our prior work has demonstrated that margin is highly differentiated with groups of drugs. While the weighted average NADAC for all Oregon prescription drug claims dispensed by the 72 pharmacies in the detailed Medicaid study approximates $7.90 in gross margin (see prior section), we previously identified that within the Oregon Medicaid CCO system, most drugs are paid at or near ingredient cost (i.e., gross margin of ~$1 to $2, see **Figure 21** on page 42). To build upon our prior work, we wanted to compare payments over the three major lines of business within the Oregon retail pharmacy data set (Medicare, Medicaid, and Commercial). To refresh, this section of the analysis did not require parsing payment data based on ingredient cost and dispensing fee amounts and therefore, all 86 pharmacies and their Medicaid billings were utilized.

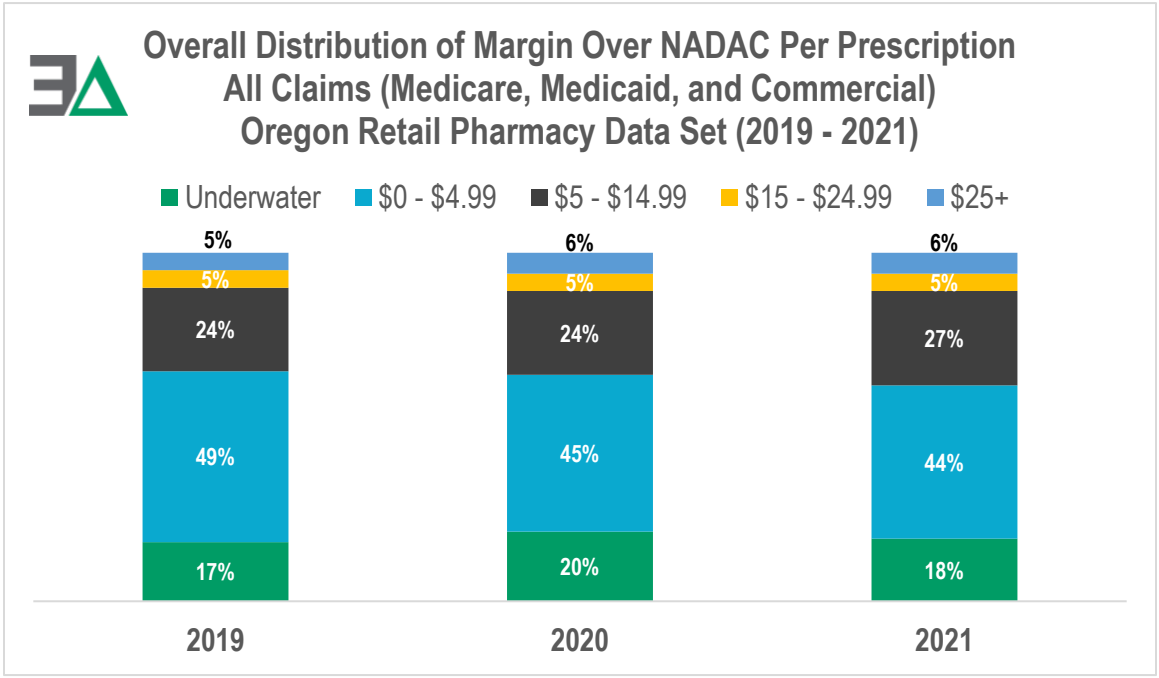
Every transaction's margin over NADAC was determined based upon the total payment relative to the drug's cost. Each claim was placed into groupings that represent varying degrees of financial opportunity to the retail pharmacies. Unlike the previous analysis in the **Generic oral solid reimbursement** section on page 41, the dispensing fee was included in a transaction margin over NADAC calculation. In addition, Medicare claims were reduced by 4.3% of total revenue to estimate pharmacy DIR (and therefore arrive at net Medicare payment). In keeping with our past work (see our 2021 *Pharmacy Reimbursement Trends in Massachusetts* report), the following classifications were used based on the calculated margin over NADAC (75):

1. **Margin was less than $0:** pharmacy did not receive sufficient payment to cover the drug's NADAC

2. **Margin was between $0 and $4.99:** reimbursement likely covers the cost of the drug, but less than half of retail pharmacy's approximate operating costs
3. **Margin was between $5 and $14.99:** reimbursement "in range" of retail pharmacy operating costs
4. **Margin was between $15 and $24.99:** reimbursement above retail pharmacy operating costs
5. **Margin was greater than $25:** reimbursement significantly above retail pharmacy operating costs

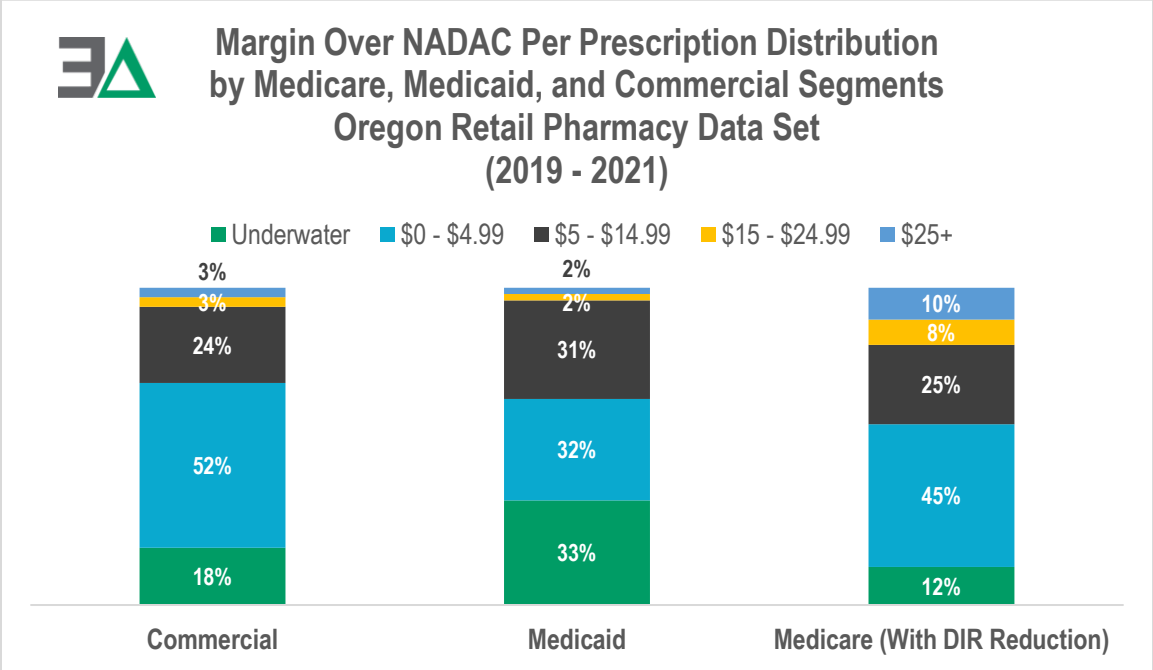
As we learned in the detailed Medicaid analysis, retail pharmacies often fill the majority of prescriptions for a payment that does not cover the cost to dispense (estimated ~$10 margin over NADAC). From **Figures 61 & 62** (below and on the next page) we can see regardless of the year or channel (Medicare, Medicaid, or Commercial), the trend is not materially different. Since the majority of claims are paid at a rate that does not cover a pharmacy's cost to dispense (and even often below the cost of the drug as represetened by the green "underwater" bars), a pharmacy becomes much more reliant on high-margin claims. Higher margin claims (roughly 10% of transactions as demonstrated by the top two bars (gold and dark blue in **Figures 61 & 62**) in essence finance all the claims that are represented in the bars below (black, light blue, and green) and specifcally, the green bars which represent underwater payments.

Figure 61: Overall Distribution of Margin Over NADAC Per Prescription for All Oregon Retail Pharmacy Claims (2019 – 2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

Figure 62: Overall Distribution of Margin Over NADAC Per Prescription for Oregon Retail Pharmacies by Market Segment (2019 – 2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

To fully appreciate the degree in which financing occurs, let us consider **Figure 62** and the first bar representing Commercial claims. In this example, we will try to conceptualize the importance of the average payment over NADAC for the $25+ group of claims to the pharmacy provider, and their potential to help them achieve a minimum $10 margin over NADAC per 100 claim distribution (i.e., the needed cost to dispense). For simplicity sake, we will assume all claims in each bucket reimbursed pharmacies at the best case scenario, providing the maximum financial opportunity for the pharmacy provider. For example, we will assume that the underwater claims (the green bar representing 18% of claims) reimbursed exactly at a break-even point of $0 over NADAC and the light blue bar representing 52% of transactions for the $0 - $4.99 category reimbursed at exactly $4.99 over NADAC.

In our 100-claim example, the target reimbursement over NADAC would be $1,000 (100 claims x $10 over NADAC per claim). Since we are using 100 claims, we can simply convert the percentage in each bucket to claims on a 1:1 basis as 100 claims / 100 (percent) = 1 claim / 1 percent.

Next, the number of claims in each bucket was multiplied by the margin over NADAC each bucket represents to provide the total margin over NADAC for that bucket of claims (**Table 15** on the next page). For example, all the claims in the underwater bucket produced zero margin over NADAC while the $0 - $4.99 bucket produced a margin over NADAC of $259.48.

Lastly, the only unknown is the value of the top bucket of claims with a $25+ average margin over NADAC to achieve the $1,000 in margin over NADAC (or $10 per claim). To calculate, all that must be done is to take the total margin over NADAC of the four known buckets ($718.21) and subtract the value from $1,000 (the target margin over NADAC) to produce $281.79. Now, just divide the $281.70 by the number of claims in our top bucket, which is three, to provide the average needed value of $93.93 per claim in the group of margin over NADAC of $25+ or more.

Table 15: Oregon Retail Pharmacies Commercial Margin Over NADAC Module (2019 – 2021)

Bucket of Claims by Pharmacy Margin	Percent Of Pharmacy Claims [A]	Number of Claims Per $1,000 Margin Over NADAC [B]	Average Margin Over NADAC Per Prescription [C]	Margin Over NADAC Per Prescription Multiplied by Number of Prescriptions [B * C]
Underwater	18%	18	$0	$0
$0 - $4.99	52%	52	$4.99	$259.48
$5 - $15.99	24%	24	$14.99	$383.76
$15.99 - $24.99	4%	3	$24.99	$79.47
$25+	3%	3	$93.93	$281.79
Total	100%	100		$1,000

Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

The module is simplistic and assumes the best-case scenario from a provider reimbursement perspective. In reality, the delta between the claims in the top bucket (margin over NADAC per claim $25+) and the bucket of underwater claims is much greater (we assumed all claims in the underwater bucket were paid at a margin over NADAC of $0 while each additional grouping paid each claim at the highest possible rate for the grouping). Regardless, the module may help to assist in fully contextualizing the needed degree of inequity which occurs to ensure providers achieve a sustainable business environment. The degree of margin inequity is a direct result of PBM-set drug prices, which can be highly inconsistent from drug to drug and payer to payer. Pharmacy providers have little opportunity to push the market into a more efficient direction through competitive retail pricing, as reducing the margin over NADAC on the few claims which finance the majority of all third-party transactions could place the provider in financial distress. Therefore, for those pharmacies participating in third-party network contracts, the incentives behind provider-set drug prices are clear: set U&C prices such that they can ensure the few claims which finance operations are not diminished due to payments at U&C default rates or lesser of methodology.

Pharmacy reimbursement differences on a GPI level

As mentioned in the **Pharmacy customers** section on page 24, PBMs and many government programs routinely place what's known as a "most favored nation" clause in contracting agreements. These provisions oblige pharmacies to offer their best cash price (or price available to someone without insurance) to the payer. Any time a pharmacy's asking price (U&C) is less than the PBM's contracted rate, the PBM will reimburse at the pharmacy's asking price rather than what would otherwise be a higher negotiated rate if the pharmacy's asking price was higher. This is often referred to as a *U&C default payment*. Think of it as a pharmacy's self-imposed price ceiling that restricts them from ever receiving reimbursement that exceeds the height of that ceiling. As we can see previously in **Figures 60 & 61**, roughly 5% of PBM transactions are reimbursed at a rate significantly above a pharmacies operating cost. As we can see previously in **Figures 61 & 62**, roughly 5% of PBM transactions are reimbursed at a rate significantly above a pharmacy's operating cost. A pharmacy missing out on any one of those 5% of high-margin transactions results in the pharmacy independently financing the 60% of unprofitable transactions.

As discussed earlier, reimbursement rates vary among contracts, even for claims that are processed within the same network or by the same PBM. For example, we learned in the very first section titled **Background** that pharmacies in our study were reimbursed anywhere between $0.30 to $188.10 per 30 tablets of atorvastatin 40 mg despite a NADAC range of $1.89 to $3.00 between 2019 and 2021 (see page 13). If a pharmacy were to set a U&C price at $20.00, it would be forfeiting an additional $168.10 that could have been yielded on the high-end transaction (i.e., $188.10 - $20.00). While this degree of pharmacy margin may seem highly bloated – especially since the pharmacy's cost to

dispense is less than $15 – pharmacies may rationalize such an inflated payment on that single transaction as a means to finance the significant number of claims transactions that result in underwater payments. However, this pharmacy economics tight rope can only be walked if the pharmacy maintains an artificially high U&C price.

To demonstrate, let us consider generic drugs, as they are often the transactions which produce the highest margin over NADAC. However, the distribution of price, and therefore margin, is often the most variable among payers for these same products. **Table 16** provides the top 10 generic drugs from the Oregon retail pharmacy data set by number of prescriptions based on all segments (Medicare, Medicaid, and Commercial) for 2021. In addition to the number of prescriptions dispensed, **Table 16** provides the count of unique unit prices paid by third-party payers to the group of pharmacies for each drug over the course of 2021. Unique unit prices were determined by taking the total reimbursement for each claim and dividing by the units dispensed rounded to two decimal places. Then, each unique price for each drug was counted. As we can see, most drugs had dozens of unique unit prices among the various payers despite all payer pricing addressing the same products.

Table 16: Top 10 Generic Drugs by Prescription Count – Count of Distinct Unit Price Payments by PBMs, Oregon Retail Pharmacy Data Set (Medicare, Medicaid, and Commercial) (2021)

Product Name	Count of Prescription Oregon Pharmacy Data Set 2021	Count of Unique Unit Price	Minimum Unit Price	Maximum Unit Price
Omeprazole Oral Capsule Delayed Release 20 MG	174,547	140	$0.01	$4.78
HYDROcodone-APAP Oral Tab 5-325 MG	170,409	202	$0.01	$9.88
Albuterol Sulfate HFA 108 (90 Base) MCG/ACT	161,268	604	$0.07	$9.87
Gabapentin Oral Capsule 300 MG	148,317	107	$0.01	$9.84
Atorvastatin Calcium Oral Tablet 40 MG	135,135	110	$0.01	$6.27
Lisinopril Oral Tablet 20 MG	121,994	78	$0.01	$2.00
amLODIPine Besylate Oral Tablet 5 MG	116,120	88	$0.01	$2.99
traMADol HCl Oral Tablet 50 MG	112,784	118	$0.01	$10.03
Lisinopril Oral Tablet 10 MG	112,391	71	$0.01	$2.60
Atorvastatin Calcium Oral Tablet 20 MG	111,289	100	$0.01	$6.21

Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

Understanding there is a large unit price variability among the top utilized generic drugs within the Oregon retail pharmacy data set as demonstrated by **Table 16**, we wanted to see if the various segments (Medicare, Medicaid or Commercial) resulted in significant generic unit price disparities in price. To begin, we determined the average unit price reimbursed for each generic GPI[15] that had pricing transactions for each line of business (Medicare, Medicaid, and Commercial). A total of 1,925 GPIs or unique generic drugs were identified. The average unit price paid for each segment (Medicare, Medicaid, and Commercial) was determined for each GPI. Then the difference between the high per unit price and low was calculated. For example, from the Oregon retail pharmacy data set, it was determined that amoxicillin 500 mg had an average per unit price reimbursement of $0.24 in Medicaid claims, $0.32 in Medicare claims,

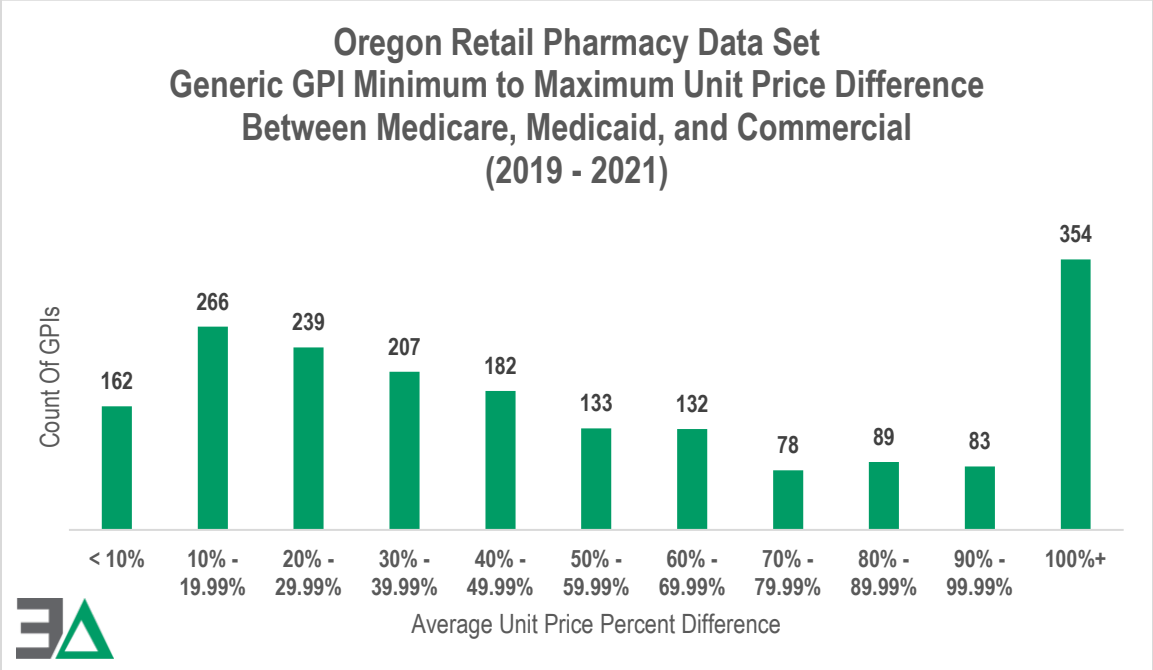
[15] Recall GPI from page 38 is a Medi-Span classification that is hierarchy-based and enables the ability to take drugs that are "like" (ex: same chemical, strength, dosage form) and assign a common identifier (GPI) to the NDC so we may compare equivalent drugs across varying manufacturers.

and $0.31 for Commercial claims. The lowest average unit price reimbursement was observed in Medicaid claims at $0.24 per unit and the high in Medicare claims at $0.32 per unit.

Next, the percent difference was calculated by taking the high price and subtracting from the low price and then dividing by the low price. For amoxicillin 500 mg, $0.32 (high price) was subtracted from $0.24 (low price), netting a $0.08 per unit difference in pharmacy reimbursement. The $0.08 difference was then divided by the low price of $0.24, resulting in a 33.3% difference. We repeated the process for all 1,925 GPIs that had billed claims in all three market segments. The percent difference for each GPI was then placed into a grouping based on the calculated percent difference between the high and low price. The grouping began at 0% and increased by intervals of 10% up to 100%, after which all GPIs with greater than 100% difference were grouped into a single "100+%" grouping. We then counted the number of GPIs in each grouping and graphed the results using a bar chart.

Although we were able to take 7.5 million generic transactions and slice them down to 1,925 GPIs, the average unit price varied greatly when we compared pricing among market segments. **Figure 63** (on the next page) demonstrates that the largest grouping of drugs had variations around ***average unit price*** exceeding 100% (from minimum and maximum). **Figure 63** on the next page demonstrates that the largest grouping of drugs had variations around ***average unit price*** exceeding 100% (from minimum and maximum). To be clear, we're using average paid unit price and not differences between minimums and maximums to try and reduce the impact of outliers on this analysis. Even so, very few drugs (n = 162) had consistent average unit pricing among segments that resulted in an average unit price variation of less than 10%. The analysis creates an opportunity for further research as to how incentives presented by PBMs across different lines of business influence their determination of price. Said differently, in each of these market segments, the same product was compared at a GPI level, but seldom was the price consistent between Medicare, Medicaid, and Commercial lines of business (the same price setter [PBM] is contextualizing price differently, not on an apparent basis of the product dispensed, but on the apparent basis of who is paying the bill). There is theoretically only one way for the pharmacy to purchase the product to deliver to patients regardless of their insurance type, and yet this analysis demonstrates that pricing was highly differentiated by type of insurance.

Figure 63: Oregon Retail Pharmacy Data Set Generic GPI Minimum to Maximum Unit Price Difference Between Medicare, Medicaid, and Commercial (2019 – 2021)



Sources: 86 Oregon retail pharmacies in study, 3 Axis Advisors, LLC

Given the PBM payment variability to pharmacies by GPI-based drug designation, it may be assumed that such differentiation could be utilized by the provider for their financial gain. After all, in the financial world, derivative contracts can be used to build strategies to profit from volatility (i.e., volatility derivatives), and pharmacy payments seem volatile based upon our analysis thus far. However, volatility in pricing at the pharmacy counter is generally detrimental to the provider (and potentially the patient and payer). For pharmacy providers, the general expectation of regulators, payers, and patients is that they will service all patients equally, and yet, **Figures 61 & 62** previously demonstrate that there are clear financial incentives to service some patients over others. As a business, a pharmacy provider cannot be blind to these incentives, as we can demonstrate with an individual example from the Oregon retail pharmacy data set.

An unfortunate tale of misaligned incentives for pharmacies

Recall in the Medicaid CCO analysis (**Table 7** on page 78) that generic Gleevec® (imatinib mesylate 400 mg) produced the single largest average margin over NADAC across all known CCO claims. The Oregon SDUD identified that imatinib mesylate prescriptions were paid out at margins that were in excess of $2,400 per prescription (meaning that on average, CCO PBMs charged the state more than $2,400 per prescription above the average costs pharmacies incurred to acquire the drug). However, we also know that the Oregon retail pharmacies in our study rarely had access to filling imatinib. Despite representing 13.5% of all Oregon retail pharmacies, and filling 8.5% of all Medicaid CCO generic drug claims, the pharmacies in our study only filled 0.02% of all Medicaid CCO imatinib mesylate prescriptions (1 out of 441 total CCO-covered imatinib mesylate prescriptions).

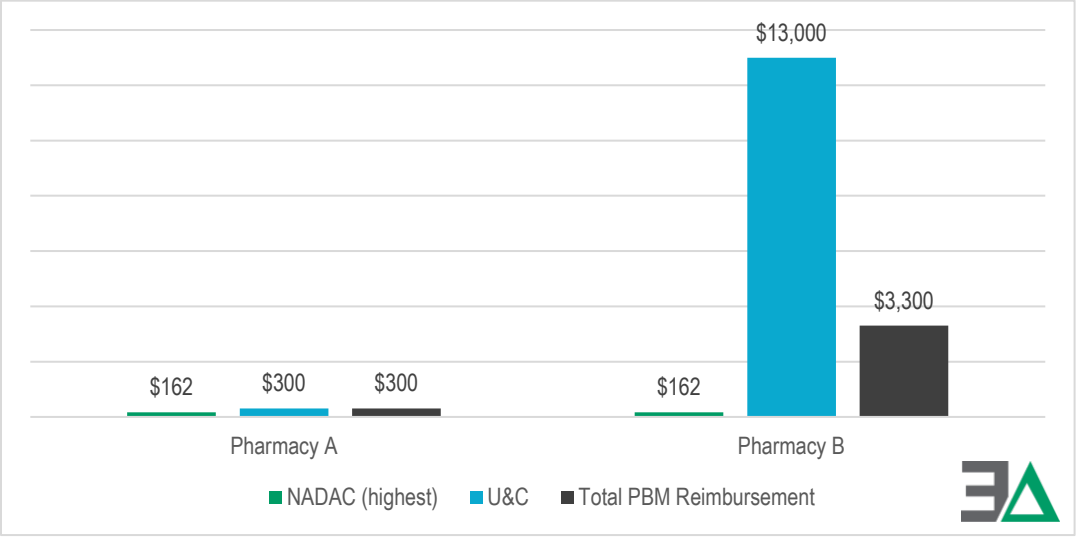
Imatinib mesylate is a medication we have spent a great deal of time researching in our prior works, so we were curious as to the drug's price in other segments of the Oregon pharmacy market. Our resulting investigation produced an example that highlights the roles of both pharmacy providers and PBMs in creating differences in payments for the same drug.

To conduct this analysis, we reviewed the 2021 transactions for imatinib mesylate 400 mg within our 86 Oregon retail pharmacy data set to identify instances where the drug was reimbursed at multiple pharmacies under the same plan (plan defined as the same BIN / PCN / Group ID) within the same month. We found two examples in our data set from who we will call Pharmacy A and Pharmacy B that are demonstrative of how pharmacies respond to the incentives of payment differentials. As our analysis will demonstrate, financial outcomes for pharmacies are potentially very different based upon their response to these incentives.

The claims we found were dispensed from January to June of 2021. As background, the NADAC in 2021 for 30 tablets of imatinib mesylate 400 mg started out at $162 in January 2021 and declined to $101 by June 2021. While the price to acquire the drug was declining by 50%, Pharmacy A set a U&C price during the period of approximately $300 per prescription while Pharmacy B set a U&C price of approximately $13,000. As we can see in this example, pharmacies themselves can contribute to vast differences in drug U&C prices, but let's explore why that might be.

Revisiting our prior conversations about "lesser of" methodology (see **Pharmacy customers** section on page 24), PBMs will reimburse pharmacies at either: (1) the contract rate or (2) the pharmacy's U&C price; whichever is the lower amount. In the case of Pharmacy A, the price reimbursed to them during this time frame was ~$300 (their U&C), a price on its surface more than sufficient to cover their typical operating costs (i.e., $10 to $12 per Rx) with a healthy profit margin. And yet, when we compare Pharmacy A's margin to Pharmacy B's, a massive pricing disparity emerges from the numbers. Pharmacy B was reimbursed around $3,000 more per prescription during this time frame under the same plan as Pharmacy A. This amount was 10 times that of Pharmacy A, and the yielded margin was more than 300 times a pharmacy's typical cost to dispense. Why? Because Pharmacy B's U&C price of $13,000 was significantly greater than Pharmacy A, so they secured payment at the PBM negotiated rate and not their U&C (**Figure 64**).

Figure 64: Same Plan Analysis of Imatinib Mesylate 400 mg Reimbursement Across Two Different Pharmacies (2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

Figure 64 can help us appreciate the role that both pharmacy providers and PBMs play in our earlier differential payment analysis for the same grouping of drugs. The result here was a payment of $3,300 to Pharmacy B for the same drug that Pharmacy A was paid $300 for. We can attribute the difference in payment not due to different plans (or segments of the market as our earlier analyses highlighted) or difference in one drug's characteristics to some other, but simply based upon the differences in setting U&C prices for the same drug within the same Oregon retail

pharmacy market. One prescription of imatinib mesylate at Pharmacy B produced nearly the same amount of revenue that Pharmacy A could expect to receive for the entire years' worth of filling it (it is a chronic medication after all).

We can learn several things from this one extreme example.

1. Pharmacy B may be viewed as not providing competitive U&C prices. No cash-paying customer would likely choose their pharmacy if they were shopping pharmacies on a cash basis.
2. The PBM was able to protect the plan from paying Pharmacy B more than $3,300 (i.e., at the U&C price, the plan would have paid ~$13,000). But while pharmacy U&C rates were the primary price point for payers in the past, today, PBM-negotiated rates with pharmacies have become significantly more important. Nonetheless, viewed through this lens, the PBM successfully cost-avoided over $9,000 per prescription.
3. Despite this savings off U&C, the PBM appears to have overpaid for imatinib mesylate at Pharmacy B. It seems reasonable to argue that the PBM should be able to identify within their own data that Pharmacy A was willing to provide the same service, to the same group of members, at a fraction of the rate paid to Pharmacy B. Further, since NADAC is a representation of the average invoice cost that pharmacies pay to acquire a medication, even with NADAC's high point of $162 per prescription, the data would indicate an overpayment of more than $3,000 (i.e., $3,330 paid to Pharmacy B vs. $300 paid to Pharmacy A).
4. The differences in payments to pharmacies resulted in very different patient cost share amounts for the same drug, under the same plan – arguably irrespective of any patient specific dynamics. Because the network rate was as high as ~$3,300 per prescription, a 100% cost share of the product during a patient's deductible phase (or a 25% cost share during the coverage phase) would result in drastically different amounts of patient cost sharing. Filling at Pharmacy A, we would expect that no claims of imatinib mesylate to exceeded $300 (the 100% maximum during the deductible phase). More likely, the patients under the plan getting their imatinib filled at Pharmacy A paid $75 per month (a 25% cost share amount, i.e., the standard rate during Medicare Part D's initial coverage phase). However, the patient's cost share at Pharmacy B likely averaged close to $850 per month (assuming the same 25% cost share). Said differently, a patient paying the full cost at Pharmacy A would likely be able to incur three to four months of medication at the pharmacy's U&C price, without the benefit of insurance, before they paid the same amount as the patient filling at Pharmacy B did for just one month with the benefit of insurance.

And while some might look unfavorably at Pharmacy B for responding to the market incentives around imatinib mesylate in the way they did, especially in comparison to Pharmacy A, we should note that Pharmacy A is no longer in operation. While business closures can come from a multitude of factors, certainly it wouldn't be a stretch to speculate that perhaps the failure of Pharmacy A to seek maximum reimbursement for all eligible claims resulted in the removal of their competitive U&C prices from the market, and patients will likely find it more difficult to get imatinib at lower costs given Pharmacy A is no longer in business. As our report has thus far identified, the finances of pharmacy businesses are highly dependent upon margin concentrated into a few claims (i.e., NADAC + $25 or more).

At the same time, it's hard to imagine the PBM in this scenario did not have access to all the information we have. They certainly were aware of imatinib mesylate's NADAC – it is, after all, publicly available on CMS's website. The PBM would also know its WAC, AWP, and many other drug pricing benchmarks that could be used to contextualize imatinib's cost. At the very least, NADAC is a CMS pricing benchmark used, or at least acknowledged, by all the major PBMs in the U.S.[16] At the same time, the PBM had access to pharmacy claims data and could do the same comparative analysis on what they paid Pharmacy A vs. Pharmacy B. Ultimately, the PBM set the pharmacy network payment rates and

[16] Based upon a 3 Axis Advisors review of pharmacy provider manuals, press releases, and statements of PBM research and advocacy efforts through PCMA.

terms that both Pharmacy A and Pharmacy B participated within, and here it seems that the incentives were not aligned such that pharmacy setting a more reasonable U&C price was better positioned for market success.

And so, our analysis does not provide a simple, satisfactory answer to who's to blame for the disparities in imatinib mesylate's price at the pharmacy point-of-sale. The pharmacy providers of Oregon could have contributed to lower costs for imatinib mesylate by taking it upon themselves to set lower U&C prices. At the same time, payment that was thousands of dollars above the cost of the drug was only possible because negotiated rates were set so high by PBMs. Rather, this section's imatinib example is intended to inform us that drug pricing is complex, and different groups will respond to different incentives to yield potentially different outcomes. We should all be mindful of the incentives created when determining price, as context is everything.

Our last attempt to understand drug pricing differentials in Oregon

Thus far, we have reviewed how prescription drugs are paid for in Oregon, the utility of the various benchmarks to contextualize drug prices, the broad trends in Oregon pharmacy claims data from 86 sample retail pharmacies, the differences in payment for products via the itemized receipt of the pharmacy claim (i.e., dispensing fees and product ingredient costs), the details of how payment for drugs is being managed in the Oregon Medicaid program, and differences in payment dynamics across the various market segments of typical pharmacy operations (i.e., Medicaid, Medicare, and Commercial). Along the way, we've given close to 100 individual drug examples of how payment differences are playing out in the data and yet, we have one last analysis we think is worth a little more of your time.

Our final analysis seeks to expand on the original market share analysis by segment (see **Medicare, Medicaid, and Commercial** section previously). But rather than use our own definitions of reasonableness around gross margin, we are now going to let the data tell us how margin is distributed across claims in each segment. To perform this analysis, each claim's margin over NADAC was determined from the Oregon retail pharmacy data set (Medicare claims were net of pharmacy DIR). Next, the average margin over NADAC per prescription was determined per the methods we have already discussed. However, as we have learned, gross margin is not evenly distributed (see **Figure 62**). Therefore, the average may not appropriately describe a "typical" claim's margin over NADAC at a retail community pharmacy. So, in addition to the average margin over NADAC, we also determined the margin over NADAC for claims at the 25th, 50th (median), 75th, 95th and 99th percentile. The results of this analysis are presented in **Table 17** (on the next page).

Table 17: Per Prescription Margin Over NADAC Claim Distribution for Commercial, Medicare (Net Pharmacy DIR), and Medicaid Market Segments, Oregon Retail Pharmacy Data Set (2019 – 2021)

Segment	Payer	Mean Margin Over NADAC Per Prescription	25th Percentile Margin Over NADAC Per Prescription	50th Percentile Margin Over NADAC Per Prescription	75th Percentile Margin Over NADAC Per Prescription	95th Percentile Margin Over NADAC Per Prescription	99th Percentile Margin Over NADAC Per Prescription

Commercial	PBM A	$2.85	$(0.49)	$0.66	$3.99	$19.35	$65.64
Commercial	PBM B	$6.22	$0.14	$2.49	$8.18	$28.36	$74.96
Commercial	PBM C	$3.98	$1.48	$2.61	$5.23	$13.35	$35.27
Commercial	PBM D	$5.92	$2.06	$3.58	$8.90	$16.87	$40.88
Commercial	Other	$4.01	$0.50	$2.20	$6.09	$17.16	$49.50
Medicaid	PBM A	$0.92	$(1.04)	$(0.24)	$0.70	$10.36	$47.00
Medicaid	PBM B	$4.74	$0.57	$1.60	$4.91	$19.79	$69.27
Medicaid	PBM C	$2.63	$1.07	$1.75	$3.31	$9.69	$21.89
Medicaid	FFS	$7.51	$7.42	$8.77	$9.49	$12.05	$16.65
Medicare	PBM A	$15.19	$1.39	$4.93	$15.47	$60.04	$160.11
Medicare	PBM B	$18.86	$3.86	$9.25	$22.38	$63.72	$154.72
Medicare	PBM C	$4.16	$1.92	$3.45	$6.04	$14.29	$30.42
Medicare	PBM D	$6.89	$1.17	$2.50	$5.73	$32.32	$93.41
Medicare	Other	$7.89	$1.03	$3.34	$8.66	$34.66	$91.91

Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

As we review the data in **Table 17**, it may be beneficial to try and keep the perspectives of the various drug supply chain participants at hand (i.e., payer, PBM, provider, patient, etc.). A pharmacy's costs do not broadly change by the market segments it serves. Drug costs, labor costs, and overhead are independent of market segment when it comes to running a pharmacy business. However, skews in the distribution of profitability among prescription drugs by market segment may drive the provider to seek out customers who generate abnormally high profits to offset those customers where reimbursement may be abnormally low. Or conversely – and more importantly from a lens of health equity – skews in the distribution of profitability among prescription drugs will drive the provider to avoid customers who generate abnormally low profits to decrease reliance on customers where reimbursement may be abnormally high. These industry dynamics result in pharmacies being incentivized to cater to particular types of customers, or business segments, which does not seem aligned with the broader goal that pharmacy providers service all patients equally.

We must also accept that the data represents real prices someone is paying, whether as employers, taxpayers, patients, or some combination of those. Uneven distribution of prices means that some may be getting a good – or even great – deal, while others are left wondering how they are going to afford the cost of care. Our recent imatinib mesylate example is representative of how patient or payer costs can vary significantly in ways seemingly unrelated to the underlying drug cost or service rendered. At the same time, we should acknowledge that some providers, whether based upon their size or their geographic location, are also themselves likely asking for greater reimbursement considerations of payers and PBMs than others.

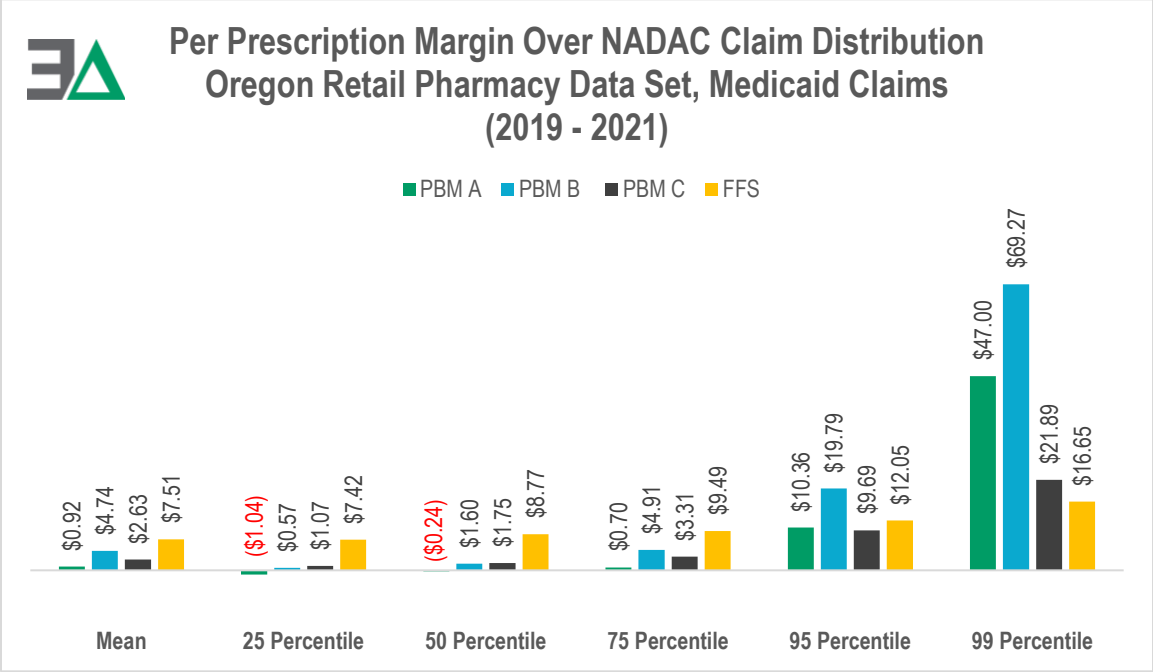
Medicaid margins over NADAC on a percentile basis

In reviewing **Table 17**, our first observation is that the mean margin over NADAC per prescription overrepresents the median margin over NADAC (50th percentile margin over NADAC column) in all cases except for the Medicaid FFS

program. From the perspective of a purchaser of prescriptions (i.e., health plan or patient), this means that more times than not, they are getting a better deal than the average would suggest. A view of paying for prescriptions through this lens may appease the majority of payers. After all, there is not much exigency for change if an analysis of your data suggests you're getting better prices at the pharmacy counter than the average in the majority of instances (i.e., median costs below average costs). Regardless of the market segment we investigate, oftentimes the 75th percentiles of drug costs have a much closer representation to the mean than the median. Said differently, the data seems skewed and not normally distributed.

No other case study is better than that of the Oregon Medicaid CCO program when compared to the Medicaid FFS program. To demonstrate, we take the Medicaid experience in **Table 17** and present in graphically in **Figure 65** below.

Figure 65: Per Prescription Margin Over NADAC Claim Distribution for Medicaid Claims in Oregon Retail Pharmacy Data Set (2019 – 2021)



Sources: 72 Oregon Retail Pharmacies in Study, CMS NADAC, 3 Axis Advisors, LLC

Recall that Oregon's Medicaid FFS program utilized an actual acquisition cost (AAC) method to determine a drug's ingredient cost. To refresh, this means that the FFS program intentionally attempts to estimate the cost for a pharmacy to acquire a given drug and reimburse the pharmacy at that acquisition cost. To cover pharmacy overhead, the FFS program provides a dispensing fee that is in the $10 range (varies as discussed in the **Dispensing fees** section on page 19 and **Table 1**). In essence, the FFS program's goal is to always pay a pharmacy ~$10 above the pharmacy's cost acquire a drug. What we see is that the FFS program is doing a really good job towards this goal. At the 25th percentile, the average margin over NADAC was estimated at $7.42 per prescription, whereas the mean was only $0.09 off that mark. Moving to the extreme 99th percentile, the payment above NADAC only increased to $16.65 per prescription. The price paid relative to the cost of the drugs is fairly consistent across the percentiles. Visually, this is the yellow bars having similar size from left-to-right in **Figure 65**.

Now compare that to PBM A (a CCO Oregon Medicaid payer) represented by the green bars in **Figure 65**. At the 25th percentile, the payment per prescription to the Oregon retail pharmacies in our study **is $1.04 below their invoice**

cost to acquire the drugs. Remember that percentiles are based on ordering, so this suggests that in general, for every 100 prescriptions a pharmacy fills for PBM A and the Oregon CCO Medicaid plans benefits they administer, the provider can expect to be paid $1.04 less than what they acquired the drug 25 out of 100 times. Moving to the 50th percentile, the pharmacy provider's issues with PBM A do not improve significantly, as the margin over NADAC is $0.24 below the pharmacies' invoice cost to acquire the drugs. So, to recap, a provider filling prescriptions for PBM A in the Oregon Medicaid CCO program can expect for every 100 prescriptions they fill, the first 50 will not be paid at the provider's invoice cost to acquire the drugs they are dispensing. Said differently, half of all work given to PBM A is at a loss to the pharmacy and so the pharmacy becomes more dependent upon the prescriptions that are performing well. While PBM A may have wildly succeeded at achieving a price at the pharmacy counter that was better than what any could have expected (below provider cost to acquire) for half of all transactions, the unintended consequences are a reduction in market competitiveness where providers may look to subsidize the "great deal" given to PBM A and its clients by asking more from others through higher U&C prices.

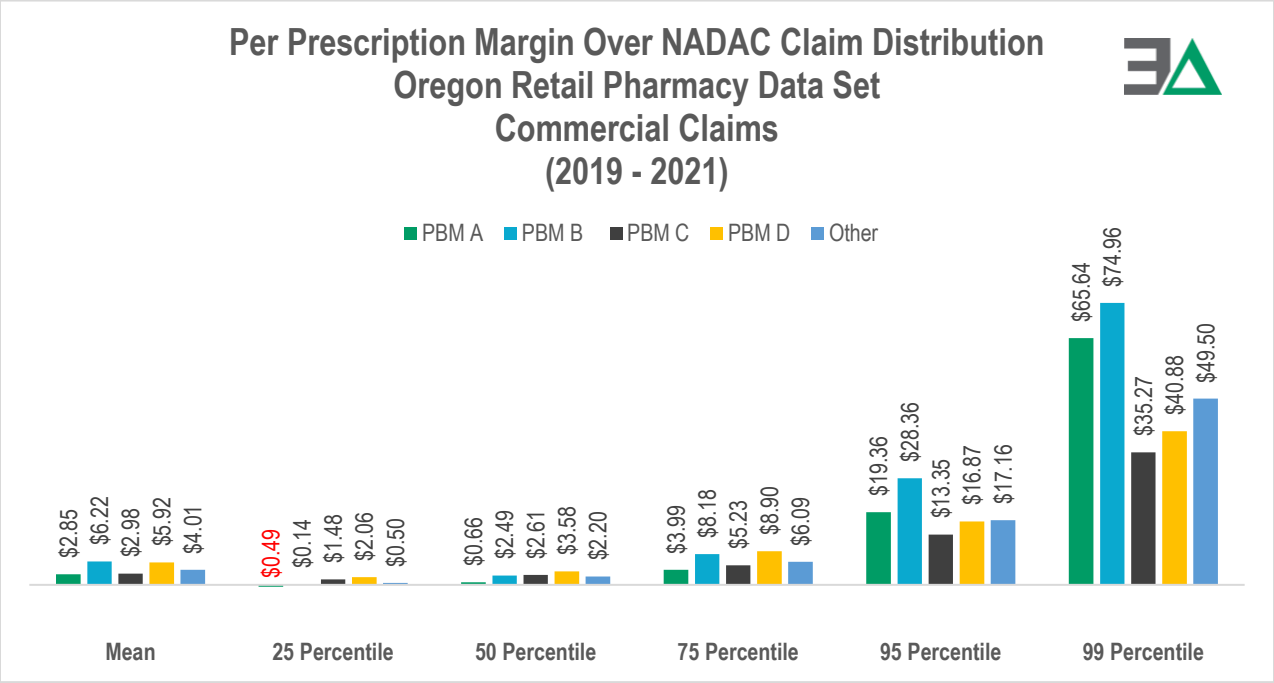
Moving to the 75th percentile for PBM A, the margin over NADAC yielded by the retail pharmacies in our study slightly increases to $0.70 per prescription, but it is not until the 95th percentile that a margin over NADAC exceeds the $10 mark. Progressing to the 99th percentile, the margin over NADAC disproportionally increases to $47.00 per claim. Stepping back, we hope it is beginning to come into focus how important the claims are that fall between the 95th and 100th percentiles to a pharmacy who is dispensing medications for beneficiaries of PBM A. Said differently, a pharmacy cannot risk setting more competitive U&C prices that may undercut received reimbursements at the 95th to 100th percentiles.

Now compare PBM A's 99th percentile margin over NADAC of $47.00 per prescription to the Medicaid FFS margin over NADAC 99th percentile price of $16.65. Although the FFS starting price may have been significantly higher than "the great deal" PBM A negotiated, cost exposure was much more controlled and equitably distributed when considering the highest payments over NADAC. PBM A is the most extreme case in the data; however, a review of the other payers illustrates a similar philosophy when it comes to provider payment structure.

Commercial and Medicare margins over NADAC on a percentile basis

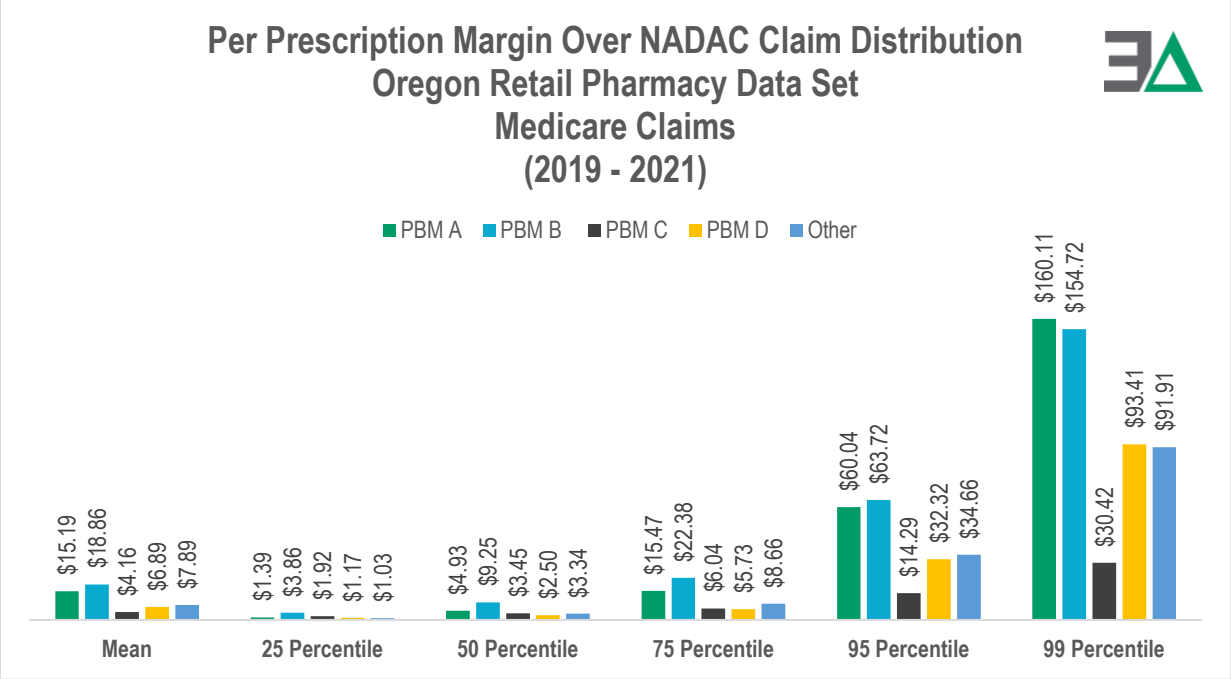
Based upon our findings in **Figure 65**, we present **Figure 66 & 67** (on next page) to graphically illustrate the data in **Table 17** for the Commercial and Medicare markets segments, respectively. In reviewing these figures, it should be noted that no PBM provides equitable reimbursement across claims for the Commercial or Medicare markets as Oregon FFS did in the Medicaid segment. That said, comparisons can be made on a per PBM basis. For example, you can compare PBM A's approach to paying drugs at the 25th percentile between the Medicare, Medicaid, and Commercial segments.

Figure 66: Per Prescription Margin Over NADAC Claim Distribution for Commercial Claims in Oregon Retail Pharmacy Data Set (2019 – 2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

Figure 67: Per Prescription Margin Over NADAC Claim Distribution for Medicare Claims in Oregon Retail Pharmacy Data Set, Top 4 PBMs by Oregon Market Share (2019 – 2021)



Sources: 86 Oregon Retail Pharmacies in Study, CMS NADAC, 3 Axis Advisors, LLC

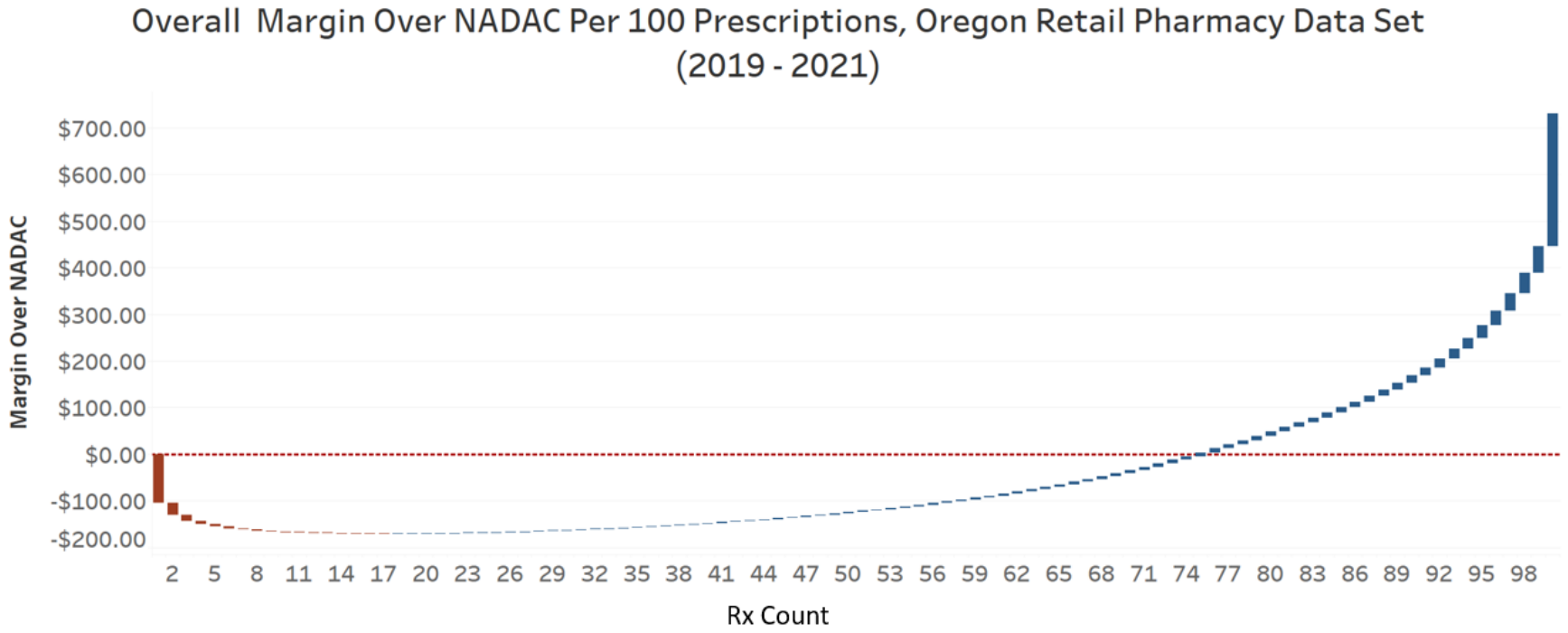
Paying for medicines, 100 prescriptions at a time

With payment differentials now better understood, we undertook a final attempt to recontextualize this data. To do so, we took all 12 million claims and determined the margin over NADAC for each claim and then sorted the claims in ascending order by margin. For example, the claims that produced the lowest margin over NADAC would be the first claim (i.e., first) in the sorting while the claim that produced the largest margin over NADAC would be the last (i.e., 12 millionth).

Next, we determined margin percentiles (from 1 to 100) and extracted the value of each percentile and recorded the margin over NADAC for that percentile. The percentile position was determined by utilizing the formula (P / 100) x N where P = Percentile, and N = Number of values in the data set. For example, in a 12 million row data set, the 40 percentiles may be calculated by taking (40 / 100) x 12,000,000 which equals position 4,800,000. This approach assumes that margin is normally distributed (i.e., equally likely to occur) across these groupings. Finally, each percentile was graphed on the x-axis while the margin over NADAC on the y-axis.

Figure 68 on page 113 provides the results of this analysis. The x-axis represents the percentile (or pharmacy claim position) while the y-axis illustrates the margin over NADAC for the percentile/claim. We utilized a waterfall chart to help visualize the true value of each claim. A waterfall chart is a data visualization technique that shows how an initial value can be affected by the cumulative impact of each sequential value Each bar provides a visualization of two values. The first is the length of the current bar, which corresponds to the value at that position (i.e., margin over NADAC at that percentile). The second is the y-axis value at the end of the bar length. This y-axis value represents a running total of margin across all claims to the left of the current position. For example, in a 100-bar chart, the top of bar 50 would represent the running total of bars 1 through 50, whereas the top of bar 100 would represent the running total of the entire sample. Additionally, the bars in **Figure 68** are color coded either red or blue. A red bar represents a margin over NADAC that is negative while a blue bar represents a positive margin over NADAC. This is in essence a visual way to determine which claims were underwater or not.

Figure 68: Overall Margin Over NADAC by Percentiles for All Payers, Oregon Retail Pharmacy Data Set (2019 - 2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

In interpreting **Figure 68**, we see that the first transaction (percentile 1) extends below the y-axis to roughly the (-$100) region. What this indicates is on average for every 100 prescriptions filled between 2019 and 2021 by the 86 Oregon retail pharmacies in our study, one of those prescriptions resulted in the pharmacy receiving payment that was ~$100 less than their approximate cost to acquire the drug (calculated via NADAC). Looking at the scenario from a second lens, it also means whoever is exposed to the point-of-sale price (i.e., the beneficiary, plan sponsor in the case of a pass-through contract, or the PBM) got a great deal. That is, their cost exposure was ~$100 below the average invoice price that pharmacies paid to acquire the drug. Certainly, such a result is not typical when we consider other goods or services we may purchase as a consumer. Harkening back to our earlier examples, we do not expect a grocer to lose $100 when we buy milk or cheese or any basket of groceries at the store. The data suggests, however, that this an expectation for some of Oregon's pharmacy claim activities.

Moving along, we can see the 2nd percentile of claims still have a red bar, but not as tall as the first. The second bar measures at around -$25, indicating the average payment to pharmacies was ~$25 below NADAC. The end of the first bar (-$100) became the starting point for the second bar. Cumulatively, $125 in value has been given away by pharmacies filling the bottom two percentiles of prescriptions. It is not until the 19th percentile (or 19th claim out of 100 if you're considering these sequentially) that the first blue bar shows up, indicating a payment above NADAC at $0.10. At this point and moving forward, each additional payment will contribute to erasing the $170 hole below cost of goods (i.e., NADAC) that the pharmacy experienced from the first 18 claims. It isn't until theoretical claim 75 out of 100 where the pharmacy's cumulative margin over NADAC will flip to the positive for the first time. At this 75th percentile point, the average prescription drug claim is paid at a POS price that is $8.20 above NADAC, relatively close to the mean margin over NADAC payment of $7.31. We interpret this to signal that in general, 75 out of every 100 claims are paid at a margin over NADAC price that is at or better than what the calculated mean would suggest. Once again, this demonstrates the complexity around drug payment reforms. When 75 out of 100 available percentiles are priced low, it can be difficult to convince that same majority (i.e., 75 out of 100) to pay more their claims to equalize payments across the remaining 25. Said differently, for the 25 people (each claim is associated with an individual) whose payment would improve with a more equitable approach to margin, there are 75 people who may be asked to pay more.

Moving to the end of the chart, we can see that the peak of the last bar is at $731. The $731 represents the running sum of payment over NADAC. If we divided the $731 by 100 claims, we would get our mean of $7.31 of margin per prescription. But as we have learned, this does not tell the entire story. To achieve a mean of $7.31 let us consider that the last 25% of claims had an average payment over NADAC of $31.28. **Further examination tells us the last five transactions resulted in 62% ($455 of $731) of the pharmacies' total accumulated profit with the last transaction accounting for 39% ($286 of $731)**. Purchasers of prescription drugs at the far-right end of the chart (claims 96 thru 100) were exposed to a much greater price over NADAC despite the mean suggesting $7.31 per prescription. From a provider's point of view, the few claims at the far-right are undoubtedly needed to sustain a profitable operation. Said differently, consistently missing out a few of these claims (such as may occur when a provider sets a lower U&C price) may result in the difference of black or red in on a quarterly profit & loss (P&L) statement for the business.

We are partial to interpreting **Figure 68** in this pseudo-sequential order of fills at a pharmacy, because we feel such an interpretation can help us connect so many of the concepts we have thus far explored in this report. Recall that we saw earlier (**Figure 62**) that a few claims offered pharmacies high margins above NADAC (based upon our characterization of $25 above NADAC being high). While few in number, such claims are vital to pharmacy operations. For example, consider the impact if the average pharmacy did not fill the one $286 margin over NADAC transaction that occurs once every 100 prescriptions. **The overall average payment above NADAC declines from $7.31 to $4.45 per prescription through missing just this one event.** Hypothetically, if the average pharmacy filled 200 prescriptions per day six days a week, 52 weeks a year, gross profit would be impacted by roughly $178,000 per year ($457,000 vs

$278,000), or nearly 40%. Keep in mind, gross profit is not net profit. This is a potentially overly simplistic view of the issue when the pharmacy provider may be obtaining wholesaler rebates that can lower their net acquisition costs, and there may be other services the pharmacy may offer that can increase its overall profitability as a business. But on the flip side, the principal business of pharmacy is dispensing medications and it seems reasonable to expect that line of business to be profitable on its own.

We believe the view that this analysis provides helps to explain why some (probably most) providers who participate in third-party reimbursement choose to price a drug like imatinib mesylate 400 mg at $13,000, while "cash only" or "cost-plus" pharmacies are often significantly less. Because of how incentives are architected by larger PBMs, a pharmacy who participates in third-party provider networks must work within the disparate margins as they currently exist to maximize returns, whether their motives are sustainability or profitability. In our experience, most pharmacy providers are often ill-equipped to identify which claims are likely associated with high or low margins. And due to the lack of objectivity in how PBMs can dial up or dial down MAC rates (see **Maximum allowable cost (MAC)** section on page 20), even if pharmacies could quickly identify overpriced claims, a high-paying claim one day may become a low-paying claim next month, and a high-priced claim from one PBM might be a low-priced claim for another. As such, the safest and easiest choice for most pharmacies is to cater their prices to the incentives created by their biggest customer base, which are PBMs, which, in turn, means seeking out the highest payments in most instances. At the very least, our imatinib mesylate example speaks to some of the consequences which may befall a pharmacy provider who does not calibrate their business this way.

Medicaid percentile experience

Next, we wanted to see how the Oregon Medicaid CCO program performed under this same view. To do this, we created the same type of analysis and chart as in the prior section, but only used the CCO claims dispensed by the Oregon retail pharmacies in our study. **Figure 69** (on page 117 due to its size) demonstrates an even greater pharmacy reliance on high-margin claims. **As can be seen in Figure 69, a typical pharmacy will not obtain a positive margin on Oregon Medicaid CCO prescriptions until the 98th percentile of claim margins is reached.**

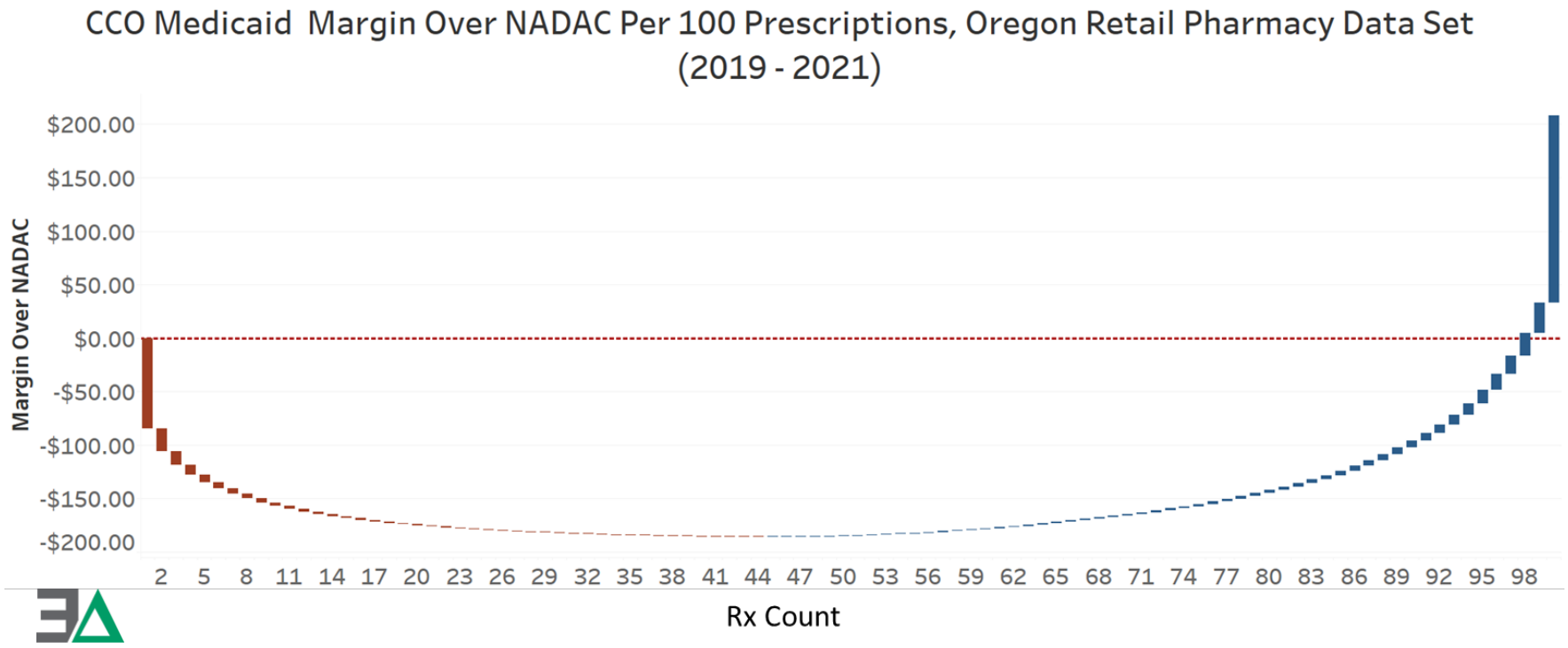
Keeping with our view of this data as an evenly distributed 100 claims, such is the experience of Oregon retail pharmacies that even though prescriptions become profitable around prescription 45, it takes another 53 fills before they can dig themselves out of the reimbursement hole of the prescriptions before claim 45. The reality of this reimbursement environment is that it places an even greater reliance on the last two out of 100 transactions to ensure the segment provides a positive return. However, the pharmacies' aggregate Medicaid CCO return of $208 per 100 transactions ($2.08 in margin per prescription) is much less than the total provided in the overall market experience reflected previously in **Figure 68** of $731 per 100 transactions ($7.31 in margin per prescription). A single Medicaid CCO claim offering a $175 margin accounts for 84% of total margin over NADAC for the entire grouping of Oregon CCO Medicaid. Not receiving this single claim could be the difference in an average margin over NADAC on the 100 claims of $2.08 per prescription or $0.33 per prescription. This increases the provider's financial risk of doing business in the Medicaid CCO market segment such that it is again hard to envision a pharmacy providing competitive U&C prices on their claims.

In reviewing the data, it seems appropriate to discuss how a provider facing such a reality may react to the prevailing market incentives in the Medicaid CCO program. Consider the impact to a pharmacy's margin if the provider were to remove the claims in the 1st percentile (the one on the furthest left in **Figure 69**) that resulted in an average payment of $85 below NADAC, while maintaining all other claims. In this view, a pharmacy's average margin over NADAC per prescription would increase by 40% from $2.08 per prescription to $2.93 per prescription through the elimination of the worst paying percentile. As we alluded to previously, pharmacies often cannot easily identify or obtain high-margin claims. They're largely banking on chance as to whether a prescription will come up with a high margin or not. As a

result, the pharmacy provider would likely have better success trying to eliminate losses than succeed in generating high-margin claims. Pharmacies can control what drugs they carry in inventory and may choose not to carry drugs they consistently identify as low margin. Or they can direct patients to get underpaid claims filled at other competitor pharmacies. Alternatively, they can avoid contacting patients with underpaid claims for refill reminders. All pretty lousy solutions if the goal is to improve health outcomes.

And while we started with a focus on claims on the left side of the figures, examples of the importance of claims on the right side are just as educational. Consider our earlier example of dimethyl fumarate 240 mg (generic Tecfidera®). Oregon Medicaid CCO transactions appeared to produce significantly larger margins compared to what normal distribution suggests from our Oregon retail pharmacy data set. If these transactions, and other similar high-margin prescription claims, are only accessible to a limited number of providers, then those fortunate pharmacies are potentially very profitable relative to their pharmacy peers.

Figure 69: Medicaid CCO Margin Over NADAC Per 100 Prescriptions, Oregon Retail Pharmacy Data Set (2019 – 2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

High-margin claims, such as those on the right side of **Figures 68 & 69** can help us appreciate the market dynamics of specialty medications. When very few claims are associated with very high margins, it's possible for some pharmacies to do relatively little work (fill only a few prescriptions) to generate very large returns. Said differently, if a specialty pharmacy only fills the two rightmost claims (the ones with the highest margins), they produce the same cumulative margin as a retail pharmacy filling 100 prescriptions. At the same time, we should appreciate why the incentives of a health insurance industry tasked with managing risk may prefer such a model.

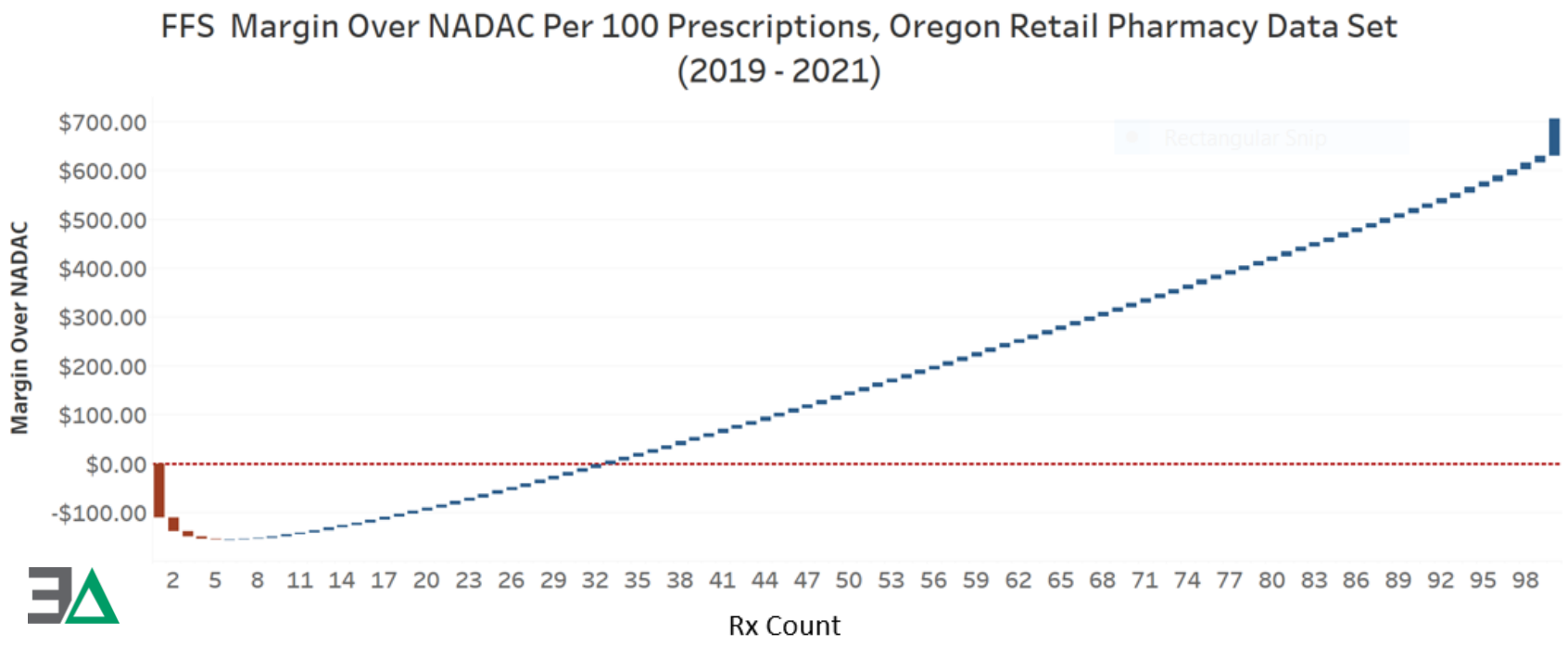
Consider the insurance executive, whose Medicaid CCO payment rate is capitated via an actuarial method that estimates costs over the next six months and requires that the insurer to go at risk in order to generate a profit. Rather than having to manage thousands of drug prices (Oregon CCO SDUD indicates reported billings for 1,204 brand NDCs and 10,577 generic NDCs between 2019 and 2021), risk may be concentrated into a few key drugs. The management task to generate profits potentially becomes much easier when risk is consolidated in this way. Under such an unequal reimbursement system, it doesn't really matter how successful the insurer, or by extension its PBM, is on 90% or so of billed claims (provided that such billings are of low value). Rather, 40% of provider profitability is concentrated into just 2% of drugs. It is much easier to manage the cost of 2% of a portfolio of drugs (recall we just identified thousands of products needing managed) than it is to manage costs on 100% of products. Said differently, profit concentration minimizes risks to profitability for the plan. To demonstrate this, we performed yet another ranking analysis, but used Oregon Medicaid FFS data as opposed to CCO data. **Figure 70** (again, on the next page due to its size), is performed the same as **Figures 68 & 69** but uses the Medicaid FFS program pharmacy claims data only.

As can be seen in **Figure 70**, pharmacy margins are far more equitable across the range of FFS percentiles (or prescriptions when we assume normal distribution). Yes, the 1st percentile and 99th percentile are larger steps than the rest, but they do not account for 40% of the pharmacy's overall margin experience. Rather, margin is more equitably distributed across the basket of 100 claims such that from a management standpoint, the FFS program needs to get the price right roughly 100% of the time (not just 2% of the time). An insurance executive tasked with managing spend in the FFS model needs to dedicate more resources to the entire basket of drugs far more regularly then their CCO counterpart.

Now we do not mean the above to sound like the CCO programs are not dedicating resources to every person, or do not have a concern about the payment rate of every claim. Rather, we believe the data informs how approaches to getting drug payment right can differ depending upon the plan's incentives. The data makes plain that most of the money for providers in the CCO programs is concentrated into a few claims. As a result, those claims are very important from a financial perspective to both the payer and the provider (as demonstrated by how impactful the loss of any of the extreme ends of the spectrum are to average margin). The same is not true, according to the data, in the FFS program. Because margin is more equitably distributed in FFS, an Oregon retail pharmacy is positioned to service the next prescription in the same way it serviced the last, without considerations for product de-stocking or other cost avoidance activities. In FFS, both the provider and the payer are aligned to serve all patients equally.

The differences between CCO and FFS margin concentration does not identify that the CCOs do not have other programs in place to try and ensure members get access to the services they need. Regardless, beyond the professional obligation to the patient, the financial incentives do not exist for pharmacy providers to help ensure equitable access to medicines in the Medicaid CCO programs. The financial incentive to the business of Oregon retail pharmacies appears to be to seek out high-margin claims while minimizing exposure to low-margin claims.

Figure *70*: FFS Margin Over NADAC Per 100 Prescriptions Oregon Retail Data Set (2019 - 2021)



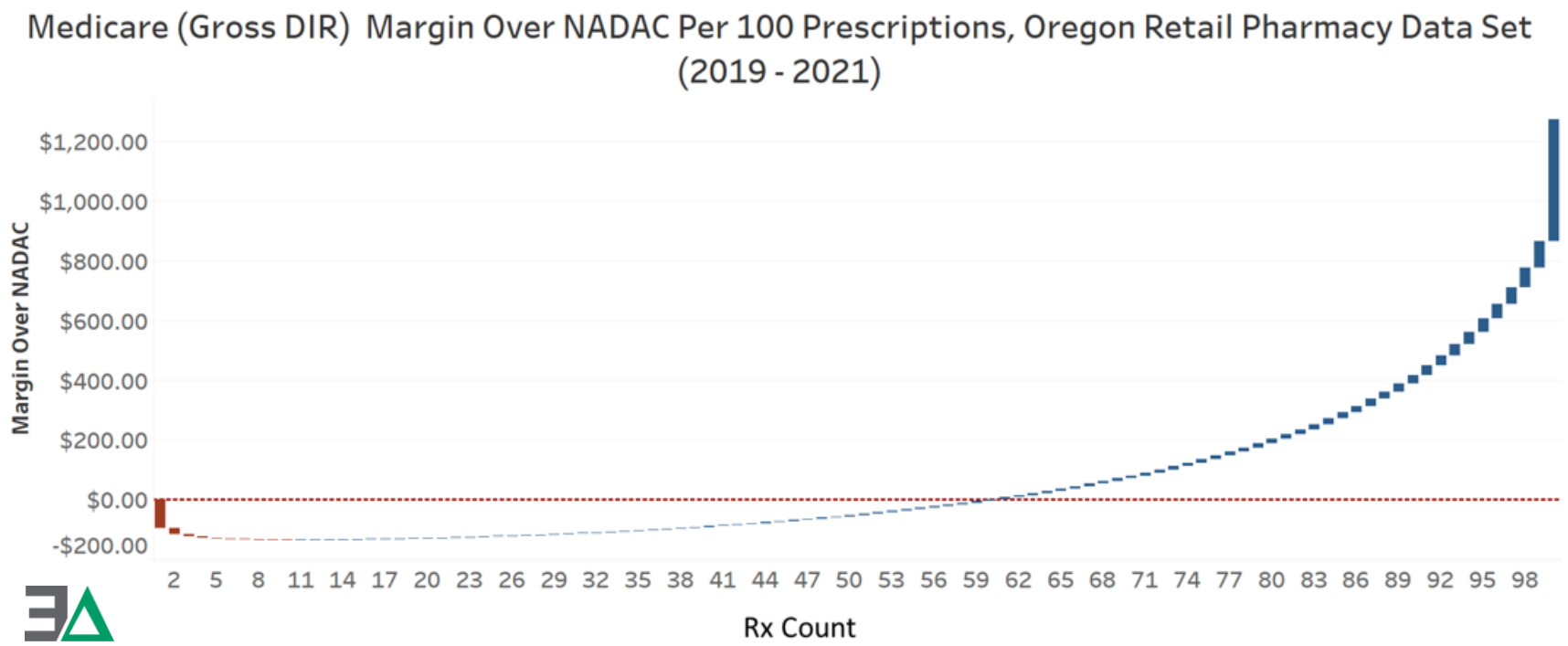
Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

Commercial and Medicare percentile experience

As a result of what we saw with the Medicaid FFS program, we complete our analysis for this project by breaking out the remaining segments of Medicare (**Figure 71**, on the next page due to its size) and Commercial (**Figure 72**, on page 122). None of these programs mirror the FFS program's more equitable margin distribution trends across prescription drug claims (based upon percentiles). Similarly, none of the programs are as extreme in their concentration of margins as the Medicaid CCO program. As a result, the Medicare and Commercial figures highlight the points that we have already made in this report when comparing market segments; namely, they generate greater profits than Medicaid (both in the aggregate, and on a comparable percentile basis).

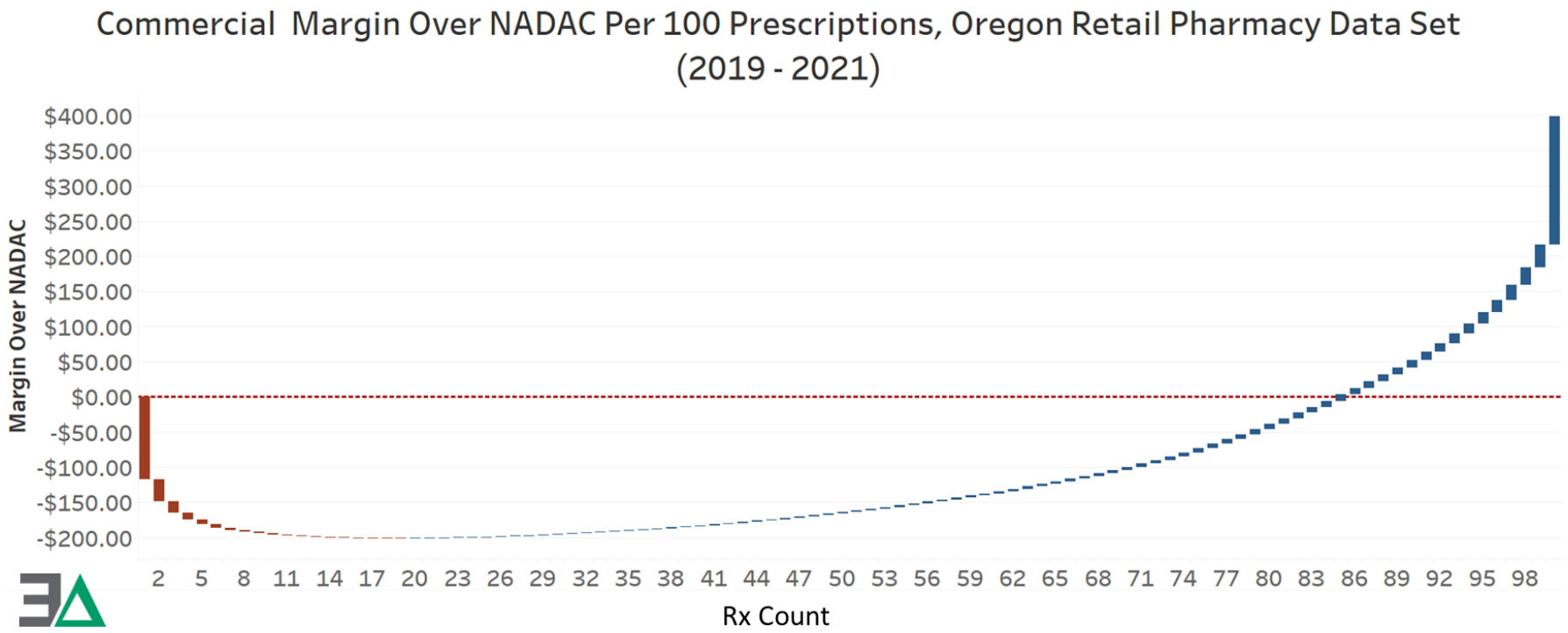
At the same time, we need to appreciate that when there are financial incentives to a business to serve one customer type over another, there may be challenges for pharmacies to operate in certain areas of Oregon. It is known that certain geographic regions have greater Medicaid representation than others. As a business, these may represent areas where it is not economically viable to continue to operate pharmacy practices. Large enough pharmacy chains may be able to balance the financials of their books of business to sustain operations in these areas; however, when the business inevitably faces financial challenges, the low performing pharmacy locations may be targeted for closure. As the largest chain pharmacies are publicly traded companies, expectations of them maintaining unprofitable pharmacies for any prolonged period of time would seem ill-fated. Along the same lines, smaller or independent practices do not have the opportunity to balance their financials in the same way as larger chains. As a result, they may not be able to sustain operations in high-Medicaid regions (or go into those regions when other providers leave).

Figure 71: Medicare Margin Over NADAC Per 100 Prescriptions Oregon Retail Data Set (2019 - 2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

Figure 72: Commercial Margin Over NADAC Per 100 Prescriptions Oregon Retail Data Set (2019 - 2021)



Sources: 86 Oregon retail pharmacies in study, CMS NADAC, 3 Axis Advisors, LLC

Conclusion

Policymakers and plan sponsors face real challenges in addressing reimbursement inequities at the pharmacy counter. As our study has consistently demonstrated, through many different analytical approaches, the current paradigm of paying for prescription drugs results in costs that are incredibly varied. Some payers, be they health plans, government agencies, and/or patients pay more for the same products that others get for a lower cost.

From the pharmacy provider perspective, many prescriptions are being reimbursed below sustainable levels (based upon Medicaid's definition of actual acquisition cost plus the cost to dispense). The consequence of the unequal distribution in margin opportunities for pharmacies creates business incentives that may not be aligned with broader public health goals. Certainly, unequal distribution of profitability within a set of claims can result in certain members getting prioritized for care at the expense of others such that the business of pharmacy generates higher returns. This can take a variety of forms known to already be impacting the Oregon retail pharmacy market. Providers may shutter locations in areas more frequently associated with poor payer types (i.e., prescription losses). In our analysis, these were most often Oregon Medicaid CCO plans. At the same time, providers may respond to the unequal distribution of margin by de-stocking certain drugs and shedding under-profitable patients (again, in an attempt to avoid losses). Patients may therefore experience gaps in care when their ability to take medications as prescribed is delayed (either by waiting for mail-order prescriptions to arrive or having to travel farther distances to get needed therapies).

At the same time, we should appreciate that the unequal distribution of margin can have upside for patients at the pharmacy counter. PBMs secure discounts in the aggregate that, at times, favor a large majority of claims and are significantly lower than most pharmacies' cash prices. In our analysis studying percentile-based payments, 75 out of 100 claims payments were associated with costs below what the average would signal. This means that efforts to equalize payments could cause the current majority (i.e., 75 out of 100) to pay more, such that the smaller group, that is currently overpaying, can pay less. At the same time, the concentration in "tail events," or the prescription margins at the highest percentiles (95th to 99th), leads pharmacy providers to set increasingly high prices to capture these more profitable claims.

Next, we should appreciate that when PBM payment rates to pharmacies concentrate margin into increasingly smaller groups of claims, the health plans charged with managing costs may benefit. If we consider all pharmacy provider margins as a fixed bucket of money to be distributed, and that a given health plan's financial success is predicated off managing this bucket of money, then is it any wonder the system is producing inequitable margins? By concentrating margin into a few claims, the risk to the plan is potentially minimized as it can allow them to focus their cost control efforts on the small number of well-reimbursed (i.e., high margin) claims. We most often recognize these as specialty medications. PBM prescription fulfillment services may be aligned with plan interests in this regard. Directing patients to affiliated pharmacies of the plan or PBM can better control concentrated financial risks, resulting in more profit for the health plan. Conversely, we should understand that when PBMs can direct where covered medications get dispensed, through the pharmacy networks they manage and participate in, conflicts of interest may arise. In their determination of a price, there is often little oversight regarding how PBMs pay for products that they are themselves dispensing or alternatively, are being dispensed by non-affiliated pharmacies that they are in direct competition with.

Finally, we recognize that the analyses in this report are far from an exhaustive study. Rather, they represent a starting point for a broader understanding of the conflicts that exist within the U.S. drug supply chain. Whether desirable or not, payers, whether directly or through their contractors, ultimately determine winners and losers within the pharmacy market based upon how they purchase services. If payers do not put cash into the system through financing healthcare benefits to patients, then every other downstream entity cannot function. For example, a pharmacy's primary customers

are people with insurance; so, the average pharmacy's finances are highly dependent on health plan payments. In turn, the wholesalers to pharmacies do not get paid nor would drug manufacturers get paid if health plans were not providing reimbursements to pharmacy providers. However, because of the pervasive lack of drug price transparency, particularly net of all discounts, health plans are increasingly reliant on intermediaries like PBMs, to establish drug prices within the market. Ultimately, if greater transparency around drug prices and incentives were achieved, then potentially new, more equitable structures to manage health benefits and costs could result.

Methods

Data Sources

All analytics performed in this study were based on the combination of the following raw data sources:

1. CMS' State Drug Utilization Data (SDUD) database
2. CMS' National Average Drug Acquisition Cost (NADAC) database
3. Oregon retail pharmacy reimbursement data
4. Medi-Span PriceRx by Wolters Kluwer Clinical Drug Information Inc

Details of the transformations regarding these databases are provided below.

State Drug Utilization Database (SDUD)

State agencies responsible for Medicaid operations are responsible for reporting drug utilization for covered outpatient drug expenditures incurred by their programs to the Centers for Medicare and Medicaid Services (CMS). Utilization is reported on a quarterly basis and published on Medicaid.gov approximately four months after the close of each quarter. The database includes total dollars spent, units reimbursed, and prescriptions for each 11-digit National Drug Code (NDC) per quarter, by state and program type (i.e. Managed Care or Fee-for-Service). This data is used to understand Oregon Medicaid expenditures for prescription drugs.

National Average Drug Acquisition Cost (NADAC) Database

NADAC was developed by the Centers for Medicare and Medicaid Services (CMS), "to provide a national reference file to assist State Medicaid programs in the pricing of Covered Outpatient Drug claims to reflect the actual acquisition cost (AAC) of drugs." (76) As such, NADAC's goal is to be the most comprehensive public measurement of market-based retail pharmacy acquisition cost.

NADAC is compiled by Myers and Stauffer on behalf of CMS. It is generated from a voluntary monthly invoice cost survey of 2,500 randomly selected retail pharmacies (with 450-600 respondents). After Myers and Stauffer completes its data processing and clean-up activities, it publishes the survey results at the National Drug Code (NDC) level on Medicaid.gov. As of April 2022, the NADAC database included prices for 48,576 different NDCs. As state Medicaid fee-for-service programs have shifted to an actual acquisition cost (AAC) basis to comply with the Covered Outpatient Drug Rule (CMS-2345-FC), many states have utilized NADAC as the primary proxy for acquisition cost. As such, we believe NADAC is the best publicly available pricing benchmark to approximate average pharmacy invoice costs. We relied on the NADAC database extensively throughout this report as our best estimate for a drug's actual acquisition cost.

Oregon Retail Pharmacy Reimbursement Data

3 Axis Advisors obtained de-identified pharmacy claims data from 86 community retail pharmacies. This data contained a total of 12,027,400 records from Medicaid and non-Medicaid payers. The data contains sufficient information to contextualize the product dispensed and what payment was obtained from the insurer. Because of the variety of data sources, there was not a standard format to the information received. This was the source of data utilized to assess actual reimbursements to pharmacies at the pharmacy counter.

No Personal Health Information (PHI) was collected as part of this study.

Medi-Span PriceRx by Wolters Kluwer Clinical Drug Information, Inc.

Medi-Span PriceRx is an online pricing and drug information portal developed by Wolters Kluwer Clinical Drug Information, Inc. (WKCDI). PriceRx offers one of the most extensive histories of drug manufacturer pricing, with NDC-

level drug pricing dating back to the 1980s. PriceRx was the source of the raw average wholesale price (AWP) and wholesale acquisition cost (WAC) data that we used to calculate aggregated quarterly AWPs for our analyses.

PriceRx also contains clinical information, enabling identification of drug products by a hierarchical therapeutic classification system. This classification helps standardize drug lists and is the basis for all therapeutic category investigations. This classification system was used to identify brand vs. generic status, prescription drug status, and therapeutic drug classes among other clinical information.

Data Transformations

The following describes the transformations made to the data sources used in this report.

Weighted Quarterly NADAC and AWP Tables

We use CMS SDUD to have a benchmark to compare state expenditures for operating the optional prescription drug program within Medicaid to the acquisition costs of those medications by pharmacies, as well as to the reimbursement pharmacies receive for those medications by the state and its managed care partners (CCOs in the case of Oregon). As SDUD is aggregated on a NDC, quarter, and year basis, the data only allows aggregate comparisons between data sets. To facilitate an appropriate aggregate comparison, we must average the various prescription drug pricing benchmarks (i.e., AWP, WAC, and NADAC) to a quarterly and yearly basis, and join the average price per unit to the appropriate quarter and year for each NDC. Total costs at each pricing benchmark can be calculated on the basis of multiplying the number of units for each NDC by the appropriate average unit reference price.

As stated, SDUD reporting is on a quarterly basis. Therefore, we needed a weighted quarterly average unit price for each benchmark (NADAC and AWP). For each quarter, all NDCs were assessed for a starting price, any price changes which occurred during the quarter, and an ending price. Each NDC's price was then weighted based on the number of days at each price during a given quarter and added into a table.

The following SQL procedure was utilized to establish the weighted quarterly NADAC values. The same logic was then used to create an AWP weighted quarterly table.

```
with q1a as(
select
	ndc
	,ndc_description
	,nadac_per_unit
	,start_date = case when start_date < @year+'-01-01' then @year+'-01-01' else
	start_date end
	,end_date = case when end_date > @YEAR+'03-31' then @YEAR+'03-31' else end_date
	end
	,days_at_price = DATEDIFF(day,case when start_date < @YEAR+'-01-01' then @YEAR+'-
	01-01' else start_date end,case when end_date > @YEAR+'-03-31' then @YEAR+'-03-31'
	else end_date end)+1
	,total_days =sum(DATEDIFF(day,case when start_date < @YEAR+'-01-01' then @YEAR+'-
	01-01' else start_date end,case when end_date > @YEAR+'-03-31' then @YEAR+'-03-31'
	else end_date end)+1) over(partition by NDC)
from #table1
	where start_date <= @YEAR+'-03-31' and end_date >= @YEAR+'-01-01'
),
q1b as(
select
	ndc
	,ndc_description
```

```
        ,round(sum(nadac_per_unit * (cast(days_at_price as float)/cast(total_days as
        float))),2) nadac_weighted_quarter_price
from q1a
        group by ndc,ndc_description
),
q1c as(
select
        *
        ,Q = '1'
        ,year = @year
from q1b
),
q2a as(
select
        ndc
        ,ndc_description
        ,nadac_per_unit
        ,start_date = case when start_date < @year+'-04-01' then @year+'-04-01' else
        start_date end
        ,end_date = case when end_date > @YEAR+'06-30' then @YEAR+'06-30' else end_date
        end
        ,days_at_price = DATEDIFF(day,case when start_date < @YEAR+'-04-01' then @YEAR+'-
        04-01' else start_date end,case when end_date > @YEAR+'-06-30' then @YEAR+'-06-30'
        else end_date end)+1
        ,total_days =sum(DATEDIFF(day,case when start_date < @YEAR+'-04-01' then @YEAR+'-
        04-01' else start_date end,case when end_date > @YEAR+'-06-30' then @YEAR+'-06-30'
        else end_date end)+1) over(partition by NDC)
from #table1
        where start_date <= @YEAR+'-06-30' and end_date >= @YEAR+'-04-01'
),
q2b as(
select
        ndc
        ,ndc_description
        ,round(sum(nadac_per_unit * (cast(days_at_price as float)/cast(total_days as
        float))),2) nadac_weighted_quarter_price
from q2a
        group by ndc,ndc_description
),
q2c as(
select
        *
        ,Q = '2'
        ,year = @year
from q2b
),
q3a as(
select
        ndc
        ,ndc_description
        ,nadac_per_unit
        ,start_date = case when start_date < @year+'-07-01' then @year+'-07-01' else
        start_date end
        ,end_date = case when end_date > @YEAR+'09-30' then @YEAR+'09-30' else end_date
        end
```

```
        ,days_at_price = DATEDIFF(day,case when start_date < @YEAR+'-07-01' then @YEAR+'-
        07-01' else start_date end,case when end_date > @YEAR+'-09-30' then @YEAR+'-09-30'
        else end_date end)+1
        ,total_days =sum(DATEDIFF(day,case when start_date < @YEAR+'-07-01' then @YEAR+'-
        07-01' else start_date end,case when end_date > @YEAR+'-09-30' then @YEAR+'-09-30'
        else end_date end)+1) over(partition by NDC)
from #table1
        where start_date <= @YEAR+'-09-30' and end_date >= @YEAR+'-06-01'
),
q3b as(
select
        ndc
        ,ndc_description
        ,round(sum(nadac_per_unit * (cast(days_at_price as float)/cast(total_days as
        float))),2) nadac_weighted_quarter_price
from q3a
        group by ndc,ndc_description
),
q3c as(
select
        *
        ,Q = '3'
        ,year = @year
from q3b
),

q4a as(
        select
        ndc
        ,ndc_description
        ,nadac_per_unit
        ,start_date = case when start_date < @year+'-10-01' then @year+'-10-01' else
        start_date end
        ,end_date = case when end_date > @YEAR+'10-30' then @YEAR+'10-30' else end_date
        end
        ,days_at_price = DATEDIFF(day,case when start_date < @YEAR+'-10-01' then @YEAR+'-
        10-01' else start_date end,case when end_date > @YEAR+'-12-31' then @YEAR+'-12-31'
        else end_date end)+1
        ,total_days =sum(DATEDIFF(day,case when start_date < @YEAR+'-10-01' then @YEAR+'-
        10-01' else start_date end,case when end_date > @YEAR+'-12-31' then @YEAR+'-12-31'
        else end_date end)+1) over(partition by NDC)
from #table1
        where start_date <= @YEAR+'-12-31' and end_date >= @YEAR+'-10-01'
),
q4b as(
select
        ndc
        ,ndc_description
        ,round(sum(nadac_per_unit * (cast(days_at_price as float)/cast(total_days as
        float))),2) nadac_weighted_quarter_price
from q4a
        group by ndc,ndc_description
),
q4c as(
        select
```

```
        *
        ,Q = '4'
        ,year = @year
from q4b
),
Combined as(
Select
        * from q1c
        union all
select
        * from q2c
        union all
select
        * from q3c
        union all
select
        * from q4c)

select *
        into #nadac table
from combined
```

SDUD files for years 2019 thru 2021 where uploaded to a SQL database and queried for Oregon by utilizing a where clause and limiting results to state = 'OR'. Data rows without reported expenditures by Oregon Medicaid were excluded. In total, the table consisted of 118,620 rows of data.

```
with cte as(
SELECT [utilization_type]
      ,[product_name]
      ,[ndc]
      ,[year]
      ,[quarter]
      ,[units_reimbursed]
      ,[number_of_prescriptions]
      ,total_amount_reimbursed = round([total_amount_reimbursed],2)
      ,[medicaid_amount_reimbursed] =round([medicaid_amount_reimbursed],2)
      ,[non_medicaid_amount_reimbursed] = round([non_medicaid_amount_reimbursed],2)
  FROM #t1
  where state = 'OR' and suppression_used = 'false'

  union ALL

  SELECT [utilization_type]
     ,[product_name]
      ,[ndc]
      ,[year]
      ,[quarter]
      ,[units_reimbursed]
      ,[number_of_prescriptions]
      ,total_amount_reimbursed = round([total_amount_reimbursed],2)
      ,[medicaid_amount_reimbursed] =round([medicaid_amount_reimbursed],2)
      ,[non_medicaid_amount_reimbursed] = round([non_medicaid_amount_reimbursed],2)
  FROM #t2
  where state = 'OR' and [Supression_Used] = 'false'
```

```
union all
 SELECT [utilization_type]
   ,[product_name]
    ,[ndc]
    ,[year]
    ,[quarter]
    ,[units_reimbursed]
    ,[number_of_prescriptions]
    ,total_amount_reimbursed = round([total_amount_reimbursed],2)
    ,[medicaid_amount_reimbursed] =round([medicaid_amount_reimbursed],2)
    ,[non_medicaid_amount_reimbursed] = round([non_medicaid_amount_reimbursed],2)
FROM #t3
where state = 'OR' and [Suppression_Used] = 'false'
)
select *
into #oregon_medicaid
from cte;
```

Next, the quarterly NADAC and AWP weighted unit prices were joined utilizing a left join on NDC, year, and quarter. The left join preserves the SDUD row if a NADAC and/or AWP is not available for a particular NDC. The quarterly average unit price was then multiplied by the number of units reported from each NDC row to establish an aggregated row total. A total of 118,620 rows remained after the joins, confirming the joins preserved the original data.

```
 select
       a.* ,
       --add awp unit price
       b.awp_quarter_unit_price,
       --add awp_total
       awp_total = awp_quarter_unit_price * units_reimbursed,
       --nadac unit price
       round(nadac_quarter_unit_price,3) nadac_quarter_unit_price,
       --add total nadac
       nadac = round(nadac_quarter_unit_price * units_reimbursed,2)
       --add into temp table
into #oregon_medicaid_awp
from #oregon_medicaid a
       left join #t1 b
       on a.ndc=b.NDC and a.year=b.year and a.quarter=b.quarter
       left join #t2 c
       on a.ndc=c.ndc and a.year=c.year and a.quarter=c.quarter
```

All reported NDCs where then joined to fields from a Medi-Span database utilizing a left join on NDC. Brand vs. generic logic was established utilizing Medi-Span's Brand_Name_Code_BNC field and the Marketing Category. A drug was determined to be brand if the Brand_Name_Code_BNC = 'T' for 'Trademark' and the marketing category was either 'BLA' for biologic license application or 'NDA' for new drug application. In addition to brand to generic logic, the NDC's GPI, dosage form, and RX_OTC flag were added to the table. The RX_OTC flag identifies if a particular NDC is OTC and may be used to separate legend drugs from billed OTC claims.

```
select
           utilization_type,
           b.Product_Name,
           a.ndc,
           a.year,
```

```
            a.quarter,
            units_reimbursed,
            number_of_prescriptions,
            total_amount_reimbursed,
            awp_quarter_unit_price,
            awp_total,
            nadac_quarter_unit_price,
            nadac,
            Dosage_Form,
            GPI,
            Rx_OTC_Rx
            --ADD brand/generic logic
            CASE WHEN Brand_Name_Code_BNC = 'T' and Marketing_Category in ('BLA','NDA')
THEN 'B'
            ELSE 'G' END B_G
-- create global temp table
  into ##oregon_medicaid_sdud_all_claims
  from #oregon_medicaid_awp a
            join [MediSpan Definitions] b
            on a.ndc = b.NDC_UPC_HRI_Unformatted
```

Next, it was determined the analysis was to be conducted on a yearly basis and therefore, the data was aggregated from a quarterly to yearly basis. In addition, to limit billings to those which had established NADACs and most likely to be community retail, any quarterly NDC lacking a reported NADAC was excluded in a where clause consisting of 'where NADAC is not null'.

```
select
       utilization_type
       ,ndc
       ,GPI
       ,B_G
       ,Dosage_Form
       ,Rx_OTC_Rx
       ,year
       ,sum(units_reimbursed) units
       ,sum(number_of_prescriptions) rx_count
       ,round(sum(total_amount_reimbursed),2) total_payment
       ,round(sum(awp_total),0) awp
       ,round(sum(nadac),0) nadac
       ,round(sum(total_amount_reimbursed) / sum(units_reimbursed),2) avg_unit_price
       ,round(sum(total_amount_reimbursed) / sum(number_of_prescriptions),2) avg_rx_prcie
       ,round(sum(nadac) / sum(number_of_prescriptions),2) avg_nadac_rx
       ,round((sum(total_amount_reimbursed) - sum(nadac))/sum(number_of_prescriptions)
,2) avg_nadac_margin

into ##oregon_medicaid_sdud_ndc
from ##oregon_medicaid_sdud_all_claims
where nadac is not null
group by
       utilization_type
       ,ndc
       ,GPI
       ,B_G
       ,Dosage_Form
       ,year
```

```
,Rx_OTC_Rx
```

Oregon Medicaid Retail Pharmacy Database

Two databases were utilized to analyze pharmacy claims from the 86 retail pharmacies that participated in our study. The first was an overall database that housed all 12,027,400 retail pharmacy claims consisting of Medicare, Medicaid and Commercial billings. The second database utilized was for the Oregon Medicaid SDUD analysis and consisted of 2,465,112 Oregon Medicaid claims. We chose to create the second database as a component of the Oregon Medicaid analysis, which involved analyzing dispensing fee and ingredient cost payment. A portion of pharmacy claims from the community pharmacies did not parse ingredient cost and dispensing fee payment from total payment as part of the summarized data received. For this reason, it was not appropriate to include such claims in the SDUD Medicaid analysis. This approach reduced the number of pharmacies being reviewed for the relevant Medicaid analyses from 86 to 72. The figures identify when the source of the data was either the full 86 or the 72-subset of pharmacies.

However, the overall Commercial, Medicare, and Medicaid analyses only utilized provider total reimbursement and therefore, those claims offered additional data points without limitations from which we wanted to include. For this reason, the overall Medicare, Medicaid, and Commercial analysis contained all 86 pharmacies.

To build the Retail Oregon Medicaid Data Base, the billing information for each Oregon Medicaid payer was obtained from the official State of Oregon Web site (see **Table 2** previously) and the claims flagged as either MCO or FFS under a utilization column. (77) Each claim was required to have an ingredient cost payment and dispensing fee payment for inclusion. The claims data was left joined to the per unit AWP based upon the NDC and date of fill.

```
SELECT
       Utilization
       ,[bin]
       ,[pcn]
       ,[group_id]
       ,[copay]
       ,[date_filled]
       ,[days_supply]
       ,[ndc]
       ,[qty]
       ,round([ingredient_cost_pd],2) ingredient_cost_pd
       ,[dispensing_fee_paid]
       ,round([total],2) total
       , AWP = round(a.qty*History_Unit_Price,2)
FROM #t1
       left join [MediSpan Prices as of 20220110] b
       on a.ndc = b.NDC_11
       and date_filled >= History_Effective_Date
       and date_filled =< History_End_Date
```

Next, the same brand vs generic logic utilized in the SDUD table build was used for the Retail Medicaid table build after joining MediSpan information to the build. At this time, it was determined that OTC would be excluded from the analysis. A SQL where clause was added to only include legend drug on the RX_OTC_RX field. An index was added to the file for validation using a window ROW_NUMBER function.

```
select
```

```
-- add row number for join validation
       ROW_NUMBER() over(order by date_filled) index_number
       ,a.*
       ,Product_Name
       ,GPI
       ,--ADD brand/generic logic
       CASE WHEN Brand_Name_Code_BNC = 'T' and Marketing_Category in ('BLA','NDA')
       THEN 'B'ELSE 'G' END B_G
into #combo_medispan
from #combo_awp a
       left join [MediSpan Definitions] b
       on a.ndc = b.NDC_UPC_HRI_Unformatted
       where Rx_OTC_Rx != 'O';
```

The NADAC was added to the database using a left join on the NDC and date filled columns.

```
select
       a.*
       ,NADAC = round(qty * nadac_per_unit,2)
into #nadac_table
from #combo_medispan a
       left join #nadac_lookup b
       on a.ndc = b.ndc
       where date_filled >= effective_date
       and date_filled <= end_date;
```

To compare SDUD CCO reported NDC/GPI billings to the Oregon retail pharmacy data set, the Oregon retail pharmacy data set was aggregated to a yearly basis either by NDC for the case of brand billings or GPI in the case of generic billings. The Oregon SDUD Medicaid table was then joined to the Oregon retail pharmacy data set table utilizing a full join to preserve row data from each table. Analysis identified some clear outliers (see **Data Validation**).

The overall Oregon Retail Pharmacy Data Set was constructed using the same logic, but claims were classified as either Medicare, Medicaid, or Commercial. The Medicaid payer data from the State of Oregon website (see **Table 2** previously) was utilized to identify Oregon Medicaid claims. (77) The CMS website was utilized to obtain a list of Medicare Part D billing information, and all claims with matching billing information were classified as Medicare Part D claims. (68) Any additional claim that was not classified as Medicaid or Medicare was considered a Commercial claim.

NDCs were classified as oral solid dosage forms if the Medi-Span Route of Administration field was ‘Oral’ and the dosage form meant the wild card search of ‘capsu%’ or ‘table%’ [wild card matching used to find capsules and tablets respectively].

Percentile analyses were completed by computing the desired value and filtering data based on the analysis inclusion criteria. A ROW NUMBER WINDOW function was utilized to assign an index to each row over the desired percentile column in ascending order. The total number of rows was then determined and the corresponding row number for which each desired percentile was extracted.

Data Validation

For brand drugs, the join was completed on NDC and year columns while for generics, the GPI and year columns. The data was then transferred to an Excel workbook for further analysis.

For example, the drug methadone 5 mg had reported SDUD unit prices that far exceeded the Oregon retail pharmacy data set. Further investigation found that methadone was reported by rehabilitation facilities and the unit price included additional outpatient services not limited to just the cost of the drug. For this reason, we excluded methadone 5 mg completely from the analysis. In similar fashion, drugs with clear package size discrepancies were excluded. The following provides a list of exclusions based upon this validation exercise:

Asmanex (120 Metered Doses) Inhalation Aerosol Powder Breath Activated 220 MCG/INH
Asmanex (14 Metered Doses) Inhalation Aerosol Powder Breath Activated 220 MCG/INH
Asmanex (30 Metered Doses) Inhalation Aerosol Powder Breath Activated 220 MCG/INH
Asmanex (60 Metered Doses) Inhalation Aerosol Powder Breath Activated 220 MCG/INH
Byetta 5 MCG Pen Subcutaneous Solution Pen-injector 5 MCG/0.02ML
Calcitriol Oral Capsule 0.5 MCG
Cinacalcet HCl Oral Tablet 60 MG
Cinacalcet HCl Oral Tablet 90 MG
cycloSPORINE Ophthalmic Emulsion 0.05 %
Methadone HCl Oral Tablet 5 MG
Polyethylene Glycol 3350 Oral Packet 17 GM
Restasis MultiDose Ophthalmic Emulsion 0.05 %
Restasis Ophthalmic Emulsion 0.05 %
Sensipar Oral Tablet 60 MG
Sensipar Oral Tablet 90 MG

From prior experience, we know that SDUD data can reflect 340B payments. As in past analysis, we used an AWP equivalency metric to attempt to clean brand claims in SDUD for potential 340B payments. We excluded brand NDCs whose average AWP-reported discount in SDUD exceeded 35% (15% greater than the median AWP to NADAC equivalency, see **Figure 4**).

Limitations

As with all research, our report is predicated on the accuracy of the data provided. The degree that such data differs from actual market conditions will have a notable impact on our report.

Limitations of SDUD

CMS is obligated by the Federal Privacy Act, 5 U.S.C. Section 552a and the HIPAA Privacy Rule, 45 C.F.R Parts 160 and 164, to protect the privacy of individual beneficiaries and other persons. Consequently, CMS suppresses data that are less than eleven (11) counts. CMS applies counter or secondary suppression in cases where only one prescription is suppressed for primary reasons, e.g., one prescription in a state. Also, if one sub-group (e.g., number of prescription) is suppressed, then the other sub-group is suppressed. The database should not include 340B claims per the data collection methodology. However, aggregate payment rates relative to AWP suggest that some claims paid at 340B rates may exist within the data. The lack of 340B claims can be impactful in understanding Medicaid claim expenditures in relation to brand name medications. The suppression of low count claims can be significant if those claims are significantly divergent from the overall claim experience. Due to the nature of generic claims, which are 90% of utilization, the absence of claims due to suppression is likely to be of low impact to the analysis.

Limitations of NADAC

NADAC's main limitation is that it does not include off-invoice rebates that pharmacies may receive from wholesalers. Rebates lower the net cost to the pharmacy for many drugs and tend to be a percent discount off the invoice cost (if a pharmacy meets various generic purchasing targets with its primary wholesaler or pays its wholesaler bill on-time). As such, NADAC should not be viewed as a reflection of pharmacy ***net*** costs — these will vary depending on pharmacy size and wholesaler contract terms. Our analysis does not account for these price concessions to pharmacies; however, we feel this limitation is appropriately controlled when we consider Medicaid programs and CMS are aware of these price concessions, and yet still rely on NADAC. It seems likely that if these prices concessions were to become known, then there would be changes to existing dispensing fee calculations employed by states. Since our reliance on NADAC in this report is also reliant upon Medicaid dispensing fees, we feel this limitation is appropriately controlled. I

A secondary limitation of NADAC is that the survey of retail pharmacies that it is based on is voluntary. Myers & Stauffer randomly selects and surveys ~2,500 pharmacies a month. Of this group, 450-600 pharmacies per month provide their acquisition costs, which become the basis for NADAC. Of course, to the extent that there are NDCs that have not been purchased by the 450-600 pharmacies that respond to the survey, NADAC will not capture these NDCs. In April 2017, CMS assessed the materiality of this limitation. They found that NADACs were calculated for approximately 96% of all Medicaid claim submissions: 87% of brand claims, and 97% of generic claims. (78) This significant level of NDC coverage for generic drugs mitigates the risk introduced by the voluntary nature of the survey, in our view.

A final limitation is that per the methodology of CMS, NADAC is limited to retail pharmacy purchases that meet CMS' definition of a Covered Outpatient Drug. In practical term, NADAC is not established for a limited number of high cost drugs (most frequently these products are categorized as specialty drugs). Given these products are often a source of high expenditures by health plans this limitation can be significant in individual drug instances. However, as we already identified, the majority of claims have an established NADAC and we feel this limitation is appropriately controlled.

Limitations of Pharmacy Claims

Oregon Medicaid CCOs are composed of more than one plan. As a result, our payer mix of CCOs may not be representative of the payer mix across the entire state, making comparisons with SDUD inaccurate to the degree the payer mix of our 72 pharmacies included in the CCO SDUD analysis does not match the overall payer mix. It should be noted that we endeavored to obtain a large and diverse group of pharmacies to attempt to limit the impact of payer

mix on our analysis. We feel that obtaining over 10% of retail pharmacies in Oregon creates a sampling that should be sufficiently representative of the overall trends that this limitation is appropriately controlled.

Another limitation of our claims data is that Rx BIN, PCN, and Group numbers are imprecise numbers in claims transactions and storage. For example, a plan whose prescription benefit card indicates it may should be billed with an Rx BIN and PCN but a blank Group may still accept claims with a group number transmitted. Another example would be a Group ID that is supposed to be billed under ADV may be accepted when billed under MCAIDADV. We limited this error by relying upon the Rx BIN, PCN, and Group numbers retrieved from the Oregon Health Authority to identify Oregon Medicaid claims and Part D billing information from the CMS website to identify Part D claims. (68) (77) All additional claims not classified were considered Commercial. As discussed, there are cases where transmitted information may be accepted by a payer for payment despite the payments fields not exactly matching. This error impacts an unknowable number of claims; however, given that the pharmacy received a successful transaction with the PBM we believe that the risk is appropriately controlled with our methods and therefore this limitation should not impact the overall results of our analyses.

To estimate DIR, we utilized a static percentage for each Medicare claim regardless of plan or drug classification (brand vs generic). Although the static percentage results in a total value that approximates cited retail pharmacy estimates, the design of Part D pharmacy plans and the degree to how a plan administers pharmacy DIR can vary significantly. However, as stated, we believe we have a sufficiently representative sampling of Oregon retail pharmacies (i.e., greater than 10% of providers) that a reliance upon an aggregate number is sufficient to address this limitation. However, it is highly likely that individual drug examples could differ significantly from our aggregate estimate and so we do not recommend using the aggregate estimate in individual plans or product examples. We controlled this limitation by relying upon our DIR estimate in the aggregate.

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Appendix A: Glossary

340B Claims

Pharmacies claims purchased at significant discounts under the program created by the Veterans Health Care Act of 1992 (i.e. 340B program). The law provides access to purchase drugs at reduced prices for certain healthcare entities called Covered Entities.

Actual Acquisition Cost (AAC)

The purchase price of a drug paid by a provider net of all discounts, rebates, chargebacks, or other adjustments to the price of the drug.

Affiliated Pharmacies

Pharmacies owned, attached, or connected to a Pharmacy Benefit Manager (PBM) or health plan, often given preferred status within the network of pharmacies to dispense selected medications (i.e. specialty prescriptions).

Average Sale Price (ASP)

A manufacturer's average price to all purchasers, net of discounts, rebates, chargebacks, and credits for drugs. ASP is determined using manufacturers' sales reports, which include information on total units sold and total revenue for each drug. ASP as published is aggregated to a professional billing unit that is often different from pharmacy billing units.

Average Wholesale Price (AWP)

A prescription drug pricing benchmark that estimates the average price paid by a retailer to buy a prescription drug product from a pharmacy wholesaler. Note, AWP is not a true representation of the actual market price to acquire prescription drug products.

Bank Identification Number (BIN)

A six-digit number issued by the National Council for Prescription Drug Programs (NCPDP) and used for routing and processing electronic pharmacy claims

Brand Effective Rate (BER)

The total ingredient cost for brand drugs dispensed divided by the full AWP for the reported period.

Capitated Rate Payments

A payment arrangement for health care service that pays a set amount for each enrolled person, per period, whether or not that person seeks care. Also known as capitation payments.

Coordinated Care Organizations (CCOs)

A coordinated care organization (CCO) is a healthcare organization created by the state of Oregon to allow for local and regional distribution and coordination of segments of the Oregon Medicaid program. Note that as a state developed approach to care management, they may not have all the characteristics of Managed Care Organizations (MCOs) [see separate definition] as described in federal regulations (such as the Affordable Care Act). However, CMS SDUD having MCO attributions in Oregon resulted in our broad characterization of these programs as MCOs.

Cost of Dispensing (COD)

The calculated amount of pharmacy costs incurred to ensure that possession of an appropriately covered outpatient drug is transferred to a Medicaid beneficiary. As per 42 CFR § 447.502, pharmacy costs included in this calculated amount include, but are not limited to, reasonable costs associated with a pharmacist's time in checking the computer for information about an individual's coverage, performing drug utilization review and preferred drug list review activities, measurement or mixing of the covered outpatient drug, filling the container, beneficiary counseling, physically providing the completed prescription to the Medicaid beneficiary, delivery, special packaging, and overhead associated with maintaining the facility and equipment necessary to operate the pharmacy.

The Oregon Medicaid FFS program has established in 2021 that the COD for Oregon retail pharmacies ranges between $9.80 and $14.30 per prescription depending on the provider number of prescriptions dispensed yearly, as evident by the FFS COD dispensing fee payment per prescription.

Cost Of Goods Sold (COGS)

The direct cost associated with acquiring or producing a good. For pharmacies, the COGS would be the price paid to acquire a drug for resale.

Differential Pricing

The observed difference in pricing of the same prescription drug between two different entities at the same level of the drug supply chain (e.g. different payment one pharmacy to another for the same product or service rendered).

Direct And Indirect Remuneration (DIR)

A term used in Medicare Part D to identify price concessions that impact gross prescription drug costs not captured at the point-of-sale. They include, but are not

necessarily limited to, discounts, chargebacks or rebates, cash discounts, free goods contingent on a purchase agreement, upfront payments, coupons, goods in kind, free or reduced-price services, grants, or other price concessions or similar benefits from manufacturers, pharmacies, or other similar drug supply chain participants.

Effective Rate Contracts

A contract where the full cost (reimbursement plus copay) of all drugs over a certain time frame must equal a certain percentage discount to a reference price, such as AWP. Usually, the effective rate varies by the type of drug (i.e., brand vs. generic) or type of service (i.e., ingredient cost or dispensing fees). Examples of effective rates can impact brand ingredient costs, generic ingredient costs, or dispensing fee payments.

Federal Rebate

The amount reimbursed for qualifying prescription drug claims within Medicaid by drug manufacturers who participate in the Medicaid Drug Rebate Program (MDRP).

Fee-for-Service (FFS)

Medical and/or pharmacy claims where the state pays providers directly for the delivered healthcare service.

Generic Effective Rate (GER)

The relative rate of the full cost (reimbursement plus copay) of all generic drugs over a certain time frame as a percentage of the total weighted average AWP for those same generic drugs over the same time frame. Note, reimbursement within certain prescription drug networks may be based upon a GER contract.

Generic Product Identifier (GPI)

A proprietary number developed by Medi-Span to identify drugs via a therapeutic classification system.

Ingredient Cost (also drug ingredient cost)

One of the components used to determine a prescriptions price. The ingredient cost is associated with a provider's reimbursement for the cost of the covered medication. Reimbursement at the ingredient level is intended to cover the cost of goods sold by the provider.

Managed Care Organization (MCO)

Managed care is a health care delivery system designed to reduce costs and provide quality. Medicaid agencies contract with MCOs to administer enrollee benefits and contracted services by providing the MCOs a set per member per month (capitation) payment. The MCO will create a network of providers negotiating provider rates independent of the FFS published rates.

Margin Over NADAC

The amount of reimbursement provided by a health insurance carrier or PBM for a prescription drug relative to the NADAC based cost for the prescription drug determined at the national drug code (NDC) level.

Maximum Allowable Cost (MAC)

A payer or pharmacy benefit manager (PBM)-generated list of products that includes the upper limit that the payer will reimburse for an interchangeable prescription drug product.

Medicaid Drug Rebate Program (MDRP)

A program that includes Centers for Medicare & Medicaid Services (CMS), state Medicaid agencies, and participating drug manufacturers that helps to offset the Federal and state costs of most outpatient prescription drugs dispensed to Medicaid patients via a prescription drug rebate. Rebates are determined via a formula, and not a rate negotiated by the Federal government.

Medicare Part D

An optional benefit under the broader Medicare program that enables eligible individuals (often the elderly) to obtain help with costs related to prescription drugs. Enrollment in the program is voluntary and patients often pay monthly premiums to obtain coverage as well as share in the costs of the medications they receive through the benefit.

National Average Drug Acquisition Cost (NADAC)

A national prescription drug pricing benchmark that designed to reflect the invoice prices paid by retail community pharmacies to acquire prescription and over-the-counter covered outpatient drugs.

National Drug Codes (NDCs)

A unique, three-part segmented number published by the Food and Drug Administration (FDA) used to identify for drugs within the U.S. drug supply chain.

Net Cost (also Net Price)

The realized cost of a good or service after the gross cost is reduced by any benefits gained from acquiring the good or service. In prescription drugs, this is the cost of the drug after accounting for any rebates or other price concessions associated with the purchase of the drug.

Oral Solid (aka Oral Solid Dosage Form)

An oral solid is a drug product with a route of administration of oral and a dosage form with a description including either capsule or tablet.

Patient Steerage

The act of a third party (such as a PBM) channeling prescriptions towards a preferred provider. Often, there exists a shared business interest (i.e., ownership) between the third party and the provider.

PBM Provider Network

The list of designated pharmacies available from which beneficiaries may obtain medications.

Pharmacy Benefit Manager (PBM)

A third-party administrator of prescription drug programs for health plans whose responsibilities generally include developing and maintaining the formulary, contracting with service providers to form a network, negotiating discounts and rebates with drug manufacturers, and processing and paying prescription drug claims.

Pharmacy services administrative organization (PSAO)

An entity that contracts with a pharmacy whose primary role is administrative tasks such as managing provider (pharmacy) contracting with payers such as PBMs. PSAOs entities often form a network of pharmacies which may assist in negotiating access to PBM networks.

Point-of-sale Price (POS price) (also gross cost, pharmacy counter price, or retail price)

The agreed upon price between a dispensing pharmacy and payer before any price concessions occur after the sale of the prescription. The price is often the basis to determine any cost share responsibilities that may exist for a plan beneficiary.

Preferred Drug List (PDL)

The list of specific medications within a prescription drug benefit that a payer has indicated are preferred relative to other medications in their therapeutic classification based upon their clinical significance and overall efficiencies.

Price Concessions

Any discount that reduces net price of goods including negotiated rates, pharmacy DIR, and manufacturer rebates.

Price Guarantees

A contract where the costs of services over a certain time frame must equal a certain reference price. For prescription drugs, price guarantees often take the form of effective rates (see earlier definition)

Processor Control Number (PCN)

A secondary identifier to the BIN number used for routing and processing electronic pharmacy claims. PCNs enable further differentiation of the transaction.

Professional Dispensing Fee (PDF)

Pharmacy costs associated with ensuring that the possession of the appropriate outpatient drug is transferred to a Medicaid beneficiary. These costs include, but are not limited to, the following:

- Costs associated with checking the computer about an individual's coverage;
- Performing Drug Utilization Review and Preferred Drug List Review activities;
- Measurement or mixing of the drug;
- Filling the container;
- Beneficiary counseling;
- Physically providing the completed prescription to the Medicaid beneficiary;
- Delivery, special packaging and overhead associated with maintaining the facility; and
- Equipment necessary to operate the pharmacy.

Rebates

A contractual relationship between a health plan and a drug manufacturer or other intermediary that generate financial value in a form of a retrospective price concession.

Specialty Drugs / Medication

There is no industry recognized definition for specialty medication but PBMs generally identify drugs for inclusion on specialty medication lists. PBMs generally categorize products into this designation based upon the drug's cost, administration, and handling requirements. Patients may be restricted to access designated products from PBM identified providers (see Patient Steerage earlier)

Specialty Pharmacy

Pharmacies who focus their business activities, such as inventory management and dispensing activities, around specialty drugs

Spread Pricing

The difference between the payments made by a pharmacy benefit manager (PBM) to the pharmacy for a prescription and the charge to the payer for the same claim.

State Drug Utilization Database (SDUD)

A database in which each state Medicaid system that provides outpatient prescription drugs to beneficiaries reports quarterly outpatient expenditures and utilization at the NDC level. The SDUD supports Medicaid efforts to collect prescription drug rebates.

Transition Fill

A one-time prescription in which a beneficiary may receive a limited number of fills for a product (often only one) at a plans retail network pharmacy. The beneficiary must obtain any additional future fills from the plans preferred channel partner, such as a specialty pharmacy.

Underwater Claims

Pharmacy claims whose reimbursement from the health plan and/or PBM is below the ingredient cost to acquire for the medication dispensed.

Usual and Customary (U&C) Default Payment

A term utilized to describe payment to a provider that relied upon the submitted provider price and not the negotiated rate of a third-party intermediary, such as a PBM. Defaults occur in contracts whose payment methodology is predicated on paying the lower of value between submitted price and negotiated rate.

Usual and Customary (U&C) Price (aka cash price)

A pharmacy's charge to the general public for a particular prescription, on a particular day, that reflects all advertised savings, discounts, or special promotions. This price point is equal to the amount a person without insurance would pay for the medication.

Wholesale Acquisition Cost (WAC)

The manufacturer's list price to wholesalers or direct purchasers in the United States, not including prompt pay or other discounts, rebates or reductions in price.

Appendix B: DISCLAIMERS

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About 3 Axis Advisors, LLC

3 Axis Advisors is an elite, highly specialized consultancy that partners with private and government sector organizations to solve complex, systemic problems and propel industry reform through data driven advocacy. With a primary focus on identifying and analyzing U.S. drug supply chain inefficiencies and cost drivers, 3 Axis Advisors offers unparalleled expertise in project design, data aggregation and analysis, investigative research, and public education. 3 Axis Advisors arms clients with independent data analysis needed to spur change and innovation within their respective industries. 3 Axis Advisors co-founders were instrumental in exposing the drug pricing distortions and supply chain inefficiencies embedded in Ohio's Medicaid managed care program that ultimately uncovered more than $244 million in secret prescription drug mark-ups and inspired a national reckoning on hidden cost drivers within the prescription drug supply chain. They are also the co-founders of 46brooklyn Research, a nonprofit organization dedicated to improving the transparency and accessibility of drug pricing data for the American public.

To learn more about 3 Axis Advisors, visit www.3axisadvisors.com

About Oregon State Pharmacy Association (OSPA)

Oregon State Pharmacy Association (OSPA) was founded in 1889 as a professional trade association representing its member community of pharmacists, pharmacy technicians, pharmacy students and others who have an interest in advancing the practice of pharmacy through advocacy and education, and thereby improving the health of our fellow Oregonians.

OSPA represents pharmacists statewide before the State Legislature, state agencies, Congress and with other health care stakeholders. OSPA provides a wide range of services to both employee and owner member pharmacists, including excellent continuing education opportunities and advanced practice programs.