The Pharmaceutical Supply Chain, 2013–2020

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Executive Summary

The flow of dollars in the pharmaceutical marketplace within the US healthcare system involves a variety of stakeholders and a myriad of rebates, discounts, fees, and other payments. In recent years, renewed focus on prescription medicine spending has triggered calls for greater visibility into the distribution and payment process. Against this backdrop, the market has experienced enhanced competition, resulting in higher rebates from pharmaceutical manufacturers to pharmacy benefit managers (PBMs) and payers. The goal of this paper is to bring greater clarity to the drug distribution and payment processes and estimate the share of total prescription medicine spending realized by pharmaceutical manufacturers and other stakeholders in the supply chain.

We first look at total gross drug expenditures, defined as the sum of all payments for retail and nonretail brand and generic medicines made by patients and their health plans at the point of sale (e.g., pharmacy, hospital outpatient department) prior to any payments provided by pharmaceutical manufacturers. We then take a closer look at brand medicine spending at the point of sale to determine the share of spending received by stakeholders in the supply chain.

The analysis makes it possible to measure prescription drug spending by consumers, health plans, government payers, and employers, and the portion thereof realized by manufacturer and nonmanufacturer stakeholders. Key findings include:

- Brand manufacturers retain just 37 percent of total spending on all prescription medicines (brand and generic medicines).
- For brand medicines, manufacturers retain just half (49.5 percent) of total spending.
- The share of total brand spending retained by manufacturers fell by more than 17 percentage points from 2013 to 2020.
- 2020 marks the first year on record where nonmanufacturer stakeholders—including PBMs, health plans, hospitals, the government, pharmacies, and others—received the majority of total spending on brand medicines.
- Payers—including insurers/plan sponsors, the government, and PBMs—received the largest portion (35 percent) of new spending on brand medicines between 2019 and 2020.
- The amount of brand spending received by pharmacies and providers participating in the 340B Drug Discount Program increased by a factor of 12 between 2013 and 2020.

This report builds on previous work conducted by Berkeley Research Group (BRG) professionals published in 2017 and 2020.[1,2] Our latest findings show that many of the same market dynamics first observed in the previous publications have continued and even intensified in recent years.

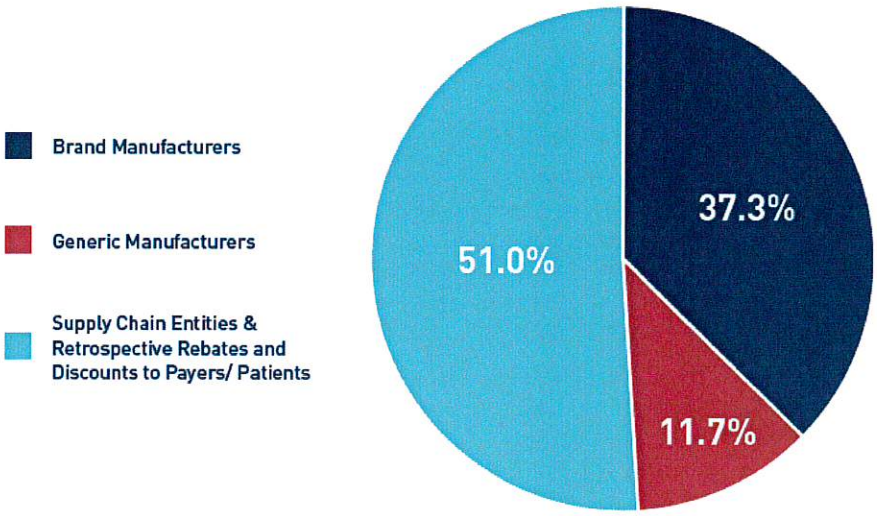
The goal of this paper is to bring greater clarity to the drug distribution and payment processes and estimate the share of total prescription medicine spending realized by pharmaceutical manufacturers and other stakeholders in the supply chain.

Key Findings

Total Gross Drug Expenditures

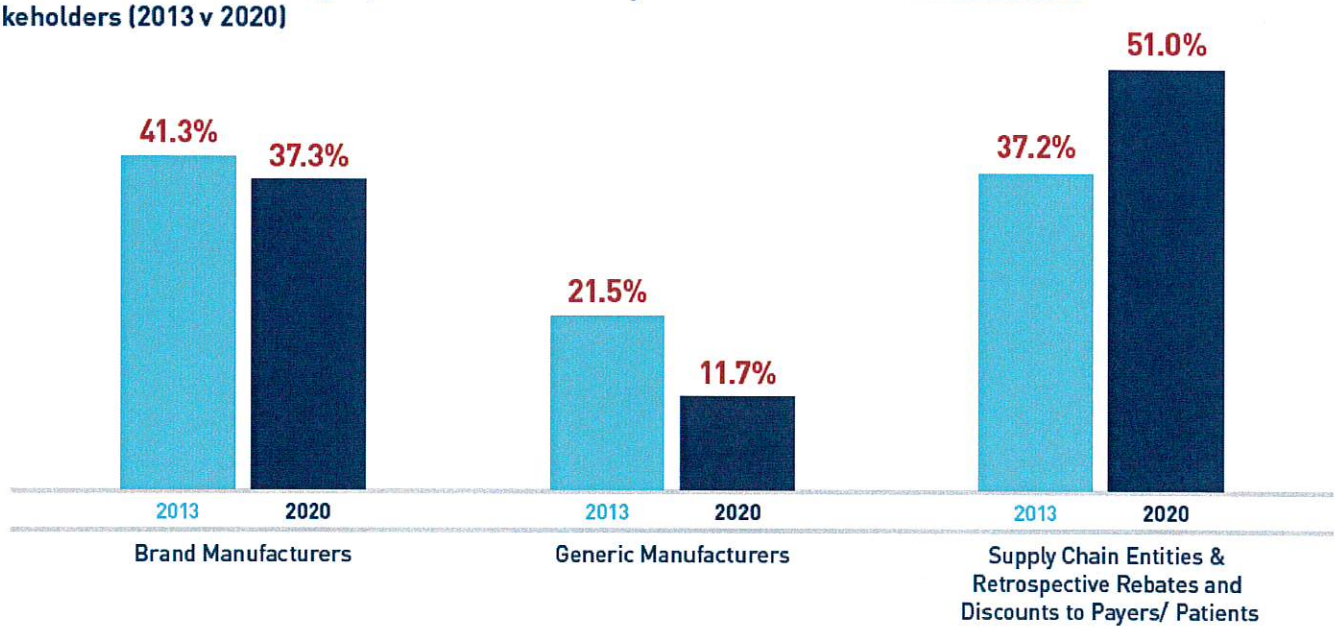
Total spending on retail and nonretail brand and generic prescription medicines reached $686.9 billion in 2020. Of this total, brand manufacturers received 37.3 percent, generic manufacturers received 11.7 percent, and supply chain and other stakeholders received the remaining 51.0 percent.

FIGURE 1. Share of Gross Drug Expenditures Realized by Manufacturer and Nonmanufacturer Stakeholders (2020)



The share of total gross drug expenditures realized by brand manufacturers has declined compared to previous years (from 41 percent in 2013 to 37 percent in 2020), while the share realized by nonmanufacturer stakeholders has increased.

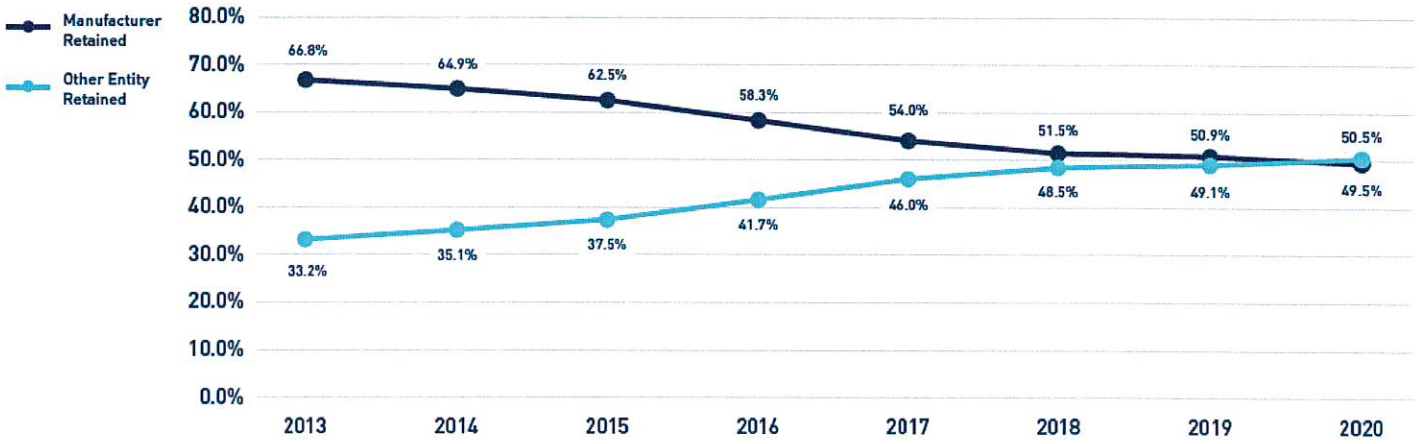
FIGURE 2. Share of Gross Drug Expenditures Realized by Manufacturer and Nonmanufacturer Stakeholders (2013 v 2020)



Total Gross Expenditures for Brand Medicines

nce 2013, the share of total gross expenditures for brand medicines retained by pharmaceutical manufacturers has steadily declined as others in the pharmaceutical supply chain—including PBMs, hospitals, the government, pharmacies, insurers, and other payers—have received an increasing share of total spending. In 2020, pharmaceutical manufacturers retained 49.5 percent of total spending on brand medicines, a decrease of 17 percentage points from 2013, the first year the analysis was conducted. In fact, 2020 marks the first year on record where the companies that researched, developed, and manufactured the brand medicines received less than half of total spending on those medicines.

FIGURE 3. Total Gross Expenditures for Brand Medicines Received by Manufacturers and Other Stakeholders (2013-2020)

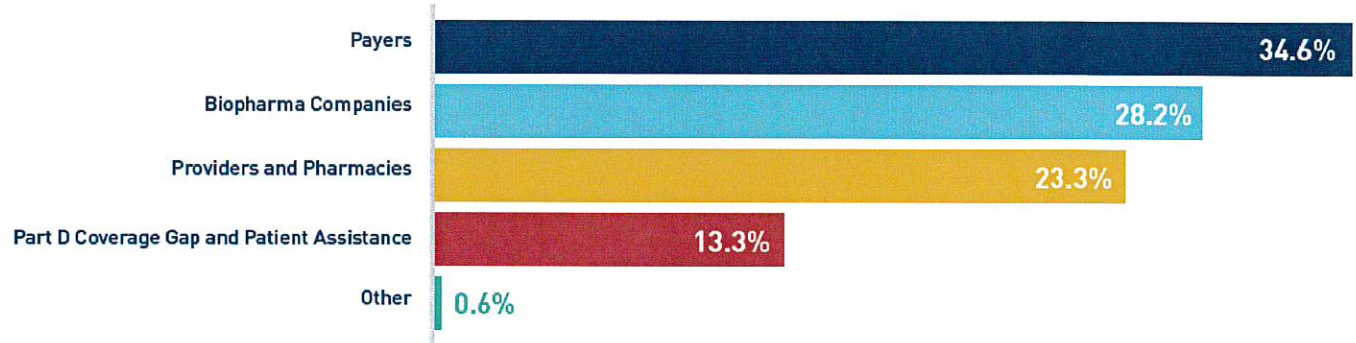


Over the study period, total gross expenditures for brand medicines nearly doubled, from $268 billion n 2013 to $517 billion in 2020. Of this total increase ($249 billion), brand manufacturers received 31 percent while nonmanufacturer stakeholders received 69 percent.

From 2019 to 2020, total gross expenditures on brand medicines increased by 6.4 percent ($31 billion). Growth was driven primarily by increases in payers' statutory and negotiated rebates and fees.

Supply chain and other stakeholders have received an increasing share of brand medicine spending growth in recent years. Continuing a trend first noted in our last publication, payers (including insurers, plan sponsors, the government, and PBMs) received the largest portion (35 percent) of the increase in brand medicine spending between 2019 and 2020. Providers (including physicians' offices, hospitals, and pharmacies) received nearly the same share as the pharmaceutical manufacturers that researched and produced the medicines: 23 percent and 28 percent of the increase in spending on brand medicines between 2019 and 2020, respectively.

FIGURE 4. Increase in Total Gross Expenditures for Brand Medicines Between 2019 and 2020



*Payers include health plans, PBMs, federal and state governments, and employer groups
*Other includes wholesaler margin, excise fees, and GPO adminstrative fees

Growing Impact of the 340B Program

Congress created the 340B Drug Discount Program in 1992 to provide vulnerable patients with continued access to medicines at safety-net hospitals and certain clinics. The program requires manufacturers to pay qualifying hospitals and clinics deep outpatient drug discounts that average about 59 percent off list price and, in some cases, bring the price of a medicine down to just a penny. During the program's operation, sales have grown exponentially; the 340B program is now the second-largest federal prescription drug program, behind only Medicare Part D.[3,4] With large profit margins possible due to steep manufacturer discounts, the 340B program has evolved to financially favor large health systems, for-profit pharmacies, and their affiliated PBMs.

Pharmacies and 340B providers, including hospitals, clinics, and hospital outpatient departments, increasingly are leveraging the 340B program to increase profits on the sale and administration of brand medicines. These entities obtain 340B margins by receiving reimbursement from payers at an amount higher than the discounted 340B price the entity pays to acquire the medicine. The analysis found that 340B margins account for 52 percent of all revenue received by US pharmacies and providers (both 340B and non-340B entities) from the sale of brand medicines—up from 14 percent in 2013. In fact, 340B providers and their contract pharmacies have seen margins on brand medicines increase by a factor of 12 since 2013.

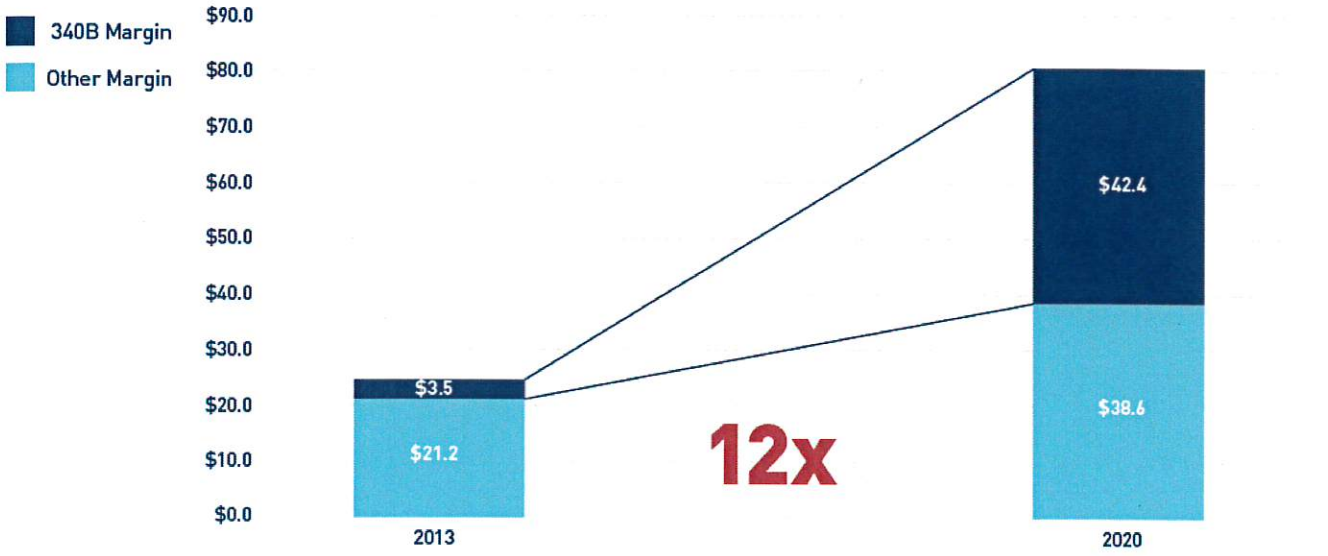
Two separate program trends have helped contribute to this rapid growth. First, 340B providers have expanded 340B sales through both new enrollments and increased hospital outpatient facility ("child site") registrations. Between 2013 and 2020, over 30,900 locations registered with the Health Resources and Services Administration's (HRSA) Office of Pharmacy Affairs Information System (OPAIS) covered entities database, with 73 percent of the growth due to child-site registrations.[5]

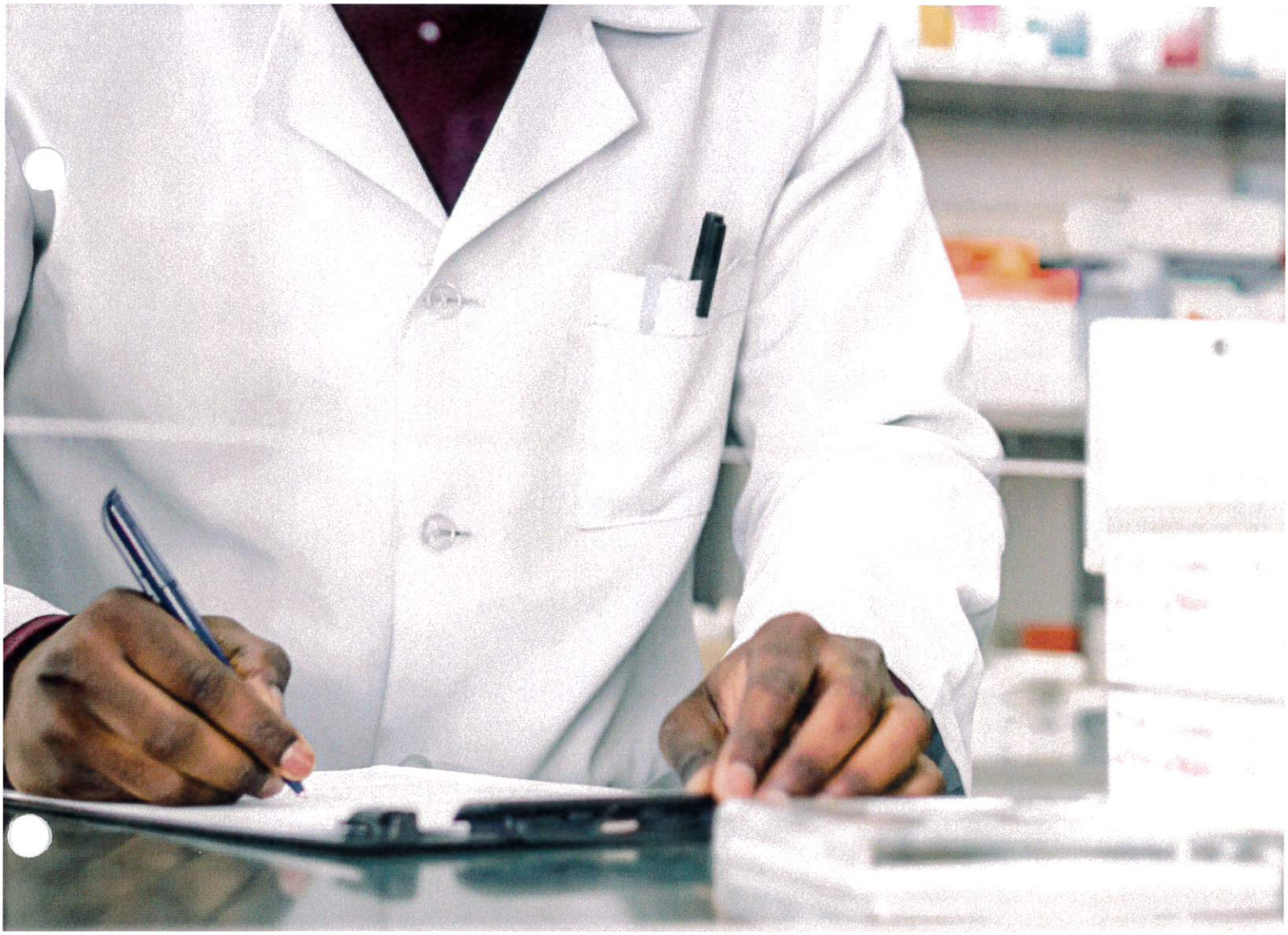
Second, HRSA issued guidance in 2010 allowing all 340B providers, even those with their own pharmacies on site, to contract with an unlimited number of third-party pharmacies. This change dramatically increased the role of for-profit pharmacies and other third parties in what had previously been a program limited to nonprofit providers. Following HRSA's expansion of the contract pharmacy program in March 2010, participation grew a staggering 4,228 percent between April 2010 and April 2020.[6]

From 2013 to 2020, over 94,600 contract pharmacy relationships were established,[7] contributing to the growth in 340B pharmacy and provider margins on brand medicines. The 2010 guidance created an opportunity for for-profit pharmacy chains to realize larger margins. For example, previous research determined that 340B contract pharmacies enjoy a 72 percent profit margin on commonly dispensed 340B medicines, compared with a 22 percent profit margin for non-340B medicines dispensed through independent pharmacies.[8] Using vertically integrated supply chains consisting of pharmacies, PBMs, and health plans, for-profit corporations have sought to leverage their market power to drive growth in the 340B program and capture greater profits related to 340B sales.

Pharmacies and 340B providers, including hospitals, clinics, and hospital outpatient departments, increasingly are leveraging the 340B program to increase profits on the sale and administration of brand medicines.

FIGURE 5. Total US Pharmacy and Provider Gross Margin from 340B and Non-340B Sales of Brand Medicines ($B)





Discussion

Negotiated rebates and discounts have continued to grow in recent years, increasing gross drug expenditures but reducing net spending to the health plans and PBMs that receive these payments. In addition, Medicaid rebate payments approximately doubled between 2014 and 2020, reducing gross Medicaid spending by 40 percent to 55 percent each year.[9]

Rebates and discounts have offset observed list price growth and kept net price growth in line with or below the rate of inflation over the past five years.[10] However, this dynamic may be increasing costs for patients with deductibles and coinsurance, who often pay cost sharing based on the undiscounted list prices of brand medicines rather than the lower net costs paid by their health plan.

The difference between gross medicine spending and net manufacturer revenue also is attributable to an increase in manufacturer spending to offset patient costs via Medicare Part D coverage gap discounts and cost-sharing assistance in the commercial market. In 2019, the Part D standard benefit design was changed to shift more of the costs of medicines for beneficiaries in the coverage gap onto pharmaceutical manufacturers, which now pay 70 percent of prescription drug costs in the coverage gap. As a result of this policy change, coupled with a growing Part D population, Medicare coverage gap discounts have tripled in the last three years.

Topline growth in pharmaceutical expenditures masks the factors in the pharmaceutical supply chain that lead to higher point-of-sale costs. Brand manufacturers retain a shrinking share of brand medicine expenditures each year, and more than half of total spending on brand medicines now flows to nonmanufacturer supply chain stakeholders, primarily payers, providers, and the government. These trends are expected to continue for the foreseeable future in the absence of legislation or regulation to reform the pharmaceutical supply chain.

Appendix

Table A1. Total Gross Drug Expenditures by Component (in billions)

Component	2013	2014	2015	2016	2017	2018	2019	2020
Brand Manufacturers	179.5	201.3	221.4	223.6	220.4	232.8	247.6	256.3
Generic Manufacturers	93.5	105.3	107.6	95.6	86.0	81.0	81.8	80.5
Supply Chain Entities and Retrospective Rebates and Discounts to Payers/Patients	161.7	193.9	244.7	277.7	299.7	325.7	341.3	350.1

Table A2. Gross Expenditures for Brand Drugs by Component (in billions)

Component Type	Component	2013	2014	2015	2016	2017	2018	2019	2020
Statutory Rebates and Fees	Medicaid Drug Rebate Program	15.6	18.4	21.9	27.1	30.4	33.6	32.3	34.1
	Medicare Part D Coverage Gap Discount Payments	4.3	5.1	5.8	5.8	7.0	8.5	14.5	17.6
	TRICARE Rebates and Federal Supply Schedule Discounts	3.5	4.6	4.7	4.4	4.6	4.9	5.0	4.9
	Excise Fee on Brand Manufacturers	2.8	3.0	3.0	3.0	4.0	4.1	2.8	2.8
Market Access Rebates and Discounts	Negotiated Health Plan and PBM Rebates and Fees	31.2	42.1	54.9	59	67.4	81.9	93.1	102.1
	Patient Cost-Sharing Assistance	4.2	5.4	6.9	8.7	10.6	12.9	12.9	13.9
Supply Chain Entities	Pharmacy/Provider Margin	24.7	27.2	31.7	48.1	59.4	69.1	73.8	81.0
	340B	3.5	4.5	6.5	12.9	21.9	30.6	35.1	42.4
	Non-340B	21.2	22.7	25.2	35.2	37.5	38.5	38.7	38.6
	Wholesaler Margin	2.3	2.7	3.1	3.2	3.4	3.8	4.0	4.2
	GPO Administrative Fees	0.6	0.6	0.7	0.6	0.6	0.6	0.7	0.7

Component	2013	2014	2015	2016	2017	2018	2019	2020
Net Amount Realized by Brand Manufacturer ($)	179.5	201.3	221.4	223.6	220.4	232.8	247.6	256.3
Net Amount Realized by Brand Manufacturer (%)	66.8%	64.9%	62.5%	58.3%	54.0%	51.5%	50.9%	49.5%
Total Spending on Brand Medicines	268.7	310.2	354.2	383.6	407.8	452.1	486.6	517.5

Methodology and Data Sources Considered

In preparing this study update, we relied almost exclusively on the methodology used in the 2020 study. The original publication includes a detailed methodology section that can be referenced here.[11] In certain instances, we elected to update our methodology to reflect new information gathered over the prior two years (2020–2021) or to address deficiencies in data available to us. Additional information on these methodological updates is provided below.

New Data Sources

- IQVIA's 2020 *Use of Medicines* patient assistance figures now include an estimate of direct vouchers provided to patients by manufacturers, which are used more frequently due to use of copay accumulators/maximizers.
- BRG has received updated metrics from IQVIA for years 2016 to 2020 to estimate the wholesaler acquisition cost of drugs based on the non-discounted spend metric available in IQVIA's *Use of Medicines* report.

Category	Component	Updated Source
Market Access Rebates and Discounts	Patient Cost Sharing Assistance	IQVIA Use of Medicines copay coupon figures began including manufacturer voucher programs starting with 2020 publication
Supply Chain Discounts	Provider Margin	Factors to convert non-discounted spend to reimbursement are updated, including historic figures, from 2016 to 2020 utilizing direct update from IQVIA

Endnotes

1 Aaron Vandervelde and Eleanor Blalock, *The Pharmaceutical Supply Chain: Gross Drug Expenditures Realized by Stakeholders*, BRG white paper (January 17, 2017) and *Addendum* (2020). https://ecommunications.thinkbrg.com/44/1664/uploads/vandervelde-phrma-january-2020.3.3-addendum-clean.pdf

2 Aaron Vandervelde and Andrew Brownlee, *Revisiting the Pharmaceutical Supply Chain: 2013–2018*, BRG white paper (January 9, 2020). https://ecommunications.thinkbrg.com/44/1613/uploads/vandervelde-pharmaceutical-supply-chain-2020-final-cleaned.pdf

3 BRG estimate of average 340B discount.

4 Aaron Vandervelde, *Measuring the Relative Size of the 340B Program: 2018 Update*, BRG white paper (June 2020). https://media.thinkbrg.com/wp-content/uploads/2020/06/17122436/BRG-340B-Measuring_2020_cleaned.pdf

5 BRG analysis of Office of Pharmacy Affairs 340B covered entity database.

6 Aaron Vandervelde, Kevin Erb, and Lauren Hurley, *For-Profit Pharmacy Participation in the 340B Program*, BRG white paper (October 2020). https://media.thinkbrg.com/wp-content/uploads/2020/10/06150726/BRG-ForProfitPharmacyParticipation340B_2020.pdf

7 BRG analysis of Office of Pharmacy Affairs 340B contract pharmacy database.

8 Vandervelde, Erb, and Hurley (2020).

9 MACPAC, *Medicaid Drug Spending Trends*, October 2021. Analysis of CMS State Drug Utilization Data. https://www.macpac.gov/publication/medicaid-gross-spending-and-rebates-for-drugs-by-delivery-system/; and analysis of MACStats from 2014-2020. https://www.macpac.gov/publication/macstats-archive/

10 IQVIA, *The Use of Medicines in the U.S.: Spending and Usage Trends and Outlook to 2025* (May 27, 2021). https://www.iqvia.com/insights/the-iqvia-institute/reports/the-use-of-medicines-in-the-us

11 Vandervelde and Blalock (2020).