



FEDERAL TRADE COMMISSION

Specialty Generic Drugs:

A Growing Profit Center for Vertically
Integrated Pharmacy Benefit Managers

Second Interim Staff Report
January 2025

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I. Introduction

Prescription drugs represent a large and growing amount of healthcare spending—increasing from \$393 billion in 2016 to \$600 billion in 2023.¹ While traditional drugs dispensed through retail and mail order pharmacies account for much of this spending, a disproportionate share of the growth has come from spending on a class of drugs known as specialty drugs, which more than doubled from \$113 billion in 2016 to \$237 billion in 2023.² Historically, specialty drugs were characterized by their need for special handling and administration. This is no longer necessarily the case. There is no standard definition for a specialty drug, and today specialty drugs may be characterized by variety of factors, including their high cost.³

This report expands on FTC staff’s initial findings regarding specialty drugs published in a July 2024 staff report titled “Pharmacy Benefit Managers: The Powerful Middlemen Inflating Drug Costs and Squeezing Main Street Pharmacies.”⁴ The First Interim Staff Report provided an overview of the vertically integrated and highly concentrated markets in which pharmacy benefit managers (“PBMs”) operate and highlighted the increasing importance of specialty drugs to the three largest PBMs, Caremark Rx, LLC (“CVS”), Express Scripts, Inc. (“ESI”), and OptumRx, Inc. (“OptumRx”) (collectively the “Big 3 PBMs”) and their affiliated pharmacies.⁵ Among many other findings, the First Interim Staff Report showed:

- Pharmacies affiliated with the Big 3 PBMs received 68% of the dispensing revenue generated by specialty drugs in 2023, up from 54% in 2016.⁶
- The Big 3 PBMs marked up two specialty generic cancer drugs by thousands of percent and then paid their affiliated pharmacies hundreds of millions of dollars of dispensing revenue in excess of estimated acquisition costs for each drug annually.⁷

This staff report relies on additional data and documents to analyze a broader subset of specialty generic drugs. We evaluate all specialty generic drugs dispensed during our 2017-2022 study period⁸ for members of commercial health plans and Medicare Part D prescription drug plans managed by the Big 3 PBMs for which we have relevant data—which includes 51 drugs comprising 882 National Drug Codes.⁹

¹ See FED. TRADE COMM’N, INTERIM STAFF REPORT, PHARMACY BENEFIT MANAGERS: THE POWERFUL MIDDLEMEN INFLATING DRUG COSTS AND SQUEEZING MAIN STREET PHARMACIES 18 (2024) [hereinafter “First Interim Staff Report”].

² See *id.* at 18.

³ See *id.* at 17-18.

⁴ *Id.*; see also *infra* note 24 and accompanying text (discussing the FTC’s ongoing study of PBMs).

⁵ See First Interim Staff Report, *supra* note 1, at 20, Fig. 6.C.

⁶ See *id.* at 19.

⁷ See *id.* at 38-47 (analyzing imatinib (generic Gleevec used to treat leukemia) and abiraterone (generic Zytiga used to treat prostate cancer)).

⁸ Some analyses in this report cover the entire study period from 2017-2022. See *infra* §§ III.B.1-2. Other analyses focus on the most recent years of data in our sample from 2020-2022. See *infra* Figs. 1-4. Other analyses present trends over the 2017-2021 period. See *infra* Figs. 5-6 & 8-9. When we are not examining ratios, averages, or aggregated amounts, we exclude 2022 because only limited data were produced by the PBM respondents for that year. See *infra* note 30 and accompanying text.

⁹ See *infra* § II.B (describing sample selection).

Key findings in this staff report¹⁰ include:

- ***The Big 3 PBMs marked up numerous specialty generic drugs dispensed at their affiliated pharmacies by thousands of percent, and many others by hundreds of percent.*** Of the specialty generic drugs analyzed in this report and dispensed by the Big 3 PBMs' affiliated pharmacies for commercial health plan members between 2020 and 2022, 63 percent were reimbursed at rates marked up by more than 100 percent over their estimated acquisition cost (NADAC) while 22 percent were marked up by more than 1,000 percent.¹¹ Additionally, the Big 3 PBMs reimbursed their affiliated pharmacies at a higher rate than unaffiliated pharmacies on nearly every specialty generic drug examined.¹² These large markups and disparities in reimbursement rates were present across critical drugs used to treat serious diseases and conditions, including cancer, HIV, multiple sclerosis, and pulmonary hypertension, among others.
- ***A larger share of commercial prescriptions for the most profitable specialty generic drugs were dispensed by the Big 3 PBMs' affiliated pharmacies compared with unaffiliated pharmacies.*** Forty-four percent of commercial specialty generic 30-day equivalent prescriptions were dispensed by PBM-affiliated pharmacies over the 2020-2022 period, compared with 72 percent of prescriptions for drugs marked up more than \$1,000 per prescription.¹³ These dispensing patterns suggest that the Big 3 PBMs may be steering highly profitable prescriptions to their own affiliated pharmacies (and away from unaffiliated pharmacies).¹⁴
- ***The Big 3 PBMs' affiliated pharmacies generated over \$7.3 billion of dispensing revenue in excess of NADAC on specialty generic drugs over the study period.*** Dispensing revenue in excess of NADAC is a measure of how much pharmacies earned from marking up the price of drugs in excess of their estimated acquisition costs.¹⁵ For PBM-affiliated pharmacies, this source of revenue increased dramatically at a compound annual growth rate of 42 percent from 2017 through 2021.¹⁶ Among the drugs in our analytic sample, \$5.9 billion (81 percent) of revenue in excess of NADAC came from commercial claims, while \$1.4 billion (19 percent) came from Medicare Part D claims.¹⁷ Drugs within selected therapeutic classes accounted for the majority (95 percent) of this revenue, including \$3.3 billion for oncology drugs (44 percent of total), \$1.8 billion for multiple sclerosis drugs (25 percent), for \$824 million transplant drugs (11 percent),

¹⁰ The views expressed in this report are those of staff and do not necessarily reflect the views of the Commission or any individual Commissioner. This staff report does not reflect any assessment as to whether anyone has engaged in illegal conduct.

¹¹ See *infra* § III.A.1.

¹² See *id.*

¹³ See *infra* § III.A.2.

¹⁴ This report uses the term "steering" broadly to include practices that may nudge patients toward making particular pharmacy dispensing choices in addition to practices that more directly force patient choices.

¹⁵ See *infra* § III.B.1.

¹⁶ See *id.*

¹⁷ See *id.*

\$521 million for HIV drugs (8 percent), and \$432 million for pulmonary hypertension (7 percent).¹⁸

- ***In the aggregate, the Big 3 PBMs also generated significant income on the specialty generic drugs assessed in this report from spread pricing—i.e., billing their plan sponsor clients more than they reimburse pharmacies for drugs.*** While FTC staff was unable to account for certain adjustments made by the PBMs due to data limitations, we provide an estimate of the combined spreads retained by PBMs on the drugs in our analytic sample of approximately \$1.4 billion over the study period using the methodology described below.¹⁹ Most of this income came from dispensing commercial prescriptions (97 percent) through unaffiliated pharmacies (90 percent).²⁰
- ***The top specialty generic drugs accounted for a significant share of the relevant business segments reported by the Big 3 PBMs’ parent healthcare conglomerates.*** Operating income from the Big 3 PBMs’ affiliated pharmacies dispensing of the analyzed specialty generic drugs accounted for 12 percent of the aggregated operating income reported by the parent healthcare conglomerates’ business segments that include their PBM and pharmacy businesses in 2021, up from less than eight percent just two years earlier.²¹ The top 10 specialty generic drugs alone accounted for nearly 11 percent of the business segments’ 2021 aggregated operating income.²²
- ***Plan sponsor expenditures and patient cost sharing on specialty generic drugs increased at double-digit compound annual growth rates during the study period.*** Plan sponsor and patient payments both increased at compound annual growth rates of 21 percent for commercial claims, and 14-15 percent for Medicare Part D claims.²³

These results illustrate the increasing financial importance of specialty generic drugs to the Big 3 PBMs, as well as to plan sponsors and patients. The results also reveal that the two case study drugs analyzed in our First Interim Staff Report were not isolated examples. This report confirms that the Big 3 PBMs impose significant markups on a wide array of specialty generic drugs.

The FTC issues this staff report in connection with our ongoing study of the PBM industry. In June 2022, the FTC issued special orders pursuant to Section 6(b) of the Federal Trade Commission Act to the six largest PBMs (the “PBM respondents” or “respondents”), including the Big 3 PBMs (the “6(b) Orders”).²⁴ The 6(b) Orders request documents and data concerning

¹⁸ See *id.*

¹⁹ See *infra* § III.B.2. Though we observed differences in the magnitude of estimated income derived from spread pricing across the Big 3 PBMs.

²⁰ See *id.*

²¹ See *infra* § III.B.3. The magnitude of shares and rates of share growth differed across the parent healthcare conglomerates.

²² See *id.*

²³ See *infra* § III.C. These growth rates are for the period from 2017 through 2021, the last year for which the FTC received full-year data.

²⁴ See Press Release, Fed. Trade Comm’n, FTC Launches Inquiry Into Prescription Drug Middlemen Industry (June 7, 2022), <https://www.ftc.gov/news-events/news/press-releases/2022/06/ftc-launches-inquiry-prescription-drug->

the PBMs' businesses and business practices. In May and June 2023, the FTC issued three additional orders for the production of documents and data to three rebate aggregators affiliated with the Big 3 PBMs that negotiate drug rebate contracts with pharmaceutical manufacturers.²⁵

We issue this report to the public in accordance with FTC staff's commitment "to provid[e] timely updates as we receive and review additional information."²⁶ Since the First Interim Staff Report was published in July 2024, several PBM respondents have produced additional documents and data. Enabled by these additional data, FTC staff now presents a more comprehensive analysis of how the PBM respondents reimburse specialty generic drugs at their affiliated pharmacies and unaffiliated pharmacies.

Under Section 6 of the FTC Act, the FTC is not permitted to disclose to the public any confidential commercial or financial information obtained by the Big 3 PBMs and used for the analyses contained in this report.²⁷ Accordingly, all results of our analyses have been averaged, aggregated, or otherwise anonymized, including in some instances by redaction.

Although all PBM respondents currently purport to having substantially completed their productions responsive to the 6(b) Orders issued in 2022, FTC staff is continuing to engage with selected PBMs regarding potential deficiencies as they work toward full compliance. FTC staff also continues to engage with the Big 3 PBMs' affiliated so-called "rebate aggregators" regarding the additional orders issued in 2023. While these respondents have made some productions, various data and document requests remain outstanding. FTC staff remains committed to providing timely updates as we continue to receive and review additional information.

This staff report proceeds as follows: Section II describes our methods, including the data sources and key variables employed in our analyses and how our analytic sample was derived; in Section III, we review and present the results of our analyses relating to specialty generic drugs; concluding remarks are offered in Section IV.

middlemen-industry (referencing 6(b) Orders issued to Caremark Rx, LLC; Express Scripts, Inc.; OptumRx, Inc.; Humana Pharmacy Solutions, Inc.; Prime Therapeutics LLC; and MedImpact Healthcare Systems, Inc.).

²⁵ See Press Release, Fed. Trade Comm'n, FTC Deepens Inquiry into Prescription Drug Middlemen (May 17, 2023), <https://www.ftc.gov/news-events/news/press-releases/2023/05/ftc-deepens-inquiry-prescription-drug-middlemen> (referencing orders issued to Zinc Health Services, LLC ("Zinc") and Ascent Health Services, LLC ("Ascent")); Press Release, Fed. Trade Comm'n, FTC Further Expands Inquiry Into Prescription Drug Middlemen Industry Practices (June 8, 2023), <https://www.ftc.gov/news-events/news/press-releases/2023/06/ftc-further-expands-inquiry-prescription-drug-middlemen-industry-practices> (referencing order issued to Emisar Pharma Services LLC ("Emisar")). Zinc is affiliated with CVS; Ascent is affiliated with ESI; and Emisar is affiliated with OptumRx. See First Interim Staff Report, *supra* note 1, at 22.

²⁶ See First Interim Staff Report, *supra* note 1, at 4.

²⁷ See 15 U.S.C. § 46(f).

II. Methods

A. Data and variables

The analyses in this report relied on the following data and variables:

Specification 14 of the 6(b) Orders. In response to specification 14, the Big 3 PBMs produced data on “each drug on the Company’s Specialty Drug List.”²⁸ These data were provided by categories of PBM, payer type, year, pharmacy, and National Drug Code (“NDC”)²⁹ for the period from 2017 through part of 2022 (the “study period”).³⁰ Key variables contained in or derived from the specification 14 data include:

- *Payer type:* The payer types assessed in this report include commercial and Medicare Part D.³¹ We do not evaluate Medicaid or other payer types.
- *Pharmacy:* A unique identifier of each pharmacy location that dispensed prescriptions for health plans administered by the PBM respondents.³²
- *Patient cost sharing:* Patient cost sharing reflects the amounts paid by patients to pharmacies for prescriptions, including deductibles, coinsurance, and copayments.³³
- *Dispensing revenue:* Dispensing revenue is defined as the total amount of revenue pharmacies derive from filling prescriptions. This includes payments to the pharmacy from the PBM, other payers (if any), and patients, accounting for post-sale adjustments.³⁴

²⁸ 6(b) Orders, specification 14.

²⁹ Published by the U.S. Food & Drug Administration, NDCs consist of unique 10-digit numbers that (1) identify the drug labeler (i.e., the manufacturer or distributor), (2) provide drug product information (strength, dosage form, and formulation), and (3) indicate the drug package size and type. *See National Drug Code Database Background Information*, U.S. FOOD & DRUG ADMIN. (Mar. 20, 2017), <https://www.fda.gov/drugs/development-approval-process-drugs/national-drug-code-database-background-information>.

³⁰ Pursuant to the 6(b) Orders, PBM respondents were required to produce data through June 6, 2022; some produced additional months of data for 2022, in which case we also analyzed the additional data. References in this report to 2022 data generally should be interpreted to mean the data produced by each PBM for the year.

³¹ 6(b) Orders, specification 14(d).

³² 6(b) Orders, specification 14(c). The unique identifier is either a NCPDP (National Council for Prescription Drug Programs) (“NCPDP”) or NPI (National Provider Identifier) (“NPI”) number.

³³ 6(b) Orders, specification 14(n). *See Cost sharing*, HEALTHCARE.GOV, <https://www.healthcare.gov/glossary/cost-sharing/> (last visited Dec. 12, 2024) (discussing patient cost sharing).

³⁴ Amounts paid to pharmacies by PBMs, other payers, and patients, and post-sale adjustments are provided in specifications 14(g), (n), (o), and (s) of the 6(b) Orders. Post-sale adjustments, which encompass direct and indirect remuneration and “clawbacks,” are made by PBMs often “many weeks and months after the point of sale” to account for pharmacy performance and guarantee payments, among other adjustments. *See First Interim Staff Report*, *supra* note 1, at 59-60. Because post-sale adjustments are often not tied to a particular prescription or drug, one of the PBMs allocated adjustments to the drug level based on shares of prescriptions and another based on shares calculated using average wholesale prices. *See* CTRS. FOR MEDICARE & MEDICAID SERVS., PRESCRIPTION DRUG DATA COLLECTION (RxDC) REPORTING INSTRUCTIONS 56 (2024) (describing allocation methods for similar purpose). One PBM provided total post-sale adjustments per pharmacy, which FTC staff allocated to the drug level based on gross

- *Quantity dispensed*: The number of units of each drug dispensed. For example, the number of capsules or tablets.³⁵
- *30-day equivalent prescriptions*: A 30-day equivalent prescription is a unit of measurement that adjusts prescription counts to correspond to a standard 30-day prescription.³⁶
- *Reimbursement rates*: A reimbursement rate reflects the average amounts paid to pharmacies for each 30-day equivalent prescription. It is calculated as dispensing revenue divided by the number of 30-day equivalent prescriptions.
- *Markups*: Markups are presented as either a percentage markup calculated as the reimbursement rate for a 30-day equivalent prescription divided by the 30-day NADAC acquisition cost or a dollar markup calculated as the difference of the reimbursement rate for 30-day equivalent prescriptions less the 30-day NADAC acquisition cost.³⁷ Because NADAC is generally higher than the acquisition costs of large pharmacies, markups may be understated for large pharmacies, including PBM-affiliated pharmacies.³⁸ The dispensing data received from the PBMs is reported on an annual basis, whereas NADAC is reported as frequently as weekly. To obtain an annual NADAC to compare to the reimbursement data, we calculated the average reported NADAC price for each NDC over the course of each year.
- *Plan sponsor billed amount*: The plan sponsor billed amount is the amount PBMs bill their plan sponsor clients for a prescription.³⁹

reimbursement shares. Additionally, post-sale adjustments were provided by two of the PBMs for all years during the study period and by one PBM for selected years; FTC staff accounted for post-sale adjustments when available. Since post-sale adjustments are generally calculated for a large set of drugs based on pharmacy performance and guarantee payment metrics, a drug-level allocation reflects an average adjustment that may not represent the drug's actual contribution to the post-sale adjustment applied to the pharmacy as a whole.

³⁵ 6(b) Orders, specification 14(e).

³⁶ 6(b) Orders, specification 14(f). CMS regulations define 30-day equivalent as follows: "If the days' supply reported on a PDE [Prescription Drug Event] is less than or equal to 34, the number of 30-day equivalent supplies equals one. If the days' supply reported on a PDE is greater than 34, the number of 30-day equivalent supplies is equal to the number of days' supply reported on each PDE divided by 30." 42 C.F.R. § 423.104(d)(2)(iv)(A)(2) (2024). To construct standard 30-day equivalent prescriptions, for each drug in our sample we calculated the ratio of the total number of units dispensed aggregated over all PBMs, years, pharmacies, and payer types to the total number of 30-day equivalent prescriptions dispensed, and then we divided the units dispensed at each pharmacy by this ratio to derive a standard number of 30-day equivalent prescriptions for the drug.

³⁷ See *infra* § II.A (discussing NADAC).

³⁸ See *infra* note 45 and accompanying text.

³⁹ 6(b) Orders, specification 14(p). These amounts do not reflect any post-sale adjustments that the PBMs may have provided to their plan sponsor clients, e.g., adjustments based on effective rate guarantees. See *infra* note 88 and accompanying text.

- *Patient cost sharing amount:* The patient cost sharing amount may include a copayment, coinsurance, and/or deductible paid by patients for a prescription.⁴⁰

RxNorm/RxTerms. RxNorm is a dataset developed and maintained by the National Institutes of Health’s National Library of Medicine.⁴¹ This study utilizes historical snapshots of the Current Prescribable Content version of this dataset, which includes all drugs prescribable at the time of the data release. The dataset includes normalized drug names, various drug attributes, and a coding of drugs that share the same active ingredient, route of administration, strength, dosage form, and brand/generic status across all drug manufacturers called the “RXCUI.” RxTerms is a complementary dataset, also published by the National Library of Medicine, that provides additional information on the drugs.⁴² In this report, results are often reported at the level of a drug, which means NDC-level data from specification 14 is aggregated to the drug level using an RxTerms identifier referred to as “SXDG_RXCUI,” which combines drugs with the same active ingredient, route of administration, and brand/generic status across all strengths, dosage forms, and drug manufacturers.⁴³

NADAC. The National Average Drug Acquisition Cost (“NADAC”) is an index of drug acquisition costs based on surveys of invoices voluntarily provided to the Centers for Medicare & Medicaid Services (“CMS”) primarily by small, independent pharmacies.⁴⁴ NADAC is reported only on selected drugs that have sufficient volume dispensed through reporting pharmacies. Because small, independent pharmacies generally pay more than large chain and mail order pharmacies for the same drugs, NADAC is generally higher than the acquisition costs of large pharmacies.⁴⁵ Therefore, NADAC may be viewed as an estimate of small, independent pharmacies’ acquisition costs that likely overestimates large pharmacies’ acquisition costs because the acquisition costs of large pharmacies are generally lower.

⁴⁰ 6(b) Orders, specification 14(n). See Cynthia Cox et al., *Health Care Costs and Affordability*, KAISER FAM. FOUND. (May 28, 2024), <https://www.kff.org/health-policy-101-health-care-costs-and-affordability/?entry=table-of-contents-introduction> (defining patient cost sharing, or “out-of-pocket costs,” as “the amount of money spent by individuals on health care that is not paid for by [their] health insurance,” and may include “copays, deductibles, [and] coinsurance”).

⁴¹ See *RxNorm*, NAT’L LIBR. MED., <https://www.nlm.nih.gov/research/umls/rxnorm/index.html> (last visited Dec. 12, 2024).

⁴² See *RxTerms*, NAT’L LIBR. MED., <https://lhncbc.nlm.nih.gov/MOR/RxTerms> (last visited Dec. 12, 2024).

⁴³ Drugs sold in “packs” are not covered by the SXDG_RXCUI identifier, though some or all of these drugs may be represented by non-pack versions of the same drug. Among the specialty generic drugs for which the PBMs provided data, less than 0.01 percent of the 30-day equivalent prescriptions are for NDCs with a dosage form identified as a pack.

⁴⁴ See *Retail Price Survey*, MEDICAID.GOV (Oct. 2, 2024), <https://www.medicaid.gov/medicaid/prescription-drugs/retail-price-survey/index.html>.

⁴⁵ See, e.g., Respondents Document Submissions [REDACTED] (recognizing NADAC prices are “[i]nflated because larger players aren’t submitting prices to NADAC, but smaller pharmacies do”); [REDACTED] (noting a PBM-affiliated pharmacy’s “acquisition cost is always lower” than the acquisition cost of a cash-pay pharmacy).

NCPDP DataQ database. The NCPDP DataQ database of pharmacy demographics was used to identify pharmacies affiliated with each of the Big 3 PBMs and unaffiliated pharmacies.⁴⁶ The Big 3 PBMs all have multiple affiliated pharmacies, including their dedicated specialty pharmacies: CVS Specialty Pharmacy is affiliated with CVS, Accredo is affiliated with ESI, and Optum Specialty Pharmacy is affiliated with OptumRx.⁴⁷ All pharmacies that were included in both the specification 14 data provided by the PBMs and the NCPDP data were assessed. The results of various analyses in this report are segmented by affiliated and unaffiliated pharmacies. A pharmacy that shares common ownership with a PBM is designated as affiliated only when members of health plans managed by that PBM fill prescriptions at the pharmacy; when members of health plans not managed by the PBM fill prescriptions at the pharmacy, the pharmacy is designated as unaffiliated. Unaffiliated pharmacies include independent and chain pharmacies, among other pharmacy types.⁴⁸

Specialty pharmacy drug lists. The specialty pharmacies affiliated with the Big 3 PBMs publish specialty drug lists. The therapeutic class categories used in this report were generally adapted from these lists.⁴⁹

B. Sample selection

The analyses in this report examine specialty generic drugs. As discussed above, specification 14 of the 6(b) Orders requested data from the PBM respondents on all drugs included on their specialty drugs lists.⁵⁰ To create our analytic sample, we started with all specialty generic drugs for which at least one of the Big 3 PBMs reported a prescription during the study period, which includes 171 drugs (2,715 NDCs). We then made the following adjustments: Our analyses in this report focus on commercial and Medicare Part D prescriptions, so we excluded observations for other payer types, including Medicaid because the regulatory framework for pharmacy reimbursement policies can differ for those plans and often vary by state (dropping three drugs and 91 NDCs). We also excluded observations filled by pharmacies for which affiliation status could not be determined (dropping one drug and 13 NDCs). Finally, we excluded observations for NDCs that did not have a corresponding NADAC, since drugs reported in NADAC are generally more commonly dispensed⁵¹ and many of the analyses in this report rely on comparisons of reimbursement rates and NADAC estimated acquisition costs⁵² (dropping 116 drugs and 1,729 NDCs). After this last exclusion, our analytic sample consisted of 51 drugs and

⁴⁶ See generally *The Most Up-To-Date-Pharmacy Information in the Industry*, NAT'L COUNCIL FOR PRESCRIPTION DRUG PROGRAMS, <https://dataq.ncdp.org/What-We-Do.aspx> (last visited Dec. 12, 2024).

⁴⁷ See First Interim Staff Report, *supra* note 1, at 6, Fig. 1.

⁴⁸ See *Part D Dispenser Class Code*, RESDAC, <https://resdac.org/cms-data/variables/part-d-dispenser-class-code> (last visited Dec. 12, 2024) (defining independent pharmacies as “one to three pharmacies under common ownership” and chain pharmacies as “part of a group of four or more pharmacies under common ownership”).

⁴⁹ See, e.g., Respondents Document Submissions

For the few drugs that did not appear on these specialty drug lists, FTC staff determined therapeutic classes from the Mayo Clinic’s drug reference guide. See *Drugs & Supplements*, MAYO CLINIC, <https://www.mayoclinic.org/drugs-supplements> (last visited Dec. 12, 2024).

⁵⁰ See *supra* § II.A (discussing specification 14 data).

⁵¹ See *id.* (discussing NADAC).

⁵² See *infra* Figs. 1-2 & 4-7.

882 NDCs.⁵³ Among all specialty generic drugs in the Big 3 PBMs' specification 14 data, the drugs included in our sample account for 91 percent of 30-day equivalent prescriptions dispensed and 67 percent of dispensing revenue generated during the study period.

III. Analyses

In this section, we review and present the results of our analyses relating to specialty generic drugs. In Section III.A, we assess PBM-affiliated pharmacies' reimbursement rates relative to NADAC and the reimbursement rates paid to unaffiliated pharmacies. These analyses reveal that Big 3 PBMs marked up numerous specialty generic drugs dispensed at their affiliated pharmacies by thousands of percent, and many others by hundreds of percent. PBM-affiliated pharmacies also were reimbursed at a higher rate than unaffiliated pharmacies on nearly every specialty generic drug examined. Additionally, we show how the highest marked up drugs are largely dispensed by PBM-affiliated pharmacies. In Section III.B, we estimate PBM-affiliated pharmacy dispensing income generated from the analyzed specialty generic drugs, and how much this income contributes to the income reported for the relevant business segments of the Big 3 PBMs' parent healthcare conglomerates. These analyses underscore the large and growing contribution of pharmacy income generated from selected specialty generic drugs to the Big 3 PBMs' vertically integrated businesses. Additionally, we show how the Big 3 PBMs generated significant income from spread pricing on specialty generic drugs. In Section III.C, we present trends in the amounts paid by plan sponsors and patients for the analyzed specialty generic drugs, which highlight the increasing financial importance of these drugs for plan sponsors and patients.

A. The Big 3 PBMs significantly marked up numerous specialty generic drugs dispensed at their affiliated pharmacies

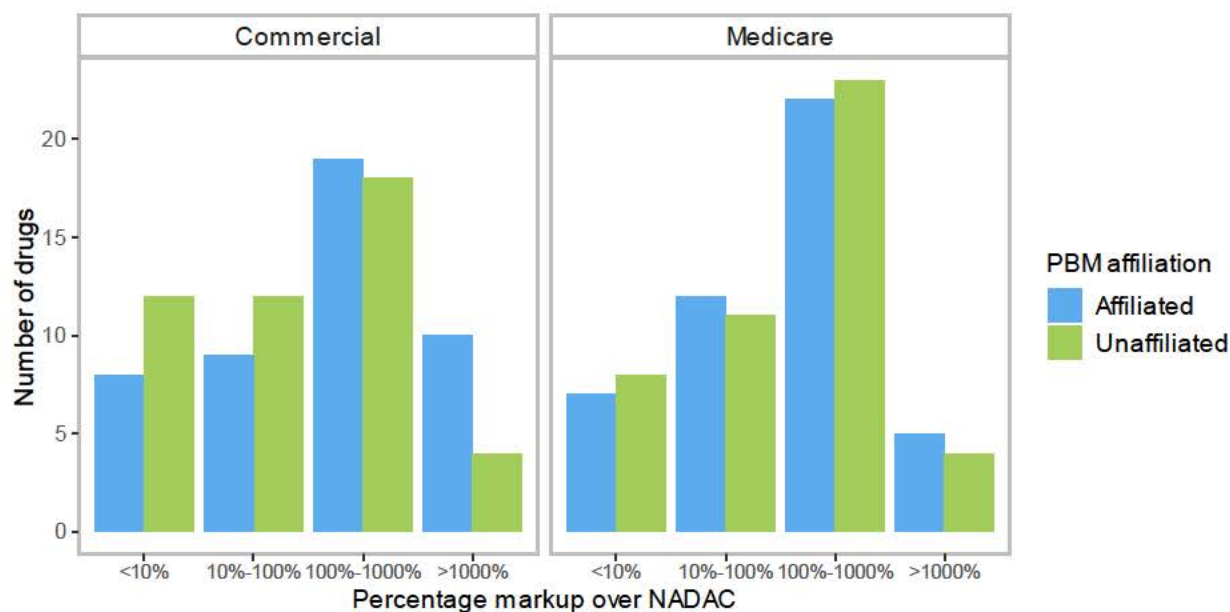
- 1. *Reimbursement rates:*** The Big 3 PBMs marked up numerous specialty generic drugs by more than 1,000 percent

Many of the specialty generic drugs examined in this report have been marked up significantly.⁵⁴ Figure 1 presents the number of drugs dispensed by PBM-affiliated and unaffiliated pharmacies by percentage markup category (less than 10 percent, 10-100 percent, 100-1,000 percent, and more than 1,000 percent) during the 2020-2022 period, segmented by commercial and Medicare Part D prescriptions. We segment the data by payer type because commercial health plans and Medicare Part D prescription drug plans operate under distinct regulatory frameworks.

⁵³ Analyses in this report covering the 2020-2022 period include 46 drugs (742 NDCs), while analyses covering the 2017-2021 period include 47 drugs (831 NDCs).

⁵⁴ See *supra* § II.A (describing markup calculations of reimbursement rates over NADAC).

Figure 1. Number of Specialty Generic Drugs Dispensed by Affiliated and Unaffiliated Pharmacies by Markup Category, Segmented by Commercial and Medicare Part D Claims, 2020-2022



Among the specialty generic drugs dispensed by PBM-affiliated pharmacies for commercial health plan members, 22 percent (10 out of the 46 drugs in our sample during this period) were marked up more than 1,000 percent, with 50 percent of these marked up more than 2,000 percent, while 41 percent (19 drugs) were marked up between 100 and 1,000 percent (median = 223 percent). Another 20 percent (nine drugs) were marked up between 10 and 100 percent, while only 17 percent (eight drugs) were marked up by less than 10 percent. For Medicare Part D prescription drug plan members, 11 percent of the specialty generic drugs (five out of 46 drugs) were marked up more than 1,000 percent at PBM-affiliated pharmacies (median = 2,105 percent), 48 percent (22 drugs) were marked up between 100 and 1,000 percent (median = 316 percent), 26 percent (12 drugs) were marked up between 10 and 100 percent, and 15 percent (seven drugs) were marked up by less than 10 percent. These results are consistent with documents produced by the Big 3 PBMs discussing their high markups on various specialty generic drugs.⁵⁵

⁵⁵ Documents consist of business strategy presentations and internal emails, many of which discuss particular specialty generic drugs assessed in this report. *See, e.g.*, Respondents Document Submissions

For commercial prescriptions, more than twice as many drugs were marked up by over 1,000 percent when dispensed through the Big 3 PBMs' affiliated pharmacies compared with unaffiliated pharmacies (ten versus four drugs). This comparison is explored further in Figure 3 below, which examines relative reimbursement rates at PBM-affiliated and unaffiliated pharmacies and shows that PBM-affiliated pharmacies are often paid significantly more than unaffiliated pharmacies for the same drug. For Medicare Part D prescriptions, the number of drugs dispensed by PBM-affiliated and unaffiliated pharmacies were generally similar across each of the markup categories.

While the extent to which plan sponsor clients of the Big 3 PBMs are aware of these practices is beyond the scope of our study, there is some evidence that at least some plan sponsors have not appreciated the extent to which they are paying high markups on various specialty generic drugs. For example, some market participants were aware of PBMs imposing high markups on only two or three specialty generic drugs⁵⁶—contrary to the results presented in this report. Additionally, FTC staff reviewed various emails produced by the PBM respondents in which plan sponsors and their consultants raised concerns with the Big 3 PBMs after learning of high markups on particular specialty generic drugs, suggesting that these plan sponsor clients may be raising concerns primarily on an ad hoc basis and only with respect to certain drugs.⁵⁷

Markups on specialty generic reimbursement rates are important and may affect plan sponsor and patient expenditures in various ways, which differ by payer type (commercial or Medicare Part D), health plan type (fully insured or administrative services only), and affiliation status (i.e., whether the PBM managing a claim and/or the pharmacy dispensing it are affiliated with the member's health plan), among other factors. As explained in the First Interim Staff Report, higher markups can result in increased costs for unaffiliated health plans.⁵⁸ Higher markups can also result in larger internal transfer payments from health plans to affiliated pharmacies, which may allow vertically integrated PBM-pharmacy-insurer entities to retain revenue and profits while formally satisfying the insurers' medical loss ratio ("MLR") requirements, but without

⁵⁶ See [REDACTED]

⁵⁷ See, e.g., Respondents Document Submissions [REDACTED] (consultant noting that rates at which PBM "is reimbursing their own specialty pharmacy is, well, glaring and egregious . . . for several specialty generics [REDACTED] where [the] price is at times 1000% higher than what GoodRx offers." [REDACTED] (PBM executive comparing price for generic Gleevec at PBM-affiliated pharmacy [REDACTED] versus GoodRx [REDACTED] (discussing consultant "getting questions from clients given some pretty big disparities they are seeing in pricing for some generic drugs," including generic Gleevec price at PBM-affiliated pharmacy [REDACTED] compared with Mark Cuban Cost Plus Drugs [REDACTED] (client asking PBM to "strongly consider reevaluating" imatinib price due to "very large discrepancy" between PBM-affiliated pharmacy price [REDACTED] and Costco cash price [REDACTED] (discussing "concern over the pricing of riluzole" because "members were referencing GoodRx as having a much lower cost without needing insurance to purchase the drug"). See also Arthur Allen, *Employers Haven't a Clue How Their Drug Benefits Are Managed*, KFF (Oct. 9, 2024), <https://kffhealthnews.org/news/article/employer-drug-benefits-pbms-survey-kff>.

⁵⁸ See First Interim Staff Report, *supra* note 1, at 45-46.

providing the clinical care and quality improvements that the MLR rule seeks to promote.⁵⁹ In addition, higher markups can result in significant patient cost sharing requirements because reimbursement rates are often correlated with point-of-sale prices, which can influence how much patients are required to pay.⁶⁰

At the drug level, Figure 2 presents a “heatmap” showing percentage markups over NADAC on commercial and Medicare Part D prescriptions for specialty generic drugs dispensed at the Big 3 PBMs’ affiliated pharmacies.⁶¹ Markups are shaded as follows: markups of less than 10 percent in blue, between 10-100 percent in yellow, between 100-1,000 percent in orange, and over 1,000 percent in red.

⁵⁹ *See id.*

⁶⁰ *See infra* § III.C; First Interim Staff Report, *supra* note 1, at 47.

⁶¹ Similar comparisons of PBM-affiliated pharmacy reimbursement rates and NADAC were presented for two case study drugs in the First Interim Staff Report, *supra* note 1, at 40-43. Using additional data produced by one of the PBM respondents after the First Interim Staff Report was published, we have updated our analyses of the case study drugs to reflect these newly provided data. The analyses continue to reflect significant reimbursement rate markups over NADAC although the magnitudes of markups have been updated.

Figure 2. Heatmap of Percentage Markups on Specialty Generic Drugs Dispensed by PBM-Affiliated Pharmacies, Segmented by Commercial and Medicare Part D Claims, 2020-2022

Therapeutic class	Drug name	Brand equivalent	Formulation	Commercial			Medicare		
				2020	2021	2022	2020	2021	2022
Acromegaly	Octreotide	Sandostatin	Injectable	15%	--	--	44%	--	--
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Tobi	Inhaler	177%	269%	339%	224%	247%	209%
HIV	Abacavir	Ziagen	Pill	*	*	*	*	*	*
HIV	Abacavir/Lamivudine	Epzicom	Pill	*	*	*	*	*	*
HIV	Atazanavir	Reyataz	Pill	*	*	*	*	*	*
HIV	Efavirenz	Sustiva	Pill	*	*	*	*	*	*
HIV	Efavirenz/Emtricitabine/Tenofovir Disp	Atripla	Pill	*	*	*	*	*	*
HIV	Emtricitabine/Tenofovir Disp	Truvada	Pill	*	*	*	*	*	*
HIV	Etravirine	Intelence	Pill	--	--	*	--	--	*
HIV	Lamivudine	Epivir	Oral liquid	*	*	--	*	*	--
HIV	Lamivudine	Epivir, Epivir HBV	Pill	229%	195%	276%	300%	181%	306%
HIV	Lamivudine/Zidovudine	Combivir	Pill	*	*	*	*	*	*
HIV	Nevirapine	Viramune	Pill	*	*	--	*	*	--
HIV	Ritonavir	Norvir	Pill	*	*	*	*	*	*
HIV	Tenofovir Disp	Viread	Pill	*	*	*	*	*	*
HIV	Zidovudine	Retrovir	Pill	*	*	--	*	*	--
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*	*
Hepatitis	Sofosbuvir/Velpatasvir	Eplclusa	Pill	1%	0%	1%	6%	4%	6%
Pulm. Hypertension	Sildenafil	Revatio	Pill	2,405%	2,405%	3,390%	1,464%	1,618%	2,968%
Pulm. Hypertension	Tadalafil	Adcirca	Pill	4,290%	5,534%	7,736%	2,991%	3,932%	6,149%
Infertility	Progesterone	None	Injectable	*	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	--	--	*	--	--	*
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	1,236%	1,348%	2,435%	945%	766%	1,312%
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	--	2,017%	2,121%	--	1,653%	1,541%
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	136%	136%	123%	168%	166%	152%
Neurology	Riluzole	Rilutek	Pill	*	--	--	*	--	--
Oncology	Abiraterone	Zytiga	Pill	691%	1,819%	2,299%	478%	1,164%	1,533%
Oncology	Capecitabine	Xeloda	Pill	939%	3,239%	2,777%	435%	1,454%	1,321%
Oncology	Everolimus	Zortress	Pill	--	--	2%	--	--	1%
Oncology	Imatinib	Gleevec	Pill	2,142%	2,970%	5,232%	1,748%	2,073%	4,154%
Oncology	Methotrexate	None	Injectable	*	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	--	1,210%	1,161%	--	646%	674%
Osteoporosis	Teriparatide	Forteo	Injectable	--	--	-8%	--	--	0%
Renal Disease	Cinacalcet	Sensipar	Pill	*	*	*	*	*	*
Transplant	Azathioprine	Imuran	Pill	*	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral liquid	*	--	--	*	--	--
Transplant	Cyclosporine	Gengraf	Pill	11%	12%	24%	28%	21%	32%
Transplant	Mycophenolate Mofetil	Cellcept	Oral liquid	1%	-3%	-9%	9%	9%	7%
Transplant	Mycophenolate Mofetil	Cellcept	Pill	239%	240%	188%	118%	92%	114%
Transplant	Mycophenolic Acid	Myfortic	Pill	162%	234%	693%	171%	218%	636%
Transplant	Sirolimus	Rapamune	Oral liquid	--	12%	113%	--	12%	130%
Transplant	Sirolimus	Rapamune	Pill	28%	22%	47%	37%	29%	57%
Transplant	Tacrolimus	Prograf	Pill	86%	171%	266%	97%	210%	325%

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to section 6 of the FTC Act. 15 U.S.C. § 46(f).

Markup over NADAC: ■ <10% ■ 10%-100% ■ 100%-1000% ■ >1000%

As shown in Figure 2, these specialty generic drugs are used to treat serious diseases and conditions. In 2022, for example, a large share of the drugs marked up more than 1,000 percent were taken by patients with cancer (4 drugs, or 33 percent of total), multiple sclerosis (2 drugs; 17 percent), and pulmonary hypertension (2 drugs; 17 percent). The majority of drugs marked up between 300 and 1,000 percent were taken by HIV patients (5 drugs; 63 percent).

These large percentage markups can also be significant when viewed in dollar terms. For the pulmonary hypertension drug tadalafil (generic Adcirca), for example, pharmacies purchased the drug at an average of \$27 in 2022, yet the Big 3 PBMs marked up the drug by \$2,079 and paid their affiliated pharmacies \$2,106, on average, for a 30-day supply of the medication on commercial claims—an average markup of over 7,700 percent. Similarly, the average markup on the drug dimethyl fumarate (generic Tecfidera) for patients with multiple sclerosis was more than 2,100 percent on commercial claims in 2022; the average acquisition cost of the drug was \$177, while PBMs marked up the drug by \$3,753, on average, and paid their affiliated pharmacies \$3,930 for a 30-day supply. The underlying data for the Figure 2 heatmap are provided in the Appendix.

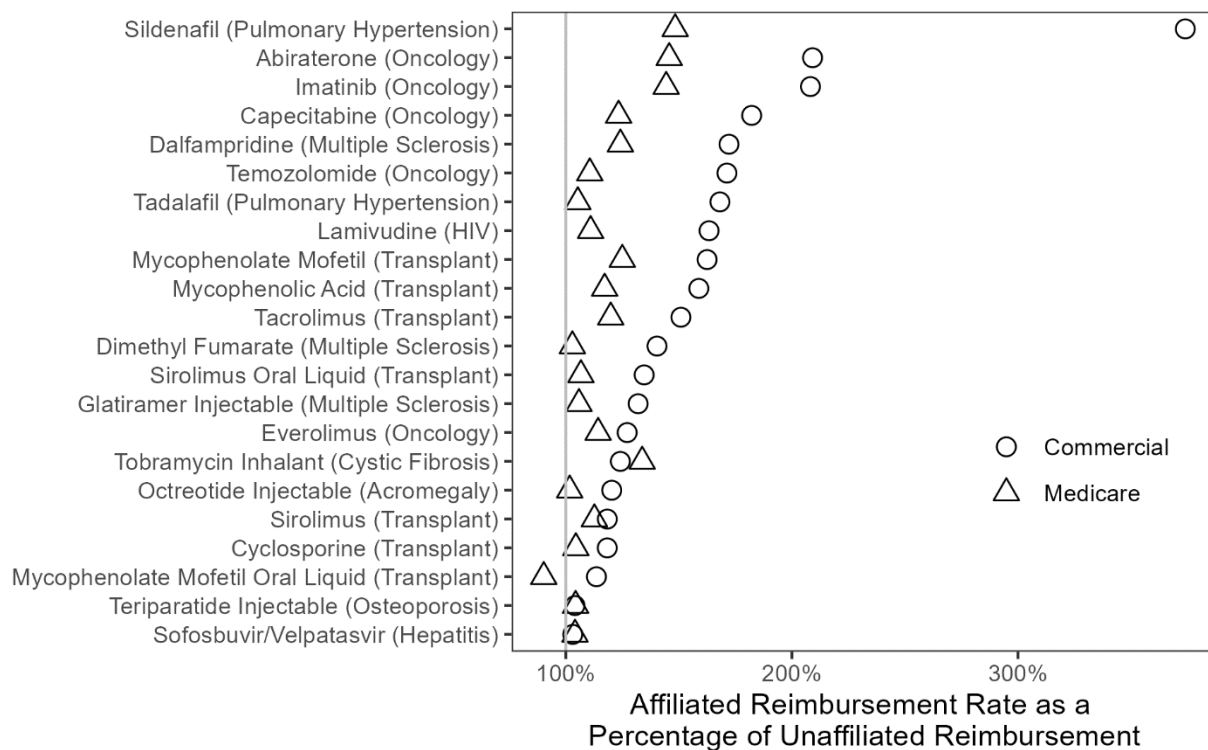
In addition to comparing PBM-affiliated reimbursement rates to NADAC, another relevant set of comparators includes the rates paid to unaffiliated pharmacies. Figure 3 presents the percentage ratios of the average reimbursement rates paid to PBM-affiliated pharmacies and the average reimbursement rates paid to unaffiliated pharmacies over the 2020-2022 period.⁶² The drugs are ordered in the figure by differences between PBM-affiliated versus unaffiliated pharmacy commercial claim reimbursement rates (with larger differences at the top).⁶³ Drugs not dispensed by all three of the Big 3 PBMs as specialty drugs have been removed from the analysis,⁶⁴ though the patterns look similar when these drugs are included.

⁶² Similar comparisons of reimbursement rates at PBM-affiliated pharmacies and unaffiliated pharmacies were presented for two case study drugs in the First Interim Staff Report, *supra* note 1, at 40-43.

⁶³ For the drug names on the y-axis, the dosage form is omitted for pills but listed for all other forms, such as oral liquids and injectables.

⁶⁴ Because only anonymized and aggregated results may be disclosed to the public pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure 3. Ratios of PBM-Affiliated and Unaffiliated Pharmacy Reimbursement Rates for Specialty Generic Drugs Dispensed by All Big 3 PBMs as Specialty Drugs, Segmented by Commercial and Medicare Part D Claims, 2020-2022 Averages



As illustrated in Figure 3, the Big 3 PBMs’ affiliated pharmacies are almost always reimbursed at higher rates than unaffiliated pharmacies (ratios greater than 100%), and the disparity between affiliated and unaffiliated reimbursement rates is larger for commercial prescriptions (shown as circles) compared with Medicare Part D prescriptions (triangles). This figure reinforces that PBM-affiliated pharmacy reimbursements on many specialty generic drugs are quite high—whether compared to a measure of acquisition cost (NADAC) or payments to unaffiliated pharmacies. As discussed above, these high reimbursements have implications for plan sponsors and patients.⁶⁵

2. Dispensing volumes: The large majority of the most highly marked up specialty generic drugs were dispensed by PBM-affiliated pharmacies

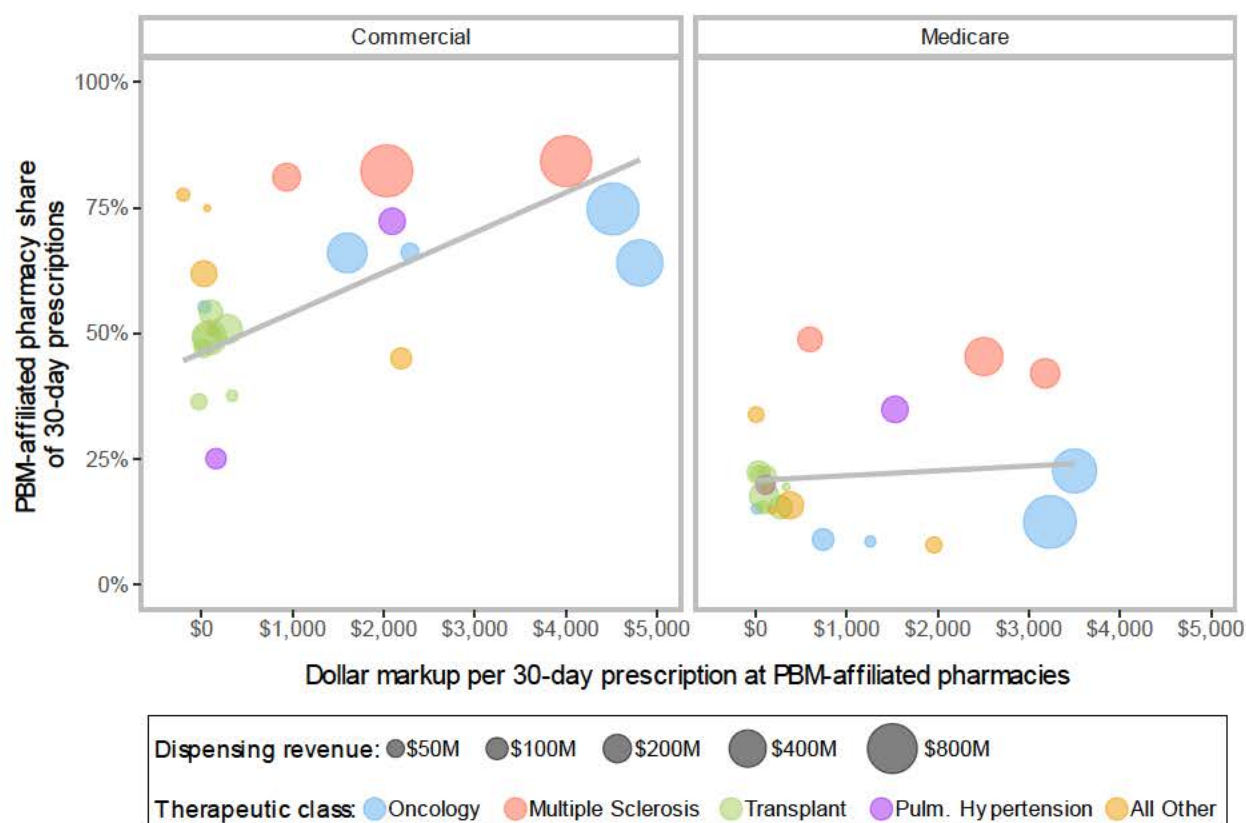
In this section, we examine the relationship between specialty generic drug markups and dispensing volumes and revenue at PBM-affiliated and unaffiliated pharmacies. Figure 4 presents PBM-affiliated shares of 30-day equivalent prescriptions for specialty generic drugs dispensed by all Big 3 PBMs⁶⁶ as a function of dollar markups for commercial and Medicare Part

⁶⁵ See *supra* notes 58-60 and accompanying text.

⁶⁶ Because only anonymized and aggregated results may be disclosed to the public pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

D claims during the 2020-2022 period. Each circle in the figure represents a drug.⁶⁷ The size of the circle reflects the total amount of dispensing revenue generated by the drug,⁶⁸ while the color represents the drug's therapeutic class.⁶⁹ The gray trend lines represent linear best-fits to the data points.⁷⁰

Figure 4. Relationship Between Dollar Markups at PBM-Affiliated Pharmacies and Shares of 30-Day Prescriptions for Specialty Generic Drugs Dispensed by All Big 3 PBMs as Specialty Drugs, Segmented by Commercial and Medicare Part D Claims, 2020-2022 Averages



Overall, Figure 4 shows that the Big 3 PBMs' affiliated pharmacies dispensed relatively more 30-day equivalent prescriptions from commercial claims on specialty generic drugs with higher markups, as reflected by the upward slope of the trend line in the commercial panel. During the

⁶⁷ For example, in the commercial panel (on the left), a red circle appears near the coordinate at \$2,000 and 82 percent. The drug represented by that circle is glatiramer (generic Copaxone). The coordinate (\$2,000, 82 percent) indicates that PBM-affiliated pharmacies were reimbursed approximately \$2,000 more than estimated acquisition cost (NADAC), on average, for a 30-day supply of glatiramer, and that PBM-affiliated pharmacies dispensed 82 percent of 30-day equivalent prescriptions, while unaffiliated pharmacies received the balance of 18 percent.

⁶⁸ For example, the size of the circle for glatiramer (generic Copaxone) reflects that the drug generated almost \$900 million of dispensing revenue at PBM-affiliated and unaffiliated pharmacies from 2020 through part of 2022.

⁶⁹ For example, the color of the circle for glatiramer (generic Copaxone) is red, which indicates that the drug is used to treat multiple sclerosis.

⁷⁰ As a sensitivity analysis, we also examined trend lines based on all specialty generic drugs in our sample (including drugs not dispensed by all three of the Big 3 PBMs as specialty drugs) and our results were substantially similar.

2020-2022 period, inclusive of all specialty generic drugs in our sample, PBM-affiliated pharmacies dispensed 45 percent of 30-day equivalent commercial prescriptions overall, but 72 percent of prescriptions for drugs marked up more than \$1,000. These results are also consistent when using dispensing revenue shares instead of shares of prescriptions as the measure of volume: PBM-affiliated pharmacies generated 83 percent of dispensing revenue from commercial claims on specialty generic drugs marked up at PBM-affiliated pharmacies more than \$1,000 over NADAC per 30-day prescription compared with 72 percent overall.

These results show that members of commercial health plans managed by the Big 3 PBMs filled a significantly larger proportion of their high markup specialty generic drug prescriptions at PBM-affiliated pharmacies, which suggests that the Big 3 PBMs may be steering these prescriptions to their own affiliated pharmacies (and away from unaffiliated pharmacies). This is consistent with the First Interim Staff Report’s finding that two of the Big 3 PBMs filled a significantly larger proportion of their specialty prescriptions at PBM-affiliated pharmacies compared with the pharmacies’ overall shares of dispensing revenue.⁷¹ The results also accord documents produced by the PBM respondents discussing various “[o]ptimization levers” that may be used to steer patients to their affiliated pharmacies,⁷² as well as strategies to “push[] to retail” prescriptions on “low/no margin drugs” and “effectively block[]” the dispensing of these drugs at their affiliated pharmacies.⁷³

In contrast to the commercial claims, PBM-affiliated pharmacies dispensed fewer 30-day equivalent prescriptions than unaffiliated pharmacies on Medicare Part D claims overall and across the markup spectrum. *Compare* Fig. 4, Medicare panel *with* Fig. 4, Commercial panel. This may suggest that PBMs have less ability to influence patient pharmacy choices in Part D. Medicare’s “any willing pharmacy” rules may help explain these results. Part D plans must contract with any interested pharmacy that meets the plan’s standard terms and conditions for network participation (which should constrain PBMs’ ability to steer),⁷⁴ though they may offer preferred pharmacy networks with lower patient cost-sharing requirements on prescriptions filled at a preferred pharmacy (allowing for some steering).⁷⁵ Although PBM-affiliated pharmacies’ share of claims dispensed in Medicare Part D is lower than in the commercial segment, our analysis still finds very significant markups of drugs in Part D, as discussed in Section III.A.1 above.

⁷¹ See First Interim Staff Report, *supra* note 1, at 35.

⁷² See *id.* at 32-33 n. 161-163 and accompanying text. Additionally, the results are consistent with public comments received for this study. See *id.* at 31 n. 153-156 (describing patients being steered to PBM-affiliated specialty pharmacies).

⁷³ Respondent Document Submission [REDACTED]
[REDACTED] See also, e.g., Respondent Document Submission [REDACTED]
[REDACTED] (PBM executive considering program to “optimize the mix at [the PBM’s affiliated pharmacy] via sending drugs we are less profitable on into the marketplace”).

⁷⁴ See 42 U.S.C. § 1395w-104(b)(1)(A); 42 C.F.R. § 423.120(a)(8).

⁷⁵ See 42 C.F.R. § 423.120(a)(9) (“[A] Part D plan that provides coverage other than defined standard coverage may reduce copayments or coinsurance for covered Part D drugs obtained through a preferred pharmacy . . .”); see also First Interim Staff Report, *supra* note 1, at 9-13 (discussing preferred pharmacy networks).

B. The Big 3 PBMs and their affiliated pharmacies generated significant and increasing levels of income from specialty generic drugs

PBMs and pharmacies generate income from dispensing specialty generic drugs in a number of ways. Pharmacies (including PBM-affiliated specialty pharmacies) make a margin on drug sales, the difference between the reimbursement rate they are paid and their costs to acquire and dispense a drug. PBMs separately generate income through spread pricing, the practice of retaining the difference between the amount they bill their plan sponsor clients and the reimbursement rate they pay pharmacies (both affiliated and unaffiliated) for a prescription. PBMs can also generate income from other sources, including administrative fees charged to their plan sponsor clients.⁷⁶

These income streams are distinct when pharmacies and PBMs are independent from each other. Vertically integrated PBM-pharmacy-insurer entities, however, can shift revenue and profits between their “upstream” PBMs and “downstream” pharmacies. For example, when reimbursement rates are set high, PBMs generate less spread⁷⁷ but their affiliated pharmacies generate more margin⁷⁸ (and vice versa when reimbursement rates are set low). How PBMs and their affiliated pharmacies divide revenue and profits can have important implications for plan sponsors and patients, as well as for MLR requirements, as discussed above.⁷⁹ Therefore, in our analysis, we evaluate pharmacy and PBM income streams separately.

In Section III.B.1, we evaluate the Big 3 PBM-affiliated pharmacies’ dispensing revenue in excess of NADAC (estimated acquisition cost) for the specialty generic drugs in our sample.⁸⁰ In Section III.B.2, we consider PBM spread pricing income.⁸¹ In Section III.B.3, we estimate the share of operating income (a measure of profitability) reported by the relevant business segments of the Big 3 PBMs’ parent healthcare conglomerates that is accounted for by their affiliated pharmacies’ dispensing of specialty generic drugs.

⁷⁶ See, e.g., Respondents Document Submissions [REDACTED]

⁷⁷ The difference between the billed amounts paid by plan sponsors and the reimbursements paid to pharmacies is lower when reimbursement rates are higher.

⁷⁸ The difference between the reimbursements paid to pharmacies and their drug acquisition costs is higher when reimbursement rates are higher.

⁷⁹ See *supra* notes 58-60 and accompanying text.

⁸⁰ We further adjust for pharmacy dispensing operating expenses in § III.B.3.

⁸¹ We do not analyze PBM income from other sources, such as administrative fees charged to plan sponsor clients. See *supra* note 76. Data on these other income sources was not within the scope of the 6(b) Orders.

1. **Pharmacy dispensing revenue in excess of NADAC:** Pharmacies affiliated with the Big 3 PBMs generated over \$7.3 billion of revenue in excess of NADAC from the analyzed specialty generic drugs

One way the healthcare conglomerate owners of the Big 3 PBMs can generate income is through their vertically integrated specialty pharmacies. In this section, we examine PBM-affiliated pharmacies' dispensing revenue derived from the specialty generic drugs in our sample relative to their estimated drug acquisition costs as reflected by NADAC.⁸² In other words, we measure how much pharmacies affiliated with PBMs earned from marking up the price of drugs in excess of their estimated acquisition costs. Because the Big 3 PBMs' acquisitions costs tend to be lower than NADAC, the results in this section are likely to be underestimated.⁸³

During our study period, the Big 3 PBMs' affiliated pharmacies generated **more than \$7.3 billion of dispensing revenue in excess of NADAC** from the 51 specialty generic drugs analyzed in this report—which is the difference between the dispensing revenue (\$10.0 billion) and NADAC estimated acquisition costs (\$2.7 billion) of prescriptions on those drugs. Revenue in excess of NADAC expanded in magnitude each year, increasing dramatically at a **compound annual growth rate of over 42 percent** from \$522 million in 2017 to \$2.1 billion in 2021.

Figure 5 is a waterfall chart showing dispensing revenue for PBM-affiliated pharmacies (blue bars), NADAC estimated acquisition costs (green bars), and revenue in excess of NADAC (red bars) over the 2017-2021 period.⁸⁴ In the aggregate, NADAC decreased slightly over the period (compound annual rate of decline = 4 percent), while pharmacy dispensing revenue experienced significant growth (compound annual growth rate = 24 percent), resulting in the PBM-affiliated pharmacies' gains in dispensing revenue in excess of NADAC.

Revenue in excess of NADAC generated from commercial claims totaled \$5.9 billion during the study period (81 percent of total). For Medicare Part D claims, revenue in excess of NADAC—which has implications for increasing government and beneficiary spending⁸⁵—totaled \$1.4 billion (19 percent of total). Revenue in excess of NADAC grew very significantly between 2017 and 2021 for both commercial (compound annual growth rate = 43 percent) and Medicare Part D (compound annual growth rate = 39 percent) claims.

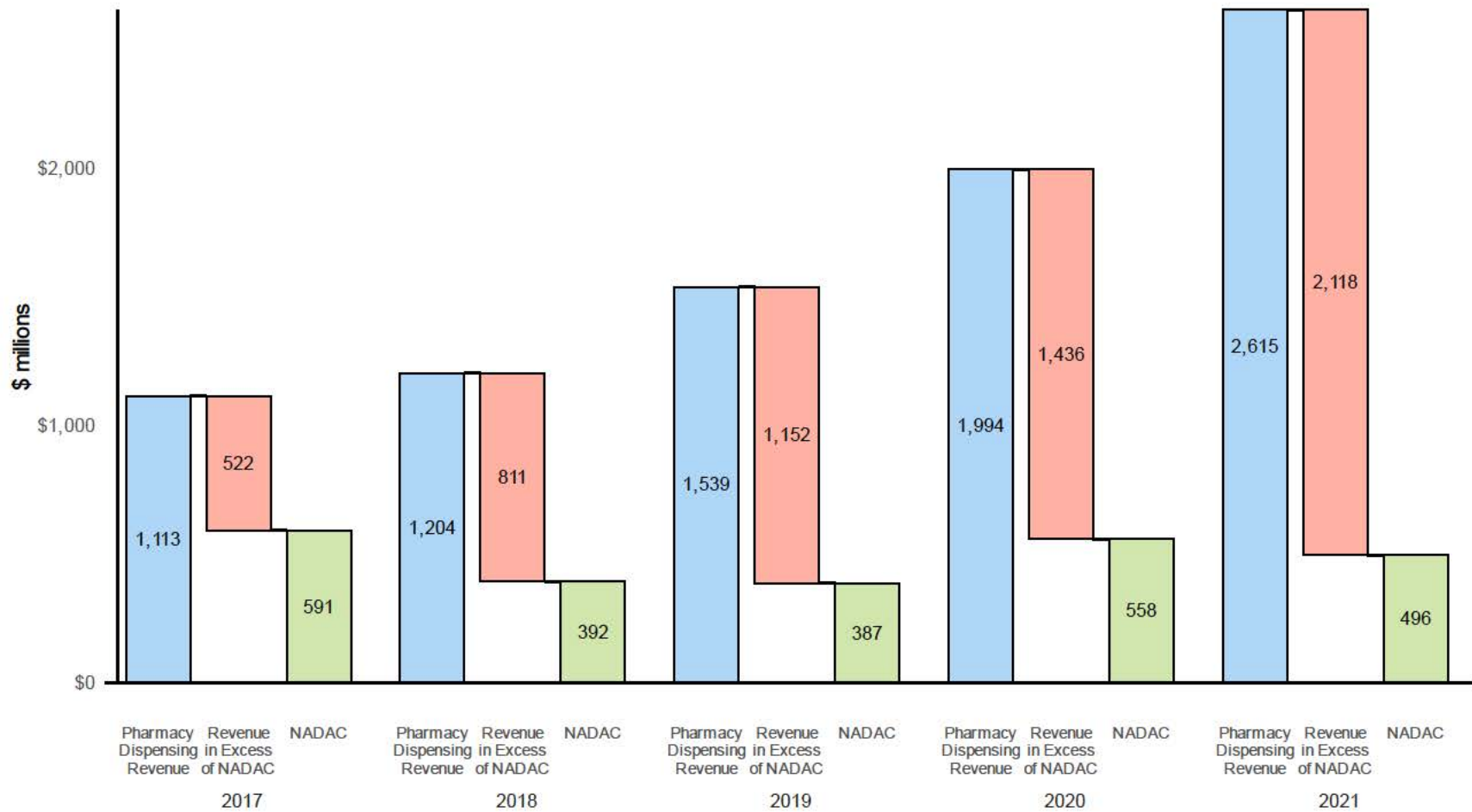
⁸² A similar analysis of PBM-affiliated pharmacy dispensing revenue in excess of NADAC was presented for two case study drugs in the First Interim Staff Report, *supra* note 1, at 44-45. Using additional data produced by one of the PBM respondents after the First Interim Staff Report was published, we have updated our analyses of the case study drugs to reflect these newly provided data. The analyses continue to reflect significant revenue in excess of NADAC for these drugs although the magnitudes have been updated.

⁸³ See *supra* note 45 and accompanying text.

⁸⁴ We exclude 2022 from Figure 5 because only limited data were produced by the PBM respondents for that year. See *infra* note 30 and accompanying text.

⁸⁵ See First Interim Staff Report, *supra* note 1, at 46-47.

Figure 5. PBM-Affiliated Pharmacy Dispensing Revenue in Excess of NADAC on Specialty Generic Drugs from Commercial and Medicare Part D Claims, 2017-2021



While the Big 3 PBMs' affiliated pharmacies dispensing revenue in excess of NADAC totaled \$7.3 billion from all the specialty generic drugs in our sample over the study period, the magnitude of income streams varied by therapeutic class and from drug to drug. Selected therapeutic classes accounted for the majority of dispensing revenue in excess of NADAC, including oncology (\$3.3 billion, or 44 percent of total), multiple sclerosis (\$1.8 billion; 25 percent), transplant (\$824 million; 11 percent), HIV (\$521 million; eight percent), and pulmonary hypertension (\$432 million; seven percent).

At the drug level, dispensing revenue in excess of NADAC ranged from *de minimis* amounts to millions, tens of millions, hundreds of millions, and even billions of dollars on even just a single drug over the study period. More specifically, six drugs generated between \$50 and \$100 million of dispensing revenue in excess of NADAC, eight drugs between \$100 and \$500 million, four drugs between \$500 million and \$1 billion, and one drug over \$1 billion. In aggregate over the study period, the top 5 drugs generated \$4.7 billion of revenue in excess of NADAC (64 percent of total), the top 10 drugs generated \$6.2 billion (85 percent), and the top 15 drugs generated \$6.9 billion (93 percent). Dispensing revenue in excess of NADAC for each drug in our sample is provided in Figure A.1 of the Appendix.

Overall, PBM-affiliated pharmacy dispensing revenue in excess of NADAC on the specialty generic drugs we assessed increased from \$522 million in 2017 to \$2.1 billion in 2021. This growth came from several sources. Figure 6 decomposes the growth into its component sources of growth,⁸⁶ including:

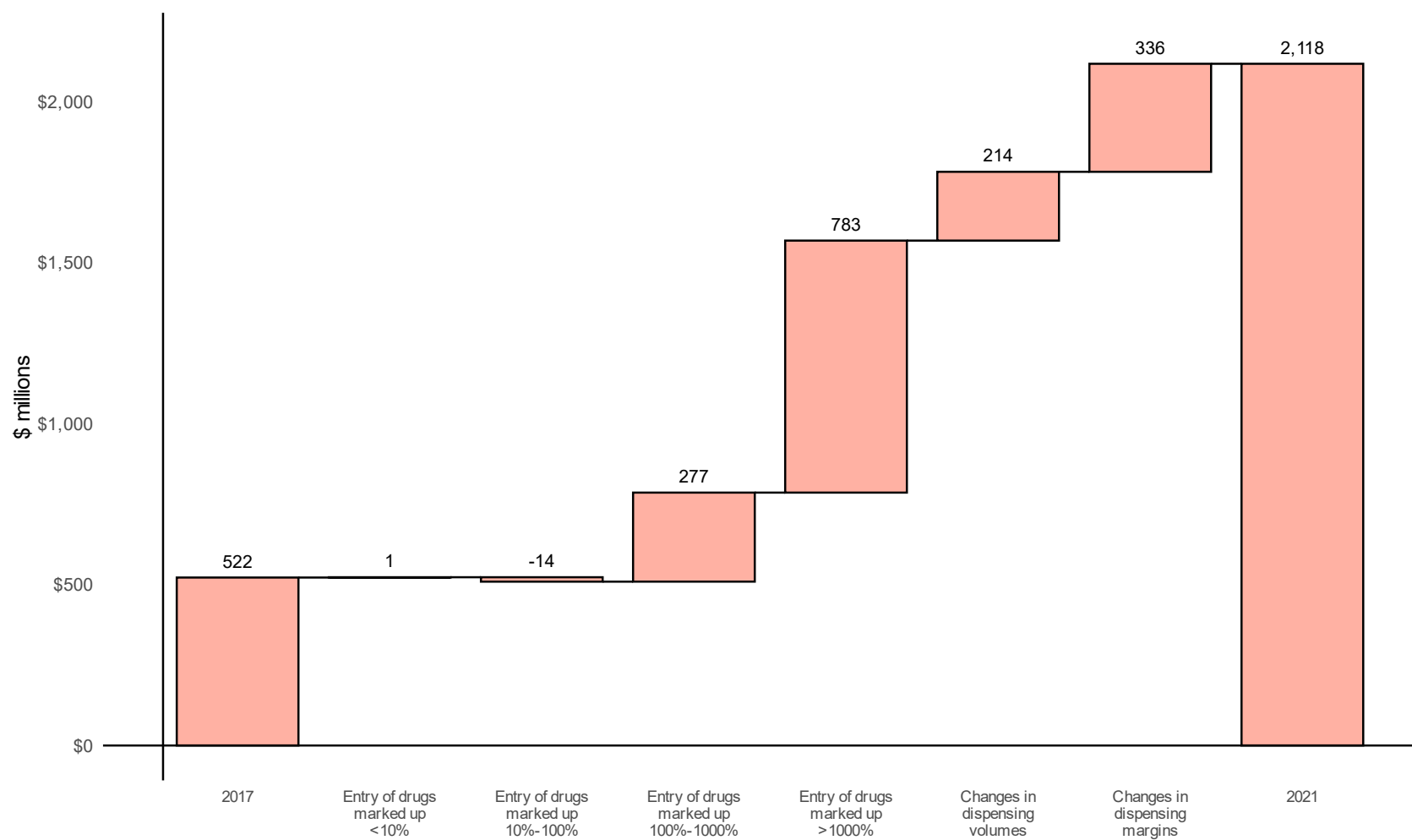
- The entry of specialty generic drugs, net of exits,⁸⁷ which we present by markup category (less than 10 percent, 10-100 percent, 100-1,000 percent, and more than 1,000 percent);
- Increased dispensing volumes on existing drugs; and
- Increased margins (reimbursement rates less NADAC) on existing drugs, which resulted from NADAC declining at a significantly faster rate than reimbursement rates, on average, over time.

As illustrated in Figure 6, much of the growth came from the entry of new specialty generic drugs, including drugs marked up over 1,000 percent (\$783 million, or 49 percent of growth) and between 100-1,000 percent (\$277 million, 17 percent). Increases in margins on existing drugs accounted for 21 percent (\$335 million) of the growth, and increases in dispensing volume, 13 percent (\$214 million).

⁸⁶ The methods employed to decompose the growth of revenue in excess of NADAC into its component sources of growth are described in Appendix B.

⁸⁷ Revenue in excess of NADAC can increase when a drug is newly included on a PBM's specialty drug list, which we call entry, and revenue in excess of NADAC can fall if a previously listed drug is removed from the list, which we call exit. Exit is relatively rare, so we report the net of these two effects as "entry." When decreases from exits exceed increases from entry, the change in revenue in excess of NADAC is recorded as a negative amount.

Figure 6. Sources of Growth of PBM-Affiliated Pharmacy Dispensing Revenue in Excess of NADAC On Specialty Generic Drugs from Commercial and Medicare Part D Claims, 2017-2021



2. *PBM spread pricing:* In the aggregate, the Big 3 PBMs generated significant income from spread pricing on the analyzed specialty generic drugs

Another way in which the Big 3 PBMs can generate income is through spread pricing. PBMs may retain the spread between the amount they bill their plan sponsor clients and the reimbursement rate they pay pharmacies. The calculation of this spread, however, is complicated by adjustments, which PBMs may apply both to plan sponsor billed amounts (e.g., point-of-sale reconciliations and post hoc adjustments relating to effective rate guarantees)⁸⁸ and pharmacy reimbursements (e.g., post hoc direct and indirect remuneration adjustments).⁸⁹ While the Big 3 PBMs produced selected pharmacy reimbursement post-sale adjustment data,⁹⁰ we received only limited data on adjustments to plan sponsor billed amounts.⁹¹

Therefore, we calculated spread pricing based on pharmacy reimbursement rates and plan sponsor billed amounts accounting for post-sale adjustments to the extent we have the relevant data. We also adopted certain assumptions based on the limited plan sponsor billed amount adjustment data we received as well as documentary evidence with respect to how post-sale adjustments flowing from pharmacies to PBMs were passed through to the PBMs' plan sponsor clients and how post-sale adjustments flowing from PBMs to pharmacies were paid.⁹²

With the above caveats, we observed combined spread pricing income for the Big 3 PBMs of approximately \$1.4 billion generated from the specialty generic drugs in our sample during the study period from 2017 through part of 2022 (51 drugs).⁹³ Most of this spread pricing derived from prescriptions dispensed by unaffiliated pharmacies (90 percent). Additionally, the large majority of spread pricing occurred on commercial claims (97 percent). If we had more robust adjustment data, we would expect the estimated spread for commercial claims to decrease to

⁸⁸ See, e.g., Respondents Document Submissions [REDACTED]

⁸⁹ See *supra* note 34 (discussing pharmacy reimbursement post-sale adjustments).

⁹⁰ See *id.*

⁹¹ These data were not requested by the 6(b) Orders. However, [REDACTED]

⁹² See, e.g., Respondents Document Submissions [REDACTED]

⁹³ The magnitude of estimated income derived from spread pricing differed across the Big 3 PBMs.

some extent.⁹⁴ The top 10 specialty generic drugs, ranked by aggregate spread, accounted for 82 percent of the spread retained by the Big 3 PBMs.

3. ***Magnitude of income streams:*** Operating income generated by the Big PBMs' affiliated pharmacies from dispensing the top 10 specialty generic drugs alone accounted for nearly 11 percent of parent healthcare conglomerates' relevant business segment operating income in 2021

The entities that own the Big 3 PBMs generate significant income from dispensing highly marked up specialty generic drugs at their affiliated pharmacies. Indeed, out of the tens of thousands of drugs dispensed to patients each year,⁹⁵ ***the specialty generic drugs evaluated in this report accounted for an estimated 12 percent of aggregated operating income of the parent healthcare conglomerates' PBM and pharmacy business segments in 2021—and the top 10 specialty generic drugs alone accounted for nearly 11 percent.***⁹⁶

In this section, we estimate the shares of operating income derived from PBM-affiliated pharmacy dispensing of specialty generic drugs as a proportion of the parent healthcare conglomerates' relevant business segments over the 2019-2021 period.⁹⁷

The only income source considered in this analysis is the revenue in excess of NADAC taken in by PBM-affiliated pharmacies (see Figure 5), from which we subtracted estimated pharmacy operating expenses to derive an estimate of operating income.⁹⁸ We then calculated the share

⁹⁴ The reason for this is commercial plan sponsor contracts with PBMs often include effective rate guarantees, which provide that the plan sponsors will pay no more, after adjustments, than a given percentage discount off of list price for certain groups of drugs. See *supra* note 88. These guarantees commonly result in an adjustment that flows from the PBM to the plan sponsor, and thus would decrease the spread the PBM retains.

⁹⁵ Including traditional and specialty drugs, both branded and generic. See U.S. FOOD & DRUG ADMIN., FDA AT A GLANCE 1 (2023), <https://www.fda.gov/media/176816/download> ("There are over 20,000 prescription drug products approved for marketing.").

⁹⁶ Though the magnitude of shares differed across the parent healthcare conglomerates.

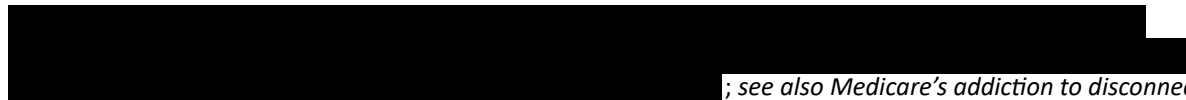
⁹⁷ This analysis focuses on 2019-2021 because Cigna Group acquired ESI near the end of 2018 and only limited data were produced by the PBM respondents for 2022. See Press Release, Cigna Group, Cigna Completes Combination with Express Scripts, Establishing a Blueprint to Transform the Health Care System (Dec. 1, 2018), <https://newsroom.thecignagroup.com/Cigna-Completes-Combination-with-Express-Scripts-Establishing-a-Blueprint-to-Transform-the-Health-Care-System>; *supra* note 30 and accompanying text.

⁹⁸ Estimates of operating expenses were necessary because we did not receive this information from the 6(b) Order respondents. Based on the methodology employed by the Mark Cuban Cost Plus Drug Company, we estimated operating expenses as 15 percent of NADAC plus \$10 per prescription. See *No middlemen. No price games. Huge drug savings.*, MARK CUBAN COST PLUS DRUG COMPANY, <https://costplusdrugs.com> (last visited Dec. 12, 2024). Because we did not receive data from the PBM respondents indicating the proportion of 30 and 90-day prescriptions filled, we conservatively assumed all prescriptions were for 30-day supplies. Our estimated operating expenses ranged from roughly \$32 to \$39 per 30-day equivalent prescription over the 2019-2021 period. These estimates may be conservative for the specialty generic drugs in our sample. See Respondents Document Submissions



of operating income contributed by PBM-affiliated pharmacies dispensing of the specialty generic drugs in our sample to the parent entities' relevant business segments, including CVS Health's "Pharmacy Services,"⁹⁹ Cigna's "Evernorth Health Services,"¹⁰⁰ and UnitedHealth's "OptumRx."¹⁰¹

Figure 7 presents these shares for the top 5, 10, and 15 specialty generic drugs by operating income each year, and for all drugs analyzed over the 2019-2021 period. PBM-affiliated pharmacy dispensing operating income generated by all the specialty generic drugs in our sample accounted for an estimated 12.0 percent of 2021 operating income of the parent healthcare conglomerates' relevant business segments, on average (up from 7.6 percent in 2019), while the top 10 specialty generic drugs alone accounted for 10.7 percent. We believe the results of this analysis reflect conservative estimates of the specialty generic drugs'

; see also *Medicare's addiction to disconnected drug prices*, 46BROOKLYN (Sept. 10, 2024), <https://www.46brooklyn.com/research/091024-medicare-addiction-to-disconnected-drug-prices> (estimating pharmacy "overhead costs" to be "approximately \$10-12 per prescription"); THREE AXIS ADVISORS, *DESERVING OF BETTER: HOW AMERICAN SENIORS ARE PAYING FOR MISALIGNED INCENTIVES WITHIN MEDICARE PART D* 8 (2022), https://static1.squarespace.com/static/5c326d5596e76f58ee234632/t/6227c19bb627ea166a79fad3/1646772638039/3Axis_Medicare_DIR_FINAL_VER_20220308.pdf (assuming "costs incurred by pharmacies across the United States in dispensing prescription drugs" to be "approximately \$10 based on the cost of dispensing (COD) surveys conducted within state Medicaid programs"). FTC staff also conducted sensitivity analyses assuming all prescriptions were for 90-day rather than 30-day supplies, which decreased the total estimated dispensing costs, but did not materially alter the results presented in Figure 7.

⁹⁹ See CVS Health Corp., Annual Report, at 8 (Form 10-K, 2021) ("The Pharmacy Services segment provides a full range of PBM solutions, including plan design offerings and administration, formulary management, retail pharmacy network management services and mail order pharmacy [and] provides specialty pharmacy and infusion services, clinical services, disease management services, medical spend management and pharmacy and/or other administrative services . . . The Pharmacy Services segment includes retail specialty pharmacy stores, specialty mail order pharmacies, mail order dispensing pharmacies, compounding pharmacies and branches for infusion and enteral nutrition services."). *Id.* at 10 ("The Company operates a group purchasing organization that negotiates pricing for the purchase of pharmaceuticals and rebates with pharmaceutical manufacturers on behalf of its participants."). The Pharmacy Services business segment reported operating income of \$5.1 billion in 2019, \$5.7 billion in 2020, and \$6.9 billion in 2021. *Id.* at 74.

¹⁰⁰ See Cigna Group, Annual Report, at 4 (Form 10-K, 2021) ("Evernorth includes a broad range of coordinated and point solution health services and capabilities, as well as those from partners across the health care system, in pharmacy solutions [including specialty pharmacy, Accredo], benefits management solutions, care delivery and care management solutions and intelligence solutions"). The Evernorth Health Services business segment reported operating income of \$5.1 billion in 2019, \$5.4 billion in 2020, and \$5.8 billion in 2021. *Id.* at 53, 140-41.

¹⁰¹ See UnitedHealth Group Inc., Annual Report, at 72 (Form 10-K, 2021) ("Optum Rx offers pharmacy care services and programs, including retail network contracting, home delivery, specialty and community health pharmacy services, purchasing and clinical capabilities, and develops programs in areas such as step therapy, formulary management, drug adherence and disease/drug therapy management. Optum Rx integrates pharmacy and medical care and is positioned to serve patients with complex clinical needs and consumers looking for a better digital pharmacy experience with transparent pricing."). The OptumRx business segment reported operating income of \$3.9 billion in 2019, \$3.9 billion in 2020, and \$4.1 billion in 2021. *Id.* at 74.

contribution to pharmacy-related operating income for various methodological¹⁰² and other reasons. Notably, the numerator used in our share calculations is underinclusive because our sample includes only specialty generic drugs for which a NADAC was available¹⁰³ and we did not include PBM spread pricing income from the specialty generic drugs examined in this report due to data limitations.¹⁰⁴ Moreover, the denominator is overinclusive because the healthcare conglomerates' business segments include multiple lines of business in addition to specialty pharmacy.¹⁰⁵

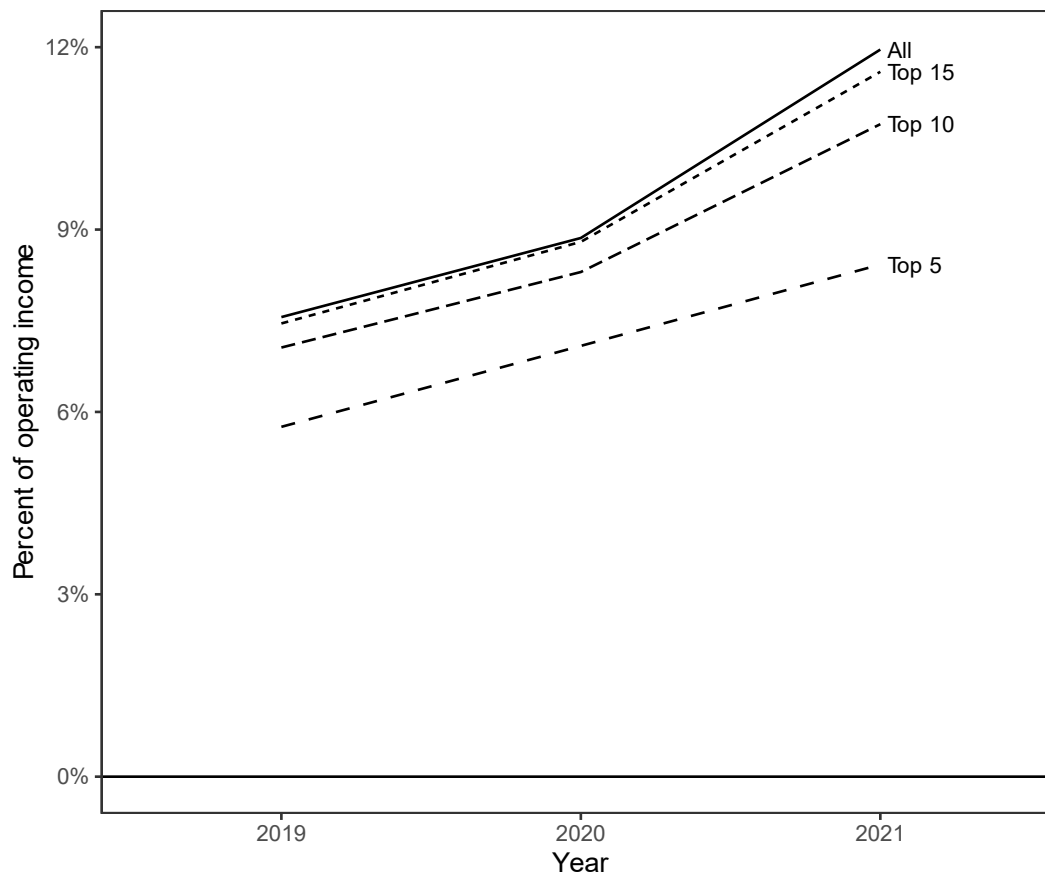
¹⁰² Operating income in excess of NADAC likely understates income generated by PBM-affiliated pharmacies because NADAC is a conservative estimate of acquisition costs. *See supra* note 45 and accompanying text. In addition, pharmacy dispensing operating expenses may be overstated given PBM-affiliated pharmacies' scale advantage over the cost-plus pharmacy whose methodology was employed to estimate operating expenses, particularly for the specialty generic drugs in our sample. *See supra* note 98.

¹⁰³ *See supra* § II.B.

¹⁰⁴ *See id.* § III.B.2.

¹⁰⁵ *See supra* notes 99-101; *see also* *Q4 2021 Cigna Corp Earnings Call*, CIGNA GROUP, at 5 (Feb. 3, 2022), https://s202.q4cdn.com/757723766/files/doc_financials/2021/q4/4Q21-transcript.pdf (stating ESI's Accredo specialty pharmacy accounts for "1/3 of Evernorth's revenue"); Respondent Document Submission [REDACTED]

Figure 7. PBM-Affiliated Pharmacy Dispensing Operating Income from the Top 5, 10, 15, and All Specialty Generic Drugs as a Percentage of Operating Income of the Parent Healthcare Conglomerates' Relevant Business Segments, 2019-2021



C. Plan sponsor and patient spending on specialty generic drugs has increased significantly over time

Specialty generic drugs represent a large and growing amount of spending by plan sponsors and patients. In this section, we present the amounts paid by plan sponsors¹⁰⁶ (Figure 8) and patients (Figure 9) for the specialty generic drugs analyzed over the 2017-2021 period. In 2021, the last year for which the FTC received full-year data, plan sponsors paid \$4.8 billion for these drugs (\$3.2 billion for commercial claims; \$1.6 billion for Medicare Part D claims), while patient cost sharing totaled \$297 million (\$154 million for commercial; \$143 million for Medicare Part D).

Figures 8 and 9 also reflect the double-digit compound annual increases in the amounts being paid for specialty generic drugs by plans sponsors and patients. Between 2017 and 2021, plan sponsor payments grew at a compound annual growth rate of 21 percent for commercial claims

¹⁰⁶ These amounts do not reflect any adjustments that the PBMs may have provided to their plan sponsor clients, e.g., adjustments based on effective rate guarantees. See *supra* note 88.

and 14 percent for Medicare Part D claims. Likewise, patient cost sharing increased at a compound annual growth rate of 21 percent for commercial claims and 15 percent for Medicare Part D claims over the 2017-2021 period. As a percentage of total expenditures by patients, plan sponsors, and other payers (if any), patient cost sharing during this period remained relatively stable at around 5 percent for commercial plan members and 8 percent for Medicare Part D prescription drug plan members.

Figure 8. Plan Sponsor Billed Amounts for Specialty Generic Drugs Dispensed By PBM-Affiliated and Unaffiliated Pharmacies, Segmented by Commercial and Medicare Part D Claims, 2017-2021

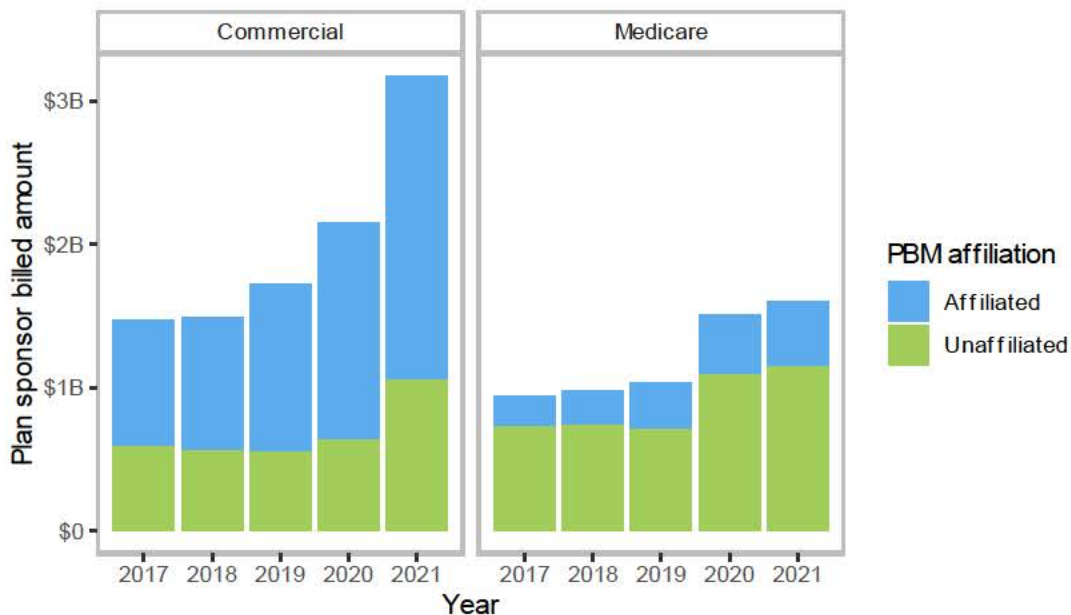
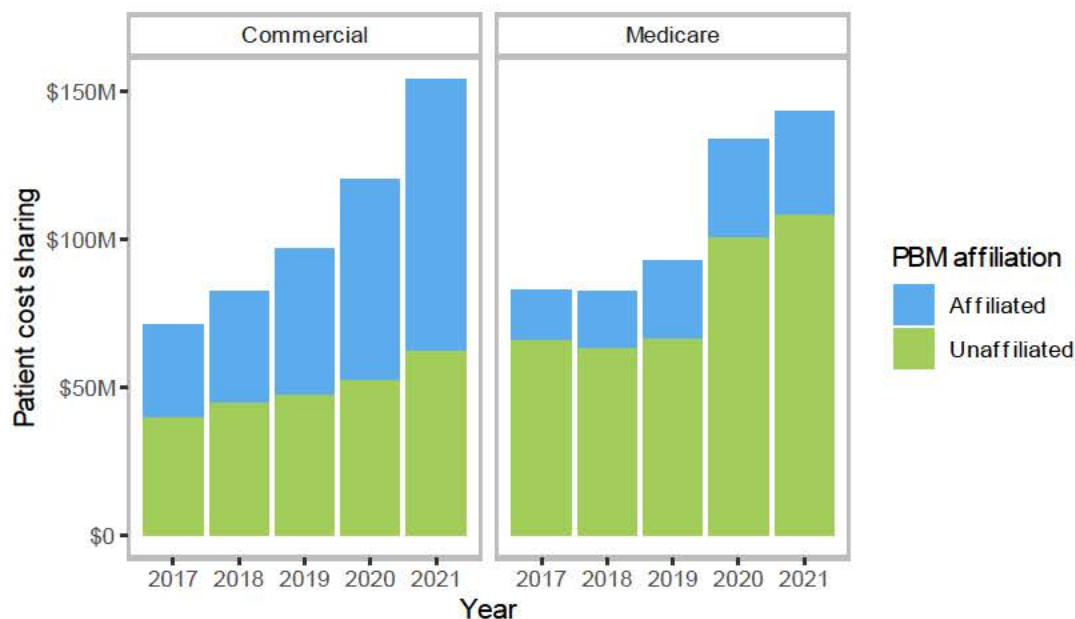


Figure 9. Patient Cost Sharing on Specialty Generic Drugs Dispensed By PBM-Affiliated and Unaffiliated Pharmacies, Segmented by Commercial and Medicare Part D Claims, 2017-2021



It is important to note, however, that various assessments relevant to plan sponsor and patient expenditures fall outside the scope of this report. For example, we do not consider how much plan sponsors and patients would pay if brand equivalent drugs were prescribed rather than new-to-market specialty generic drugs, or how much plan sponsors and patients would pay if their payments were based on the lower reimbursement rates paid to unaffiliated pharmacies or cost-plus pharmacies rather than the higher reimbursement rates paid to PBM-affiliated pharmacies. While understanding these types of substitution effects would be valuable in future research, the large and growing expenditures presented in Figures 8 and 9 highlight the financial importance of specialty generic drugs for plan sponsors and patients.

IV. Conclusion

Specialty generic drugs represented a growing profit center for the Big 3 PBMs and their affiliated pharmacies during our study period from 2017 through part of 2022. FTC staff's analyses found that the Big 3 PBMs marked up numerous specialty generic drugs by hundreds and thousands of percent,¹⁰⁷ with the majority of the most highly marked-up drugs dispensed by the PBMs' own affiliated pharmacies.¹⁰⁸ These drugs are taken by patients with serious conditions, including cancer, multiple sclerosis, HIV, and pulmonary hypertension, among others.¹⁰⁹

¹⁰⁷ See *supra* § III.A.1.

¹⁰⁸ See *supra* § III.A.2.

¹⁰⁹ See *supra* § III.A.1.

Given the combination of high reimbursement rates and large dispensing volumes, the Big 3 PBMs' affiliated pharmacies generated significant and growing levels of revenue in excess of estimated acquisition cost (NADAC) on the most highly marked up specialty generic drugs during the study period,¹¹⁰ while the Big 3 PBMs also appeared to take in significant income from spread pricing on these drugs, in aggregate.¹¹¹ At the same time, the amounts paid by plan sponsors and patients for specialty generic drugs increased substantially.¹¹²

Based on the foregoing, specialty generic drug pricing and steering practices should receive further scrutiny, and plan sponsors in particular should be aware that they and their members are paying the Big 3 PBMs and their affiliated pharmacies very significant markups over the acquisition costs for critical medications. The FTC reserves judgment on whether any of the practices documented in this staff report violate the FTC Act or other laws, and nothing in this staff report should be interpreted as prejudging a determination about potential law violations. Additionally, legislative reforms may be warranted. FTC staff is encouraged to see bipartisan interest in Congress and among the states in addressing PBM practices, and we stand ready to provide assistance to policymakers as needed.

¹¹⁰ See *supra* § III.B.1.

¹¹¹ See *supra* § III.B.2.

¹¹² See *supra* § III.C.

Appendix

Appendix A. Summary data

Appendix B. Methods for decomposing growth

Appendix A. Summary data

Figure A1. Specialty Generic Drugs: Reimbursement Rates and PBM-Affiliated Pharmacy Dispensing Revenue in Excess of NADAC Summary, 2017-2022

Figure A2. Specialty Generic Drugs: Average Reimbursement Rates per 30-Day Equivalent Prescription, 2017-2021

- A. Commercial Prescriptions at PBM-Affiliated Pharmacies
- B. Commercial Prescriptions at Unaffiliated Pharmacies
- C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies
- D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Figure A3. Specialty Generic Drugs: 30-Day Equivalent Prescriptions, 2017-2021

- A. Commercial Prescriptions at PBM-Affiliated Pharmacies
- B. Commercial Prescriptions at Unaffiliated Pharmacies
- C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies
- D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Figure A4. Specialty Generic Drugs: PBM-Affiliated Pharmacy Dispensing Revenue in Excess of NADAC, 2017-2021

- A. Commercial Prescriptions at PBM-Affiliated Pharmacies
- B. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies

Figure A5. Specialty Generic Drugs: Plan Sponsor Billed Amounts per 30-Day Equivalent Prescription, 2017-2021

- A. Commercial Prescriptions at PBM-Affiliated Pharmacies
- B. Commercial Prescriptions at Unaffiliated Pharmacies
- C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies
- D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Figure A6. Specialty Generic Drugs: Patient Cost Sharing Amounts per 30-Day Equivalent Prescription, 2017-2021

- A. Commercial Prescriptions at PBM-Affiliated Pharmacies
- B. Commercial Prescriptions at Unaffiliated Pharmacies
- C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies
- D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Figure A7. Specialty Generic Drugs: NADAC per 30-Day Equivalent Prescription, 2017-2021

- A. Commercial Prescriptions at PBM-Affiliated Pharmacies
- B. Commercial Prescriptions at Unaffiliated Pharmacies
- C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies
- D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Figure A1. Specialty Generic Drugs: Reimbursement Rates and PBM-Affiliated Pharmacy Dispensing Revenue in Excess of NADAC Summary, 2017-2022

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Commercial				Medicare				Revenue in Excess of NADAC (MM)
				Av. Reimbursement		Affiliated Markup Over		Av. Reimbursement		Affiliated Markup Over		
				Unaffiliated	Affiliated	NADAC	Unaffiliated	Unaffiliated	Affiliated	NADAC	Unaffiliated	
Acromegaly	Octreotide	Sandostatin	Injectable	\$639	\$759	38%	19%	\$594	\$871	56%	47%	\$1.27
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$2,737	\$3,315	140%	21%	\$2,409	\$3,197	136%	33%	\$74.35
HIV	Abacavir	Ziagen	Pill	\$183	\$235	239%	29%	\$232	\$264	306%	14%	\$10.30
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$381	\$582	289%	53%	\$420	\$460	230%	9%	\$39.64
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$974	\$1,132	-8%	16%	\$1,234	\$1,262	2%	2%	-\$0.62
HIV	Atazanavir	Reyataz	Pill	\$525	\$717	87%	36%	\$609	\$578	57%	-5%	\$13.44
HIV	Efavirenz	Sustiva	Pill	\$484	\$583	45%	21%	\$649	\$672	69%	4%	\$9.38
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	*	*	*	*	*	*	*	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	*	*	*	*	*	*	*	*	*
HIV	Etravirine	Intelence	Pill	*	*	*	*	*	*	*	*	*
HIV	Lamivudine	Epivir	Oral Liquid	\$51	\$62	3%	21%	\$65	\$67	12%	3%	\$0.02
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$118	\$170	168%	45%	\$157	\$186	197%	19%	\$12.15
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$202	\$317	331%	57%	\$242	\$282	294%	16%	\$13.06
HIV	Nevirapine	Viramune	Pill	\$183	\$217	126%	18%	\$191	\$186	117%	-3%	\$8.54
HIV	Ritonavir	Norvir	Pill	\$138	\$157	67%	14%	\$138	\$132	44%	-5%	\$7.75
HIV	Tenofovir Disoproxil	Viread	Pill	\$143	\$309	469%	116%	\$212	\$199	315%	-6%	\$82.60
HIV	Zidovudine	Retrovir	Pill	\$28	\$59	182%	113%	\$26	\$30	43%	15%	\$0.34
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	*	*	*	*	*	*
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$193	\$269	171%	39%	\$190	*	*	*	*
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	\$7,692	\$7,909	0%	3%	\$7,938	\$8,264	5%	4%	\$1.68
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$52	\$184	1,934%	252%	\$67	\$143	1,513%	114%	\$155.24
Pulm. Hypertension	Tadalafil	Adcirca	Pill	\$1,410	\$2,254	710%	60%	\$1,402	\$1,823	528%	30%	\$276.30
Infertility	Progesterone	None	Injectable	*	*	*	*	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	*	*	*	*	*	*	*	*	*
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	\$632	\$1,012	1,195%	60%	\$527	\$737	849%	40%	\$326.43
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	\$2,885	\$4,197	2,053%	45%	\$2,785	\$3,374	1,616%	21%	\$817.57
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	\$2,718	\$3,534	126%	30%	\$3,892	\$4,059	158%	4%	\$695.56
Neurological Disorder	Riluzole	Rilutek	Pill	*	*	*	*	*	*	*	*	*
Oncology	Abiraterone	Zytiga	Pill	\$2,555	\$5,177	1,191%	103%	\$2,494	\$3,637	744%	46%	\$625.20
Oncology	Capecitabine	Xeloda	Pill	\$1,179	\$1,795	542%	52%	\$963	\$1,216	277%	26%	\$623.54
Oncology	Everolimus	Afinitor, Zortress	Pill	\$1,546	\$1,902	2%	23%	\$1,667	\$1,883	1%	13%	\$0.15
Oncology	Fluorouracil	Efudex	Topical	*	*	*	*	*	*	*	*	*
Oncology	Imatinib	Gleevec	Pill	\$3,339	\$5,630	412%	69%	\$3,731	\$5,185	344%	39%	\$1,958.11
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	*	*	*	*	*	*
Oncology	Methotrexate	None	Injectable	*	*	*	*	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$1,638	\$2,395	295%	46%	\$1,401	\$1,730	185%	23%	\$51.94
Osteoporosis	Teriparatide	Forteo	Injectable	\$2,179	\$2,283	-8%	5%	\$2,392	\$2,490	0%	4%	-\$1.23
Renal Disease	Cinacalcet	Sensipar	Pill	*	*	*	*	*	*	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	\$188	\$187	4%	-0%	\$212	*	*	*	*
Transplant	Cyclosporine	Gengraf	Pill	\$153	\$159	13%	4%	\$175	\$172	27%	-2%	\$10.43
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$870	\$979	-5%	12%	\$1,150	\$1,088	6%	-5%	-\$1.43
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$59	\$120	295%	102%	\$67	\$69	122%	3%	\$253.29
Transplant	Mycophenolic Acid	Myfortic	Pill	\$302	\$422	106%	40%	\$350	\$417	122%	19%	\$160.21
Transplant	Sirolimus	Rapamune	Oral Liquid	\$881	\$1,165	40%	32%	\$1,133	\$1,200	38%	6%	\$1.26
Transplant	Sirolimus	Rapamune	Pill	\$419	\$492	26%	17%	\$469	\$498	33%	6%	\$39.32
Transplant	Tacrolimus	Prograf	Pill	\$95	\$161	249%	70%	\$112	\$136	210%	22%	\$352.32

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A2. Specialty Generic Drugs: Average Reimbursement Rates per 30-Day Equivalent Prescription, 2017-2021

A. Commercial Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Av. Reimbursement Rates				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$1,146	NA	\$373	\$433	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$3,518	\$3,422	\$3,364	\$3,318	\$3,047
HIV	Abacavir	Ziagen	Pill	\$251	\$246	\$230	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$720	\$610	\$561	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,146	\$1,114	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$962	\$663	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$652	\$602	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$76	\$56	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$175	\$173	\$170	\$168	\$167
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$370	\$331	\$292	*	*
HIV	Nevirapine	Viramune	Pill	\$224	\$215	\$191	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$208	\$155	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$506	\$340	*	*
HIV	Zidovudine	Retrovir	Pill	\$71	\$64	\$54	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$269	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,967	\$7,891
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$253	\$198	\$172	\$190	\$141
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,832	\$2,438	\$2,227	\$2,126
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$1,051	\$997	\$996
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$4,370
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$3,434	\$3,698	\$3,501
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$5,809	\$4,938
Oncology	Capecitabine	Xeloda	Pill	\$2,073	\$1,878	\$1,827	\$1,848	\$1,659
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$7,096	\$6,473	\$5,904	\$5,361	\$4,433
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$2,346	NA	NA	NA	\$2,463
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$183	\$175	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$166	\$157	\$158	\$157	\$160
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$962	\$1,066	\$983	\$1,073	\$970
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$156	\$133	\$125	\$110	\$103
Transplant	Mycophenolic Acid	Myfortic	Pill	\$484	\$445	\$425	\$408	\$400
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,175
Transplant	Sirolimus	Rapamune	Pill	\$531	\$547	\$524	\$497	\$428
Transplant	Tacrolimus	Prograf	Pill	\$198	\$177	\$165	\$143	\$146

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A2. Specialty Generic Drugs: Average Reimbursement Rates per 30-Day Equivalent Prescription, 2017-2021

B. Commercial Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Av. Reimbursement Rates				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$857	NA	\$343	\$346	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$3,268	\$2,807	\$2,508	\$2,535	\$2,435
HIV	Abacavir	Ziagen	Pill	\$191	\$189	\$185	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$618	\$382	\$246	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$989	\$955	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$774	\$474	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$586	\$524	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$63	\$52	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$143	\$121	\$107	\$99	\$107
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$244	\$206	\$186	*	*
HIV	Nevirapine	Viramune	Pill	\$214	\$174	\$145	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$189	\$141	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$336	\$130	*	*
HIV	Zidovudine	Retrovir	Pill	\$23	\$26	\$32	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$193	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,714	\$7,688
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$114	\$83	\$64	\$38	\$30
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,388	\$1,624	\$1,324	\$1,271
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$812	\$564	\$600
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$3,123
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$2,950	\$2,709	\$2,624
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$2,657	\$2,406
Oncology	Capecitabine	Xeloda	Pill	\$1,808	\$1,379	\$1,069	\$957	\$914
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$6,128	\$4,158	\$2,879	\$2,490	\$2,195
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$1,912	NA	NA	NA	\$1,483
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$186	\$193	\$186	NA
Transplant	Cyclosporine	Gengraf	Pill	\$165	\$151	\$162	\$147	\$146
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,064	\$1,038	\$859	\$851	\$827
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$62	\$56	\$64	\$61	\$58
Transplant	Mycophenolic Acid	Myfortic	Pill	\$432	\$366	\$329	\$267	\$255
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$899
Transplant	Sirolimus	Rapamune	Pill	\$452	\$450	\$470	\$421	\$382
Transplant	Tacrolimus	Prograf	Pill	\$102	\$89	\$88	\$96	\$98

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A2. Specialty Generic Drugs: Average Reimbursement Rates per 30-Day Equivalent Prescription, 2017-2021

C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Av. Reimbursement Rates				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$1,209	NA	\$510	\$542	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$3,598	\$3,237	\$3,556	\$3,881	\$2,870
HIV	Abacavir	Ziagen	Pill	\$301	\$273	\$215	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$624	\$380	\$412	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,272	\$1,250	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$953	\$464	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$718	\$682	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$75	\$69	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$206	\$184	\$182	\$203	\$156
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$274	\$271	\$283	*	*
HIV	Nevirapine	Viramune	Pill	\$203	\$179	\$149	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$218	\$107	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$461	\$145	*	*
HIV	Zidovudine	Retrovir	Pill	\$34	\$31	\$33	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	*	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$8,365	\$8,214
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$209	\$187	\$138	\$119	\$97
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,846	\$2,327	\$1,568	\$1,521
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$942	\$779	\$596
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$3,637
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$4,133	\$4,185	\$3,943
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$4,255	\$3,252
Oncology	Capecitabine	Xeloda	Pill	\$2,050	\$1,531	\$1,087	\$951	\$772
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$7,316	\$7,042	\$5,195	\$4,345	\$3,341
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$2,194	NA	NA	NA	\$1,403
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	*	*	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$187	\$170	\$173	\$179	\$163
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,059	\$1,128	\$1,159	\$1,167	\$1,092
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$72	\$73	\$73	\$72	\$59
Transplant	Mycophenolic Acid	Myfortic	Pill	\$493	\$450	\$451	\$420	\$381
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,175
Transplant	Sirolimus	Rapamune	Pill	\$548	\$539	\$549	\$508	\$428
Transplant	Tacrolimus	Prograf	Pill	\$120	\$120	\$123	\$142	\$153

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A2. Specialty Generic Drugs: Average Reimbursement Rates per 30-Day Equivalent Prescription, 2017-2021

D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Av. Reimbursement Rates				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$695	NA	\$486	\$520	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$3,228	\$2,541	\$2,315	\$2,500	\$2,046
HIV	Abacavir	Ziagen	Pill	\$246	\$233	\$192	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$601	\$306	\$331	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,255	\$1,204	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$948	\$459	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$716	\$679	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$71	\$69	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$175	\$155	\$146	\$173	\$128
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$241	\$217	\$240	*	*
HIV	Nevirapine	Viramune	Pill	\$207	\$191	\$143	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$216	\$128	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$473	\$124	*	*
HIV	Zidovudine	Retrovir	Pill	\$31	\$28	\$31	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$190	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$8,140	\$7,834
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$91	\$85	\$65	\$55	\$39
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,905	\$1,900	\$1,120	\$1,072
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$723	\$620	\$408
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$2,957
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$4,038	\$3,909	\$3,826
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$3,014	\$2,092
Oncology	Capecitabine	Xeloda	Pill	\$1,751	\$1,464	\$881	\$691	\$625
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$6,719	\$5,780	\$3,279	\$2,516	\$2,147
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$1,943	NA	NA	NA	\$1,146
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$211	\$189	\$253	NA
Transplant	Cyclosporine	Gengraf	Pill	\$191	\$180	\$184	\$179	\$163
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,168	\$1,162	\$1,175	\$1,169	\$1,155
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$74	\$69	\$71	\$69	\$58
Transplant	Mycophenolic Acid	Myfortic	Pill	\$490	\$421	\$378	\$353	\$312
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,121
Transplant	Sirolimus	Rapamune	Pill	\$541	\$517	\$507	\$481	\$410
Transplant	Tacrolimus	Prograf	Pill	\$109	\$97	\$102	\$122	\$113

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A3. Specialty Generic Drugs: 30-Day Equivalent Prescriptions, 2017-2021

A. Commercial Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	30-Day Equivalents				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	2,101	NA	1,172	1,112	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	7,980	8,003	5,511	4,857	4,239
HIV	Abacavir	Ziagen	Pill	9,370	8,186	6,171	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	20,664	17,578	12,820	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	3,494	2,792	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	11,630	8,537	*	*
HIV	Efavirenz	Sustiva	Pill	NA	8,557	7,997	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	624	747	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	14,812	13,668	11,948	9,771	8,333
HIV	Lamivudine / Zidovudine	Combivir	Pill	13,044	10,452	7,411	*	*
HIV	Nevirapine	Viramune	Pill	18,803	15,055	11,646	*	*
HIV	Ritonavir	Norvir	Pill	NA	24,080	26,210	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	68,465	71,967	*	*
HIV	Zidovudine	Retrovir	Pill	2,394	2,155	1,485	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	2,085	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	4,807	4,491
Pulm. Hypertension	Sildenafil	Revatio	Pill	84,942	98,750	106,289	110,836	110,152
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	6,992	19,917	17,602	26,177
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	68,008	66,936	61,134
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	110,420
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	56,439	85,321	81,879
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	34,232	39,157
Oncology	Capecitabine	Xeloda	Pill	51,798	61,374	65,164	75,868	85,394
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	54,031	58,923	61,328	62,407	61,343
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	11,339	NA	NA	NA	10,356
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	616	470	*	NA
Transplant	Cyclosporine	Gengraf	Pill	61,967	66,905	66,220	66,100	62,819
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	3,314	4,346	6,342	6,005	6,270
Transplant	Mycophenolate Mofetil	Cellcept	Pill	387,104	439,976	459,979	467,566	480,080
Transplant	Mycophenolic Acid	Myfortic	Pill	79,254	104,213	116,904	125,067	133,282
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	2,071
Transplant	Sirolimus	Rapamune	Pill	47,223	58,456	59,594	60,797	60,276
Transplant	Tacrolimus	Prograf	Pill	376,812	455,709	479,146	502,478	518,683

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A3. Specialty Generic Drugs: 30-Day Equivalent Prescriptions, 2017-2021

B. Commercial Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	30-Day Equivalents				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	1,123	NA	457	372	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	9,536	7,988	6,525	5,434	5,992
HIV	Abacavir	Ziagen	Pill	11,939	9,883	8,538	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	24,985	20,453	15,847	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	2,507	2,005	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	15,263	13,254	*	*
HIV	Efavirenz	Sustiva	Pill	NA	6,643	6,927	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	1,709	1,905	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	15,551	13,525	12,509	8,609	8,588
HIV	Lamivudine / Zidovudine	Combivir	Pill	11,587	9,742	7,453	*	*
HIV	Nevirapine	Viramune	Pill	17,368	14,601	11,903	*	*
HIV	Ritonavir	Norvir	Pill	NA	30,862	37,429	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	93,228	111,868	*	*
HIV	Zidovudine	Retrovir	Pill	2,579	2,418	1,923	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	2,226	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	3,212	2,696
Pulm. Hypertension	Sildenafil	Revatio	Pill	115,681	175,315	198,869	297,077	368,892
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	1,794	6,213	7,417	9,535
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	9,808	14,619	14,691
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	18,615
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	16,242	18,089	17,594
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	17,699	21,401
Oncology	Capecitabine	Xeloda	Pill	40,063	39,691	40,905	38,873	43,319
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	18,690	17,849	19,279	20,082	20,423
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	6,902	NA	NA	NA	5,017
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	1,821	1,187	898	NA
Transplant	Cyclosporine	Gengraf	Pill	61,890	56,929	59,148	65,304	70,960
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	6,902	7,099	7,296	8,876	11,340
Transplant	Mycophenolate Mofetil	Cellcept	Pill	307,747	327,274	372,074	441,628	490,710
Transplant	Mycophenolic Acid	Myfortic	Pill	65,935	72,317	86,716	112,082	128,250
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	3,364
Transplant	Sirolimus	Rapamune	Pill	34,070	37,444	39,855	45,533	51,912
Transplant	Tacrolimus	Prograf	Pill	351,149	361,161	402,995	473,400	534,672

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A3. Specialty Generic Drugs: 30-Day Equivalent Prescriptions, 2017-2021

C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	30-Day Equivalents				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	574	NA	324	235	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	695	640	388	372	429
HIV	Abacavir	Ziagen	Pill	5,238	5,532	4,792	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	6,692	6,770	5,043	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	625	541	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	4,766	4,048	*	*
HIV	Efavirenz	Sustiva	Pill	NA	3,715	4,078	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	336	667	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	8,406	9,280	8,742	7,667	6,810
HIV	Lamivudine / Zidovudine	Combivir	Pill	3,672	3,440	2,709	*	*
HIV	Nevirapine	Viramune	Pill	4,286	4,575	3,704	*	*
HIV	Ritonavir	Norvir	Pill	NA	12,203	13,869	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	9,798	11,951	*	*
HIV	Zidovudine	Retrovir	Pill	1,041	1,129	891	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	*	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	1,074	1,625
Pulm. Hypertension	Sildenafil	Revatio	Pill	50,945	61,985	68,493	77,445	81,712
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	5,284	12,674	12,173	20,141
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	43,008	47,737	43,956
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	19,513
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	15,900	21,409	18,413
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	16,813	17,443
Oncology	Capecitabine	Xeloda	Pill	4,396	5,617	5,571	5,515	4,734
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	19,503	18,969	18,826	20,169	20,227
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	384	NA	NA	NA	386
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	*	*	*	NA
Transplant	Cyclosporine	Gengraf	Pill	14,428	17,062	18,312	20,455	20,218
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	375	530	649	840	976
Transplant	Mycophenolate Mofetil	Cellcept	Pill	81,869	107,427	123,850	151,190	158,648
Transplant	Mycophenolic Acid	Myfortic	Pill	9,297	11,483	13,322	19,764	21,937
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	114
Transplant	Sirolimus	Rapamune	Pill	7,495	9,413	9,729	11,929	11,582
Transplant	Tacrolimus	Prograf	Pill	62,467	77,143	84,902	113,361	121,048

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A3. Specialty Generic Drugs: 30-Day Equivalent Prescriptions, 2017-2021

D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	30-Day Equivalents				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	2,794	NA	1,708	1,341	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	3,840	4,165	4,702	5,332	6,183
HIV	Abacavir	Ziagen	Pill	43,283	38,410	31,833	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	52,442	47,635	36,548	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	4,772	3,390	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	30,914	26,548	*	*
HIV	Efavirenz	Sustiva	Pill	NA	14,560	17,454	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	5,847	5,813	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	57,872	51,422	45,168	31,406	28,326
HIV	Lamivudine / Zidovudine	Combivir	Pill	21,090	16,550	12,103	*	*
HIV	Nevirapine	Viramune	Pill	27,641	23,498	18,822	*	*
HIV	Ritonavir	Norvir	Pill	NA	77,828	96,615	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	60,513	72,619	*	*
HIV	Zidovudine	Retrovir	Pill	7,881	6,315	5,024	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	5,723	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	6,405	7,760
Pulm. Hypertension	Sildenafil	Revatio	Pill	291,284	319,003	333,421	335,160	329,740
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	8,057	26,600	31,321	35,186
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	27,096	40,464	50,912
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	26,410
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	23,992	26,446	22,557
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	103,026	123,859
Oncology	Capecitabine	Xeloda	Pill	32,188	34,428	39,229	46,601	51,826
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	55,077	55,249	56,963	65,286	69,694
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	2,529	NA	NA	NA	3,769
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	840	824	485	NA
Transplant	Cyclosporine	Gengraf	Pill	52,332	54,939	60,605	70,608	71,543
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	2,576	2,992	3,965	5,069	5,342
Transplant	Mycophenolate Mofetil	Cellcept	Pill	311,688	354,715	421,846	517,634	556,974
Transplant	Mycophenolic Acid	Myfortic	Pill	43,883	51,685	70,782	102,255	123,952
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	473
Transplant	Sirolimus	Rapamune	Pill	24,084	28,340	33,364	40,979	42,902
Transplant	Tacrolimus	Prograf	Pill	296,127	332,163	390,716	501,395	579,960

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A4. Specialty Generic Drugs: PBM-Affiliated Pharmacy Dispensing Revenue in Excess of NADAC, 2017-2021

A. Commercial Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Dispensing Revenue in Excess of NADAC				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$860,486	NA	-\$4,564	\$62,141	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$11,825,054	\$15,240,228	\$10,401,235	\$10,292,798	\$9,413,093
HIV	Abacavir	Ziagen	Pill	\$1,311,092	\$1,432,972	\$1,120,204	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$8,442,091	\$8,905,747	\$6,205,876	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	-\$406,282	-\$244,763	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$3,907,081	\$3,332,433	*	*
HIV	Efavirenz	Sustiva	Pill	NA	-\$447,515	\$1,730,850	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$7,053	-\$5,862	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$1,308,044	\$1,439,250	\$1,385,862	\$1,141,895	\$919,613
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$3,653,598	\$2,707,421	\$1,644,746	*	*
HIV	Nevirapine	Viramune	Pill	\$1,818,436	\$1,833,828	\$1,465,663	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$678,125	\$2,183,673	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$24,550,484	\$22,087,794	*	*
HIV	Zidovudine	Retrovir	Pill	\$125,706	\$90,918	\$51,526	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$354,068	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epcusa	Pill	NA	NA	NA	\$260,470	-\$99,112
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$19,998,919	\$18,465,705	\$17,333,480	\$20,217,428	\$14,952,252
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$598,206	\$45,125,299	\$38,313,630	\$54,655,869
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$63,767,409	\$61,724,488	\$56,696,886
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$459,739,796
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$97,638,514	\$182,093,560	\$165,111,141
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$173,705,772	\$183,274,644
Oncology	Capecitabine	Xeloda	Pill	\$60,140,847	\$90,580,493	\$101,251,034	\$126,720,025	\$137,407,482
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$143,539,436	\$300,862,423	\$340,124,871	\$319,649,403	\$263,092,033
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$12,586,901	NA	NA	NA	\$23,562,088
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$10,761	-\$5,925	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$812,425	\$1,630,139	\$1,135,450	\$1,012,079	\$1,073,813
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	-\$499,429	-\$14,069	-\$711,085	\$36,496	-\$197,143
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$49,590,636	\$45,996,374	\$42,586,971	\$36,205,581	\$34,881,772
Transplant	Mycophenolic Acid	Myfortic	Pill	\$5,764,467	\$11,600,554	\$24,881,056	\$31,560,532	\$37,388,514
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$257,967
Transplant	Sirolimus	Rapamune	Pill	\$3,143,606	\$6,106,982	\$7,378,275	\$6,689,709	\$4,678,158
Transplant	Tacrolimus	Prograf	Pill	\$60,017,824	\$67,401,124	\$63,233,679	\$33,221,835	\$47,692,896

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A4. Specialty Generic Drugs: PBM-Affiliated Pharmacy Dispensing Revenue in Excess of NADAC, 2017-2021

B. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Dispensing Revenue in Excess of NADAC				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$270,980	NA	\$42,882	\$38,626	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$1,084,681	\$1,101,460	\$807,254	\$996,759	\$877,156
HIV	Abacavir	Ziagen	Pill	\$997,491	\$1,118,326	\$800,262	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$2,074,962	\$1,872,727	\$1,690,649	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$5,710	\$26,024	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$1,559,937	\$767,832	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$52,138	\$1,208,991	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$3,551	\$2,976	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$979,121	\$1,071,970	\$1,115,061	\$1,169,128	\$684,742
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$673,980	\$684,158	\$575,170	*	*
HIV	Nevirapine	Viramune	Pill	\$380,152	\$415,753	\$318,317	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$462,887	\$479,294	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$3,067,415	\$1,327,246	*	*
HIV	Zidovudine	Retrovir	Pill	\$16,272	\$10,990	\$12,413	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	*	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$485,381	\$488,779
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$9,785,588	\$10,868,196	\$8,835,824	\$8,598,434	\$7,465,385
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$523,791	\$27,065,765	\$18,473,171	\$29,875,426
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$35,648,769	\$33,643,669	\$23,172,554
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$66,917,749
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$38,614,049	\$56,138,130	\$45,275,015
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$59,159,937	\$52,233,167
Oncology	Capecitabine	Xeloda	Pill	\$5,002,436	\$6,320,813	\$4,540,940	\$4,262,310	\$3,420,828
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$57,328,443	\$106,779,854	\$91,037,837	\$82,896,760	\$64,475,164
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$367,695	NA	NA	NA	\$468,895
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	*	*	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$579,127	\$741,241	\$589,097	\$798,227	\$562,408
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	-\$20,272	\$31,002	\$41,042	\$83,923	\$87,843
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$3,639,449	\$4,851,322	\$4,936,870	\$5,894,734	\$4,458,983
Transplant	Mycophenolic Acid	Myfortic	Pill	\$775,731	\$1,362,601	\$3,202,581	\$5,238,161	\$5,726,577
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$14,249
Transplant	Sirolimus	Rapamune	Pill	\$734,859	\$1,013,309	\$1,577,651	\$1,619,233	\$1,108,263
Transplant	Tacrolimus	Prograf	Pill	\$5,284,567	\$7,284,270	\$7,920,533	\$7,965,939	\$12,556,381

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A5. Specialty Generic Drugs: Plan Sponsor Billed Amounts per 30-Day Equivalent Prescription, 2017-2021

A. Commercial Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Plan Sponsor Billed Amounts				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$1,116	NA	\$350	\$409	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$3,531	\$3,377	\$3,298	\$3,261	\$2,977
HIV	Abacavir	Ziagen	Pill	\$257	\$246	\$235	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$708	\$577	\$531	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,136	\$1,092	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$975	\$641	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$639	\$577	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$69	\$50	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$177	\$169	\$164	\$164	\$160
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$362	\$313	\$280	*	*
HIV	Nevirapine	Viramune	Pill	\$222	\$208	\$188	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$204	\$143	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$481	\$318	*	*
HIV	Zidovudine	Retrovir	Pill	\$62	\$56	\$46	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$256	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,421	\$7,229
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$253	\$194	\$164	\$183	\$134
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,788	\$2,354	\$2,162	\$2,071
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$1,010	\$956	\$946
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$4,193
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$3,292	\$3,475	\$3,207
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$5,703	\$4,823
Oncology	Capecitabine	Xeloda	Pill	\$2,066	\$1,838	\$1,782	\$1,798	\$1,611
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$7,039	\$6,407	\$5,825	\$5,279	\$4,346
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$2,355	NA	NA	NA	\$2,385
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$167	\$160	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$162	\$149	\$149	\$149	\$151
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$965	\$1,066	\$974	\$1,106	\$984
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$130	\$107	\$105	\$95	\$89
Transplant	Mycophenolic Acid	Myfortic	Pill	\$472	\$427	\$409	\$396	\$387
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,138
Transplant	Sirolimus	Rapamune	Pill	\$522	\$537	\$515	\$491	\$410
Transplant	Tacrolimus	Prograf	Pill	\$181	\$159	\$152	\$134	\$135

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A5. Specialty Generic Drugs: Plan Sponsor Billed Amounts per 30-Day Equivalent Prescription, 2017-2021

B. Commercial Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Plan Sponsor Billed Amounts				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$863	NA	\$336	\$332	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$3,613	\$3,298	\$2,918	\$2,802	\$2,678
HIV	Abacavir	Ziagen	Pill	\$256	\$244	\$221	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$741	\$568	\$474	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,173	\$1,085	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$941	\$668	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$670	\$595	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$62	\$52	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$172	\$158	\$137	\$136	\$136
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$318	\$290	\$244	*	*
HIV	Nevirapine	Viramune	Pill	\$267	\$243	\$213	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$216	\$160	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$439	\$221	*	*
HIV	Zidovudine	Retrovir	Pill	\$27	\$26	\$25	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$230	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,215	\$7,067
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$113	\$78	\$50	\$33	\$23
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,421	\$1,653	\$1,409	\$1,337
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$828	\$590	\$636
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$3,328
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$3,001	\$2,685	\$2,523
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$2,920	\$2,605
Oncology	Capecitabine	Xeloda	Pill	\$1,972	\$1,722	\$1,470	\$1,274	\$1,217
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$6,286	\$4,809	\$3,682	\$3,097	\$2,622
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$2,112	NA	NA	NA	\$1,877
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$184	\$182	\$195	NA
Transplant	Cyclosporine	Gengraf	Pill	\$168	\$151	\$158	\$152	\$146
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,100	\$1,090	\$1,015	\$992	\$938
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$72	\$66	\$65	\$61	\$56
Transplant	Mycophenolic Acid	Myfortic	Pill	\$464	\$420	\$384	\$340	\$322
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,134
Transplant	Sirolimus	Rapamune	Pill	\$517	\$532	\$545	\$510	\$432
Transplant	Tacrolimus	Prograf	Pill	\$128	\$121	\$110	\$107	\$107

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A5. Specialty Generic Drugs: Plan Sponsor Billed Amounts per 30-Day Equivalent Prescription, 2017-2021

C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Plan Sponsor Billed Amounts				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$1,152	NA	\$464	\$488	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$3,546	\$3,183	\$3,443	\$3,713	\$2,721
HIV	Abacavir	Ziagen	Pill	\$291	\$267	\$210	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$605	\$374	\$400	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,190	\$1,168	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$932	\$451	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$676	\$633	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$73	\$65	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$192	\$172	\$170	\$193	\$152
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$262	\$260	\$268	*	*
HIV	Nevirapine	Viramune	Pill	\$193	\$170	\$141	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$218	\$106	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$420	\$134	*	*
HIV	Zidovudine	Retrovir	Pill	\$31	\$30	\$31	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	*	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,963	\$8,071
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$202	\$181	\$135	\$122	\$108
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,797	\$2,195	\$1,494	\$1,505
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$896	\$761	\$619
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$3,654
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$3,919	\$3,999	\$3,860
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$4,033	\$3,145
Oncology	Capecitabine	Xeloda	Pill	\$1,858	\$1,380	\$985	\$891	\$737
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$7,016	\$6,784	\$5,035	\$4,283	\$3,379
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$2,070	NA	NA	NA	\$1,327
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	*	*	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$158	\$142	\$145	\$154	\$141
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$981	\$1,075	\$1,102	\$1,130	\$1,055
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$60	\$63	\$62	\$63	\$56
Transplant	Mycophenolic Acid	Myfortic	Pill	\$450	\$411	\$414	\$391	\$359
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,114
Transplant	Sirolimus	Rapamune	Pill	\$501	\$497	\$501	\$465	\$389
Transplant	Tacrolimus	Prograf	Pill	\$104	\$104	\$107	\$128	\$140

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A5. Specialty Generic Drugs: Plan Sponsor Billed Amounts per 30-Day Equivalent Prescription, 2017-2021

D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Plan Sponsor Billed Amounts				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$619	NA	\$435	\$473	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$3,126	\$2,415	\$2,208	\$2,365	\$2,038
HIV	Abacavir	Ziagen	Pill	\$242	\$233	\$192	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$587	\$309	\$331	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,202	\$1,161	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$944	\$458	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$692	\$651	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$69	\$67	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$167	\$149	\$141	\$173	\$133
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$233	\$212	\$230	*	*
HIV	Nevirapine	Viramune	Pill	\$196	\$184	\$136	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$217	\$127	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$447	\$120	*	*
HIV	Zidovudine	Retrovir	Pill	\$31	\$29	\$31	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$195	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,801	\$7,919
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$78	\$75	\$58	\$53	\$40
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,852	\$1,821	\$1,110	\$1,094
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$691	\$614	\$439
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$3,005
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$3,870	\$3,710	\$3,811
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$2,927	\$2,111
Oncology	Capecitabine	Xeloda	Pill	\$1,591	\$1,325	\$801	\$653	\$615
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$6,448	\$5,609	\$3,222	\$2,548	\$2,226
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$1,811	NA	NA	NA	\$1,100
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$190	\$168	\$232	NA
Transplant	Cyclosporine	Gengraf	Pill	\$161	\$153	\$157	\$158	\$150
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,106	\$1,101	\$1,122	\$1,120	\$1,130
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$62	\$60	\$61	\$61	\$57
Transplant	Mycophenolic Acid	Myfortic	Pill	\$440	\$378	\$340	\$325	\$298
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,118
Transplant	Sirolimus	Rapamune	Pill	\$485	\$469	\$459	\$442	\$388
Transplant	Tacrolimus	Prograf	Pill	\$95	\$85	\$91	\$113	\$109

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A6. Specialty Generic Drugs: Patient Cost Sharing Amounts per 30-Day Equivalent Prescription, 2017-2021

A. Commercial Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Patient Cost Sharing Amounts				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$30	NA	\$24	\$24	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$53	\$58	\$56	\$50	\$59
HIV	Abacavir	Ziagen	Pill	\$15	\$18	\$16	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$24	\$26	\$29	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$33	\$42	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$28	\$30	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$23	\$30	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$6	\$7	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$16	\$19	\$18	\$19	\$18
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$24	\$25	\$25	*	*
HIV	Nevirapine	Viramune	Pill	\$14	\$15	\$13	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$12	\$13	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$33	\$28	*	*
HIV	Zidovudine	Retrovir	Pill	\$8	\$9	\$11	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$22	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$551	\$661
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$13	\$11	\$10	\$10	\$9
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$37	\$73	\$52	\$46
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$39	\$40	\$43
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$163
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$140	\$221	\$285
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$99	\$95
Oncology	Capecitabine	Xeloda	Pill	\$61	\$57	\$50	\$51	\$45
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$85	\$75	\$74	\$68	\$67
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$55	NA	NA	NA	\$69
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$24	\$23	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$15	\$15	\$15	\$16	\$15
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$33	\$31	\$27	\$32	\$35
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$12	\$12	\$12	\$12	\$12
Transplant	Mycophenolic Acid	Myfortic	Pill	\$24	\$23	\$23	\$25	\$25
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$53
Transplant	Sirolimus	Rapamune	Pill	\$23	\$23	\$24	\$26	\$25
Transplant	Tacrolimus	Prograf	Pill	\$15	\$14	\$14	\$14	\$14

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A6. Specialty Generic Drugs: Patient Cost Sharing Amounts per 30-Day Equivalent Prescription, 2017-2021

B. Commercial Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Patient Cost Sharing Amounts				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$31	NA	\$39	\$32	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$59	\$56	\$41	\$38	\$37
HIV	Abacavir	Ziagen	Pill	\$17	\$18	\$18	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$36	\$35	\$32	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$55	\$58	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$37	\$40	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$26	\$38	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$7	\$8	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$15	\$15	\$15	\$17	\$17
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$24	\$25	\$24	*	*
HIV	Nevirapine	Viramune	Pill	\$19	\$17	\$17	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$13	\$15	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$21	\$19	*	*
HIV	Zidovudine	Retrovir	Pill	\$8	\$8	\$9	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$24	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$558	\$684
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$32	\$31	\$26	\$16	\$15
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$49	\$78	\$50	\$52
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$48	\$36	\$30
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$92
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$181	\$216	\$303
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$82	\$93
Oncology	Capecitabine	Xeloda	Pill	\$54	\$61	\$49	\$38	\$34
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$88	\$120	\$78	\$59	\$58
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$66	NA	NA	NA	\$55
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	*	*	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$20	\$28	\$26	NA
Transplant	Cyclosporine	Gengraf	Pill	\$22	\$21	\$20	\$21	\$23
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$37	\$44	\$43	\$44	\$40
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$12	\$12	\$12	\$13	\$13
Transplant	Mycophenolic Acid	Myfortic	Pill	\$23	\$23	\$22	\$24	\$25
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$56
Transplant	Sirolimus	Rapamune	Pill	\$26	\$26	\$27	\$31	\$32
Transplant	Tacrolimus	Prograf	Pill	\$13	\$13	\$13	\$14	\$14

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A6. Specialty Generic Drugs: Patient Cost Sharing Amounts per 30-Day Equivalent Prescription, 2017-2021

C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Patient Cost Sharing Amounts				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$72	NA	\$53	\$67	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$94	\$97	\$119	\$170	\$188
HIV	Abacavir	Ziagen	Pill	\$15	\$13	\$13	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$31	\$24	\$29	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$95	\$103	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$43	\$33	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$54	\$61	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$2	\$5	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$15	\$16	\$15	\$17	\$14
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$19	\$21	\$25	*	*
HIV	Nevirapine	Viramune	Pill	\$14	\$16	\$15	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$5	\$5	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$54	\$23	*	*
HIV	Zidovudine	Retrovir	Pill	\$5	\$6	\$7	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	*	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$396	\$408
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$13	\$14	\$11	\$10	\$10
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$75	\$141	\$76	\$76
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$68	\$56	\$41
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$143
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$257	\$246	\$232
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$310	\$282
Oncology	Capecitabine	Xeloda	Pill	\$208	\$165	\$116	\$89	\$87
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$374	\$338	\$238	\$180	\$153
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$158	NA	NA	NA	\$169
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	*	*	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$30	\$30	\$30	\$29	\$28
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$84	\$71	\$68	\$57	\$69
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$15	\$16	\$16	\$18	\$17
Transplant	Mycophenolic Acid	Myfortic	Pill	\$46	\$44	\$43	\$37	\$36
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$109
Transplant	Sirolimus	Rapamune	Pill	\$48	\$46	\$50	\$47	\$53
Transplant	Tacrolimus	Prograf	Pill	\$18	\$19	\$19	\$19	\$22

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A6. Specialty Generic Drugs: Patient Cost Sharing Amounts per 30-Day Equivalent Prescription, 2017-2021

D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	Patient Cost Sharing Amounts				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$71	NA	\$54	\$60	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$117	\$132	\$131	\$174	\$142
HIV	Abacavir	Ziagen	Pill	\$9	\$7	\$7	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$24	\$13	\$16	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$62	\$57	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$20	\$19	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$32	\$38	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$2	\$3	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$10	\$9	\$9	\$9	\$8
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$13	\$14	\$19	*	*
HIV	Nevirapine	Viramune	Pill	\$14	\$13	\$13	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$3	\$4	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$31	\$12	*	*
HIV	Zidovudine	Retrovir	Pill	\$3	\$3	\$4	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$7	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$346	\$347
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$15	\$14	\$11	\$9	\$8
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$76	\$105	\$60	\$57
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$51	\$43	\$31
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$133
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$191	\$240	\$220
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$278	\$230
Oncology	Capecitabine	Xeloda	Pill	\$171	\$153	\$100	\$83	\$82
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$337	\$281	\$186	\$142	\$150
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$156	NA	NA	NA	\$147
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	*
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$24	\$23	\$23	NA
Transplant	Cyclosporine	Gengraf	Pill	\$30	\$27	\$27	\$25	\$25
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$49	\$54	\$48	\$52	\$59
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$14	\$13	\$13	\$14	\$14
Transplant	Mycophenolic Acid	Myfortic	Pill	\$41	\$40	\$37	\$34	\$35
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$67
Transplant	Sirolimus	Rapamune	Pill	\$49	\$47	\$48	\$44	\$46
Transplant	Tacrolimus	Prograf	Pill	\$15	\$14	\$14	\$15	\$16

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A7. Specialty Generic Drugs: NADAC per 30-Day Equivalent Prescription, 2017-2021

A. Commercial Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	NADAC				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$736	NA	\$377	\$377	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$2,036	\$1,517	\$1,476	\$1,199	\$827
HIV	Abacavir	Ziagen	Pill	\$111	\$71	\$48	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$312	\$104	\$77	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,263	\$1,202	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$626	\$273	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$704	\$386	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	EpiVir	Oral Liquid	\$64	\$64	NA	*	*
HIV	Lamivudine	EpiVir, EpiVir HBV	Pill	\$87	\$67	\$54	\$51	\$56
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$90	\$72	\$70	*	*
HIV	Nevirapine	Viramune	Pill	\$128	\$93	\$65	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$180	\$72	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$148	\$33	*	*
HIV	Zidovudine	Retrovir	Pill	\$18	\$22	\$19	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$99	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,913	\$7,913
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$17	\$11	\$9	\$8	\$6
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,746	\$172	\$51	\$38
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$113	\$75	\$69
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$206
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$1,704	\$1,564	\$1,484
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$734	\$257
Oncology	Capecitabine	Xeloda	Pill	\$912	\$402	\$273	\$178	\$50
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$4,439	\$1,367	\$358	\$239	\$144
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$1,236	NA	NA	NA	\$188
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$166	\$188	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$153	\$133	\$141	\$141	\$142
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,113	\$1,069	\$1,095	\$1,067	\$1,002
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$28	\$28	\$32	\$32	\$30
Transplant	Mycophenolic Acid	Myfortic	Pill	\$412	\$333	\$212	\$156	\$120
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,050
Transplant	Sirolimus	Rapamune	Pill	\$464	\$442	\$401	\$387	\$350
Transplant	Tacrolimus	Prograf	Pill	\$39	\$29	\$33	\$77	\$54

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A7. Specialty Generic Drugs: NADAC per 30-Day Equivalent Prescription, 2017-2021

B. Commercial Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	NADAC				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$733	NA	\$377	\$377	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$2,036	\$1,517	\$1,477	\$1,196	\$826
HIV	Abacavir	Ziagen	Pill	\$112	\$71	\$48	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$293	\$104	\$77	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,263	\$1,202	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$624	\$268	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$700	\$386	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	Epivir	Oral Liquid	\$64	\$64	NA	*	*
HIV	Lamivudine	Epivir, Epivir HBV	Pill	\$83	\$64	\$50	\$47	\$55
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$90	\$72	\$71	*	*
HIV	Nevirapine	Viramune	Pill	\$160	\$115	\$79	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$177	\$72	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$144	\$33	*	*
HIV	Zidovudine	Retrovir	Pill	\$18	\$22	\$19	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$107	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,913	\$7,913
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$17	\$11	\$9	\$8	\$6
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,746	\$221	\$51	\$38
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$113	\$75	\$69
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$208
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$1,704	\$1,562	\$1,485
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$726	\$257
Oncology	Capecitabine	Xeloda	Pill	\$909	\$408	\$271	\$177	\$50
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$4,431	\$1,353	\$355	\$238	\$145
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$1,236	NA	NA	NA	\$188
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$166	\$188	\$200	NA
Transplant	Cyclosporine	Gengraf	Pill	\$164	\$148	\$163	\$162	\$159
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,113	\$1,069	\$1,095	\$1,067	\$1,002
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$28	\$28	\$32	\$32	\$30
Transplant	Mycophenolic Acid	Myfortic	Pill	\$411	\$333	\$212	\$156	\$120
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,050
Transplant	Sirolimus	Rapamune	Pill	\$457	\$442	\$405	\$392	\$358
Transplant	Tacrolimus	Prograf	Pill	\$42	\$31	\$34	\$79	\$55

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A7. Specialty Generic Drugs: NADAC per 30-Day Equivalent Prescription, 2017-2021

C. Medicare Part D Prescriptions at PBM-Affiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	NADAC				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$737	NA	\$377	\$377	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$2,036	\$1,517	\$1,476	\$1,199	\$827
HIV	Abacavir	Ziagen	Pill	\$110	\$71	\$48	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$314	\$104	\$77	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,263	\$1,202	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$626	\$274	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$704	\$386	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	EpiVir	Oral Liquid	\$64	\$64	NA	*	*
HIV	Lamivudine	EpiVir, EpiVir HBV	Pill	\$89	\$68	\$54	\$51	\$56
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$90	\$72	\$70	*	*
HIV	Nevirapine	Viramune	Pill	\$115	\$88	\$64	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$180	\$72	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$148	\$33	*	*
HIV	Zidovudine	Retrovir	Pill	\$18	\$22	\$19	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	*	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,913	\$7,913
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$17	\$11	\$9	\$8	\$6
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,746	\$191	\$51	\$38
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$113	\$75	\$69
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$207
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$1,704	\$1,563	\$1,484
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$736	\$257
Oncology	Capecitabine	Xeloda	Pill	\$912	\$406	\$272	\$178	\$50
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$4,376	\$1,413	\$360	\$235	\$154
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$1,236	NA	NA	NA	\$188
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	*	*	*	NA
Transplant	Cyclosporine	Gengraf	Pill	\$146	\$127	\$141	\$140	\$135
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,113	\$1,069	\$1,095	\$1,067	\$1,002
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$28	\$28	\$33	\$33	\$31
Transplant	Mycophenolic Acid	Myfortic	Pill	\$410	\$331	\$211	\$155	\$120
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,050
Transplant	Sirolimus	Rapamune	Pill	\$450	\$432	\$387	\$372	\$332
Transplant	Tacrolimus	Prograf	Pill	\$36	\$26	\$30	\$72	\$49

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Figure A7. Specialty Generic Drugs: NADAC per 30-Day Equivalent Prescription, 2017-2021

D. Medicare Part D Prescriptions at Unaffiliated Pharmacies

Therapeutic Class	Drug Name	Brand Equivalent	Formulation	NADAC				
				2017	2018	2019	2020	2021
Acromegaly	Octreotide	Sandostatin	Injectable	\$686	NA	\$377	\$377	NA
Anticoagulation	Enoxaparin	Lovenox	Injectable	*	*	*	*	*
Anticoagulation	Fondaparinux	Arixtra	Injectable	*	*	*	*	*
Cardiac Disorder	Dofetilide	Tikosyn	Pill	*	*	*	*	*
Cystic Fibrosis	Tobramycin	Bethkis, Tobi	Inhaler	\$2,036	\$1,517	\$1,477	\$1,197	\$826
HIV	Abacavir	Ziagen	Pill	\$112	\$71	\$48	*	*
HIV	Abacavir / Lamivudine	Epzicom	Pill	\$294	\$104	\$77	*	*
HIV	Abacavir / Lamivudine / Zidovudine	Trizivir	Pill	\$1,263	\$1,202	NA	NA	NA
HIV	Atazanavir	Reyataz	Pill	NA	\$618	\$268	*	*
HIV	Efavirenz	Sustiva	Pill	NA	\$700	\$386	*	*
HIV	Efavirenz / Emtricitabine / Tenofovir Disoproxil	Atripla	Pill	NA	NA	NA	*	*
HIV	Emtricitabine / Tenofovir Disoproxil	Truvada	Pill	NA	NA	NA	*	*
HIV	Etravirine	Intelence	Pill	NA	NA	NA	NA	NA
HIV	Lamivudine	EpiVir	Oral Liquid	\$64	\$64	NA	*	*
HIV	Lamivudine	EpiVir, EpiVir HBV	Pill	\$89	\$68	\$55	\$55	\$60
HIV	Lamivudine / Zidovudine	Combivir	Pill	\$90	\$72	\$71	*	*
HIV	Nevirapine	Viramune	Pill	\$131	\$99	\$70	*	*
HIV	Ritonavir	Norvir	Pill	NA	\$177	\$72	*	*
HIV	Tenofovir Disoproxil	Viread	Pill	NA	\$146	\$33	*	*
HIV	Zidovudine	Retrovir	Pill	\$18	\$22	\$19	*	*
Hepatitis	Adefovir	Hepsera	Pill	*	*	*	NA	NA
Hepatitis	Entecavir	Baraclude	Pill	*	*	*	*	*
Hepatitis	Ribavirin	Moderiba, Rebetol	Pill	\$101	NA	NA	NA	NA
Hepatitis	Sofosbuvir / Velpatasvir	Epclusa	Pill	NA	NA	NA	\$7,913	\$7,913
Pulm. Hypertension	Sildenafil	Revatio	Pill	\$17	\$11	\$9	\$8	\$6
Pulm. Hypertension	Tadalafil	Adcirca	Pill	NA	\$2,746	\$214	\$51	\$38
Infertility	Progesterone	None	Injectable	*	*	*	*	*
Iron Overload	Deferasirox	Jadenu	Pill	NA	NA	NA	NA	NA
Multiple Sclerosis	Dalfampridine	Ampyra	Pill	NA	NA	\$113	\$75	\$69
Multiple Sclerosis	Dimethyl Fumarate	Tecfidera	Pill	NA	NA	NA	NA	\$208
Multiple Sclerosis	Glatiramer	Copaxone	Injectable	NA	NA	\$1,704	\$1,559	\$1,486
Neurological Disorder	Riluzole	Rilutek	Pill	NA	NA	NA	*	NA
Oncology	Abiraterone	Zytiga	Pill	NA	NA	NA	\$726	\$257
Oncology	Capecitabine	Xeloda	Pill	\$908	\$408	\$271	\$178	\$50
Oncology	Everolimus	Afinitor, Zortress	Pill	NA	NA	NA	NA	NA
Oncology	Fluorouracil	Efudex	Topical	*	NA	NA	NA	NA
Oncology	Imatinib	Gleevec	Pill	\$4,395	\$1,390	\$357	\$235	\$154
Oncology	Mercaptopurine	Purinethol	Pill	*	*	*	NA	NA
Oncology	Methotrexate	None	Injectable	*	*	*	*	*
Oncology	Temozolomide	Temodar	Pill	\$1,236	NA	NA	NA	\$188
Osteoporosis	Teriparatide	Forteo	Injectable	NA	NA	NA	NA	NA
Renal Disease	Cinacalcet	Sensipar	Pill	NA	NA	*	*	*
Transplant	Azathioprine	Azasan, Imuran	Pill	*	*	*	*	*
Transplant	Cyclosporine	Gengraf	Oral Liquid	NA	\$166	\$188	\$200	NA
Transplant	Cyclosporine	Gengraf	Pill	\$155	\$139	\$150	\$148	\$147
Transplant	Mycophenolate Mofetil	Cellcept	Oral Liquid	\$1,113	\$1,069	\$1,095	\$1,067	\$1,002
Transplant	Mycophenolate Mofetil	Cellcept	Pill	\$28	\$28	\$32	\$32	\$30
Transplant	Mycophenolic Acid	Myfortic	Pill	\$401	\$325	\$206	\$153	\$119
Transplant	Sirolimus	Rapamune	Oral Liquid	NA	NA	NA	NA	\$1,050
Transplant	Sirolimus	Rapamune	Pill	\$455	\$431	\$388	\$372	\$338
Transplant	Tacrolimus	Prograf	Pill	\$38	\$28	\$32	\$76	\$53

* Figures redacted for drugs not dispensed by all Big 3 PBMs as specialty pursuant to Section 6 of the FTC Act. 15 U.S.C. § 46(f).

Appendix B. Methods for decomposing growth

PBM i 's net dispensing revenues in excess of NADAC for drug j in year t are given by:

$$y_{ijt} = (p_{ijt} - c_{ijt}) * q_{ijt}$$

where p_{ijt} is i 's reimbursement rate, c_{ijt} is i 's per unit cost (according to NADAC), and q_{ijt} is i 's quantity dispensed.

Defining $\mu_{ijt} = p_{ijt} - c_{ijt}$ as PBM i 's dispensing margin for drug j in year t , we can rewrite the above equation as,

$$y_{ijt} = \mu_{ijt} * q_{ijt}$$

- Total net dispensing revenues in excess of NADAC for PBM i in year t are given by $Y_{it} = \sum_{j \in J_{it}} y_{ijt}$. (the PBM sells the set of drugs J_{it})
- Total net dispensing revenues in excess of NADAC for all PBMs in year t are given by $Y_t = \sum_i Y_{it}$.

We want to know $Y_{\bar{t}} - Y_{\underline{t}}$. For now, focus on a single PBM $Y_{\bar{t}i} - Y_{\underline{t}i}$:

$$Y_{\bar{t}i} - Y_{\underline{t}i} = \sum_{j \in J_{i\bar{t}}} y_{ij\bar{t}} - \sum_{j \in J_{i\underline{t}}} y_{ij\underline{t}} = \sum_{j \in J_{i\bar{t}}} \mu_{ij\bar{t}} * q_{ij\bar{t}} - \sum_{j \in J_{i\underline{t}}} \mu_{ij\underline{t}} * q_{ij\underline{t}}$$

Define $\tilde{J}_i$ as the set of products sold by PBM i in both $\bar{t}$ and $\underline{t}$. Add and subtract net dispensing revenues in excess of NADAC at year $\underline{t}$ margins and year $\bar{t}$ quantities:

$$\begin{aligned} &= \sum_{j \in J_{i\bar{t}}} \mu_{ij\bar{t}} * q_{ij\bar{t}} + \sum_{j \in \tilde{J}_i} \mu_{ij\underline{t}} * q_{ij\bar{t}} - \sum_{j \in J_{i\underline{t}}} \mu_{ij\underline{t}} * q_{ij\underline{t}} - \sum_{j \in \tilde{J}_i} \mu_{ij\underline{t}} * q_{ij\bar{t}} \\ &= \sum_{j \notin J_{i\bar{t}}} \mu_{ij\bar{t}} * q_{ij\bar{t}} - \sum_{j \notin J_{i\underline{t}}} \mu_{ij\underline{t}} * q_{ij\underline{t}} + \sum_{j \in \tilde{J}_i} (\mu_{ij\bar{t}} - \mu_{ij\underline{t}}) * q_{ij\bar{t}} + \sum_{j \in \tilde{J}_i} \mu_{ij\underline{t}} * (q_{ij\bar{t}} - q_{ij\underline{t}}) \end{aligned}$$

This has a simple interpretation:

- Change in i 's net dispensing revenues in excess of NADAC coming from entry and exit of products: $\Delta Y_{iJ} = \sum_{j \notin \tilde{J}_i} \mu_{ij\bar{t}} * q_{ij\bar{t}} - \sum_{j \notin \tilde{J}_i} \mu_{ij\underline{t}} * q_{ij\underline{t}}$
- Change in i 's net dispensing revenues in excess of NADAC coming from change in quantities of drugs sold the whole time: $\Delta Y_{iQ} = \sum_{j \in \tilde{J}_i} \mu_{ij\underline{t}} * (q_{ij\bar{t}} - q_{ij\underline{t}})$
- Change in i 's net dispensing revenues in excess of NADAC coming from change in the dispensing margin of drugs sold the whole time: $\Delta Y_{iM} = \sum_{j \in \tilde{J}_i} (\mu_{ij\bar{t}} - \mu_{ij\underline{t}}) * q_{ij\bar{t}}$

So, we can rewrite:

$$Y_{\bar{t}i} - Y_{\underline{t}i} = \Delta Y_{iJ} + \Delta Y_{iQ} + \Delta Y_{iM}$$

We can sum over all PBMs:

$$Y_{\bar{t}} - Y_{\underline{t}} = \sum_i \Delta Y_{iJ} + \Delta Y_{iQ} + \Delta Y_{iM}$$

Empirical Application

To operationalize our decomposition of net dispensing revenues in excess of NADAC from 2017–2021 in Figure 6, we implement a rolling window approach on an annual basis. That is, to decompose the cumulative change in net dispensing revenues in excess of NADAC between 2017 and 2021, we calculate each component of $Y_{\bar{t}i} - Y_{\underline{t}i}$ annually:

$$Y_{t,i} - Y_{t-1,i} = \Delta Y_{ti} = \Delta Y_{tiJ} + \Delta Y_{tiQ} + \Delta Y_{tiM}$$

where t is the current year and $t - 1$ is the prior year.

Then, we sum over time to obtain the cumulative change over the 2017–2021 period:

$$Y_{2021,i} - Y_{2017,i} = \sum_i \sum_t \Delta Y_{tiJ} + \Delta Y_{tiQ} + \Delta Y_{tiM}$$

Further Decomposition of Drug Entry and Exit

In Figure 6, we further decompose the change in net dispensing revenues in excess of NADAC from 2017–2021 attributable to the entry and exit of drugs into categories of drugs by magnitude of their markups. To do this, we categorize drugs into the following discrete buckets of markup size based on their average markup over the 2017–2021 period: <10%, 10%–100%, 100%–1,000%, >1,000% (this breakdown also corresponds to the categorization of drugs in Figure 1). Then, having categorized drugs by their markup size, we can decompose the total change in net dispensing revenues in excess of NADAC attributable to entry and exit of products by drug category d :

$$\begin{aligned} \Delta Y_{iJ} &= \sum_{j \notin \tilde{J}_i} \mu_{ij\bar{t}} * q_{ij\bar{t}} - \sum_{j \notin \tilde{J}_i} \mu_{ij\underline{t}} * q_{ij\underline{t}} \\ \Delta Y_{iJ} &= \sum_d \Delta Y_{iJd} = \sum_d \sum_{j \notin \tilde{J}_i} \mu_{ij\bar{t}d} * q_{ij\bar{t}d} - \sum_d \sum_{j \notin \tilde{J}_i} \mu_{ij\underline{t}d} * q_{ij\underline{t}d} \end{aligned}$$