

REPORT TO CONGRESS

Prescription Drug Pricing Report

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U.S. Department of Health and Human Services

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SECTION 1: INTRODUCTION

The Secretary of Health and Human Services (HHS) has been directed to submit a drug pricing report containing information requested by the House Committee on Appropriations. In response, the Assistant Secretary for Planning and Evaluation (ASPE) developed this report containing data and analyses related to prescription drug spending between 2006¹ and 2017 as well as on prescription drugs benefiting from public funding for biomedical research since 2013. The sections on prescription drug spending provide comparative gross prescription drug spending and prices as well as the top 10 highest-cost drugs and the top 10 most frequently prescribed drugs for each of the following: (1) The Medicare program under part B of title XVIII of the Social Security Act; (2) The Medicare prescription drug program under part D of title XVIII of the Social Security Act; (3) The Medicaid program under title XIX of the Social Security Act. The section on public funding for biomedical research provides the list of drugs that have been approved for sale by the Food and Drug Administration (FDA) in the past five years that have benefited significantly from government grants or research subsidies in either the pre-clinical or clinical stages of development, as well as spending in Medicare and Medicaid for each of those drugs.

This report does not include: (1) prescription drug spending or prices pertaining to programs of the Department of Veterans Affairs; (2) spending and prices net of rebates for individual drugs within Medicare Part D or Medicaid, or spending net of rebates in aggregate for Medicaid; or (3) a breakdown of the comparative prices net of rebates for each of the 10 most frequently prescribed drugs or the 10 highest-cost drugs between ambulatory settings and retail settings. Rebate data and prices net of rebates are excluded because this information is generally considered proprietary and is subject to a variety of disclosure restrictions under Federal law.

Prescription Drug Spending in Medicare Part B, Medicare Part D, and Medicaid

Prescription drug spending continues to increase in the United States.² The Office of the Actuary within the Centers for Medicare and Medicaid Services (CMS) estimates that in 2019, \$360.3 billion will be spent on retail prescription drugs, rising from \$265.2 billion in 2013.³ The May 2018 Trump Administration blueprint for lower drug prices described a new, more transparent drug pricing system that would lower high prescription drug prices and bring down out-of-pocket

¹ The committee request data on drug pricing back to 2008. In several analyses, this report presents data starting with 2006; several policy changes began in 2006 including the implementation of Medicare Part D and the first year that most hospital outpatient departments began using ASP methodology for payments under Medicare Part B.

² According to IQVIA, the outlook to 2022 is for 2–5% net spending growth, with 1–4% growth in retail and mail-order prescription drugs. This growth, driven primarily by the large number of new medicines, many of which will be specialty and orphan drugs, will be offset by the impact of losses of brand exclusivity. Available from: <https://www.iqvia.com/institute/reports/medicine-use-and-spending-in-the-us-review-of-2017-outlook-to-2022>

³ Sisko AM, Keehan SP, Poisal JA, et al. National Health Expenditure Projections, 2018–27: Economic And Demographic Trends Drive Spending And Enrollment Growth. Health Affairs. 3 (2019). Available from: <https://www.healthaffairs-org.ezproxyhhs.nihlibrary.nih.gov/doi/pdf/10.1377/hlthaff.2018.05499>. The \$360.3 billion estimate for 2019 includes \$116.0 billion for Medicare (including Part B and Part D) and \$35.8 billion for Medicaid. Both estimates are net of rebates. See Table 11 in <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Proj2018Tables.zip>.

costs. The blueprint includes four strategies for putting American patients first: bringing down out-of-pocket-costs, boosting competition, strengthening negotiation, and creating incentives for lower list prices.

Trends in prescription drug utilization and spending vary across the Medicare Part B, Medicare Part D, and Medicaid programs. Differences in utilization and spending reflect underlying variation in eligibility for each program, including age, disability, income, and medical need. The Medicare Program provides health insurance coverage for individuals aged 65 years and older as well as certain younger individuals with disabilities or with End-Stage Renal Disease. The Medicaid program is a joint Federal-State program that provides coverage for disabled individuals and individuals and families with low incomes; some individuals with incomes above these limits may also qualify due to high medical expenses.

In addition to populations served, these programs and different parts of these programs also vary in the coverage offered for prescription drugs. Medicare Part D and Medicare Part B provide coverage for different types of prescription drugs based on site of service: in general, Medicare Part D provides coverage for self-administered prescription drugs and Medicare Part B covers drugs that are administered in physician's offices or hospital outpatient departments. In Medicaid, prescription drug coverage is an optional benefit, currently offered across sites of service by all states and the District of Columbia.

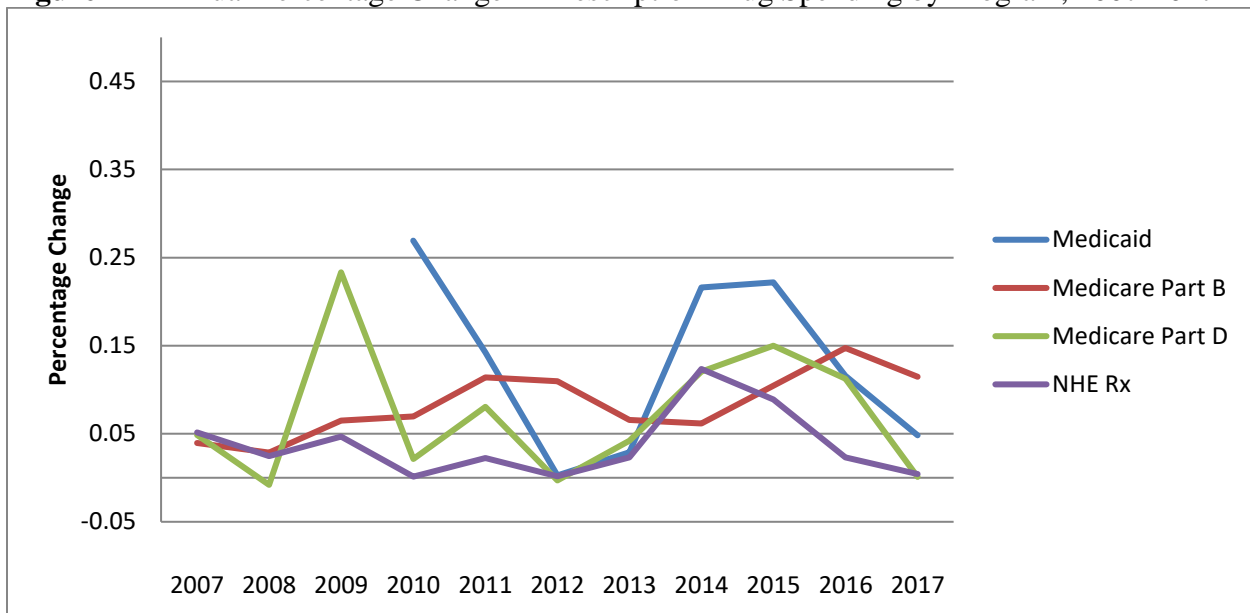
Prescription drug expenditures are projected to continue rising during the coming decade, placing increasing fiscal pressures on commercial, federal, and state budgets.^{4,5} Despite the slowdown in the last 2 years as shown in Figure 1-1, over the longer period from 2006 to 2017, program spending for prescription drug has been growing annually at 7 percent for Medicare Part D, 8 percent for Medicare Part B, and 17 percent for Medicaid.⁶ Increases in prescription drug spending are not expected to be uniform across government programs, however, in part due to differences in eligibility and coverage across programs. Another important factor underlying differential projected increases in prescription drug spending is variation in use of purchasing arrangements, utilization management strategies, and value-based approaches by the different government programs.

⁴ *Observations on trends in prescription drug spending*. ASPE Issue Brief (3/8/2016). <https://aspe.hhs.gov/pdf-report/observations-trends-prescription-drug-spending>

⁵ Sisko AM, Keehan SP, Poisal JA, et al. National Health Expenditure Projections, 2018–27: Economic And Demographic Trends Drive Spending And Enrollment Growth. *Health Affairs*. 3 (2019). Available from: <https://www.healthaffairs-org.ezproxyhhs.nihlibrary.nih.gov/toc/hlthaff/0/0>

⁶ Medicaid data for years before 2010 are not shown in Figure 1-1 because they do not include spending by Managed Care Organizations and may be subject to data errors. The high rate of increase in Medicaid spending in 2014 and 2015 is associated with Medicaid expansion under the Affordable Care Act and the launch of expensive new drugs such as Sovaldi and Harvoni for hepatitis C.

Figure 1-1 Annual Percentage Change in Prescription Drug Spending by Program, 2007-2017



Prescription Drug Development and Public Funding

Prescription drugs can effectively treat many acute and chronic diseases leading to improvements in quality of life, life expectancy, and overall population health. However, development of new prescription drugs is expensive, uncertain, and slow. The high costs of new drug development require the prospect of financial returns to encourage sponsors to continue investing in innovation. To encourage investment, sponsors of certain drugs approved by the Food and Drug Administration (FDA) are granted exclusive rights to market their drug for a period of time. In addition, new drugs may benefit significantly from government grants or research subsidies in either the pre-clinical or clinical stages of development. For example, the Orphan Drug Act provides incentives, including grants, tax credits, and an additional period of market exclusivity to encourage investment in treatments for rare diseases or conditions. Because new medicines can improve the health of individuals and the population more broadly, the incentives for innovation described above are important. At the same time, policy makers must balance these incentives with assuring that the new medicines are affordable and reflect their value in terms of improving patient health outcomes.

Congressional Request for this Drug Pricing Report

“The Committee directs the Secretary of Health and Human Services to submit a report to the Committee on Appropriations of the House of Representatives not later than 120 days after the date of the enactment of the Bill to which this Committee Report pertains regarding price changes of prescription drugs since 2008. The report should include comparative prescription drug prices (net of rebates) paid by the following programs for the 10 most frequently prescribed drugs and the 10 highest-cost drugs for each of the following: (1) The Medicare program under part B of title XVIII of the Social Security Act. (2) The Medicare prescription drug program under part D of title XVIII of the Social Security Act. (3) The Medicaid program under title XIX of the Social Security Act. (4) The Department of Veterans Affairs. The report should also provide a breakdown of the comparative prices (net of rebates) for each of the 10 most frequently

prescribed drugs and the 10 highest-cost drugs between ambulatory settings and retail settings. Under Medicare Part D, the report should detail gross Part D drug costs and net Part D drug costs and the Direct and Indirect Remuneration for the 10 most frequently prescribed drugs and the 10 highest-cost drugs. In addition, the report should include total annual costs due to prescription drugs to the Medicare program under part B of title XVIII of the Social Security Act, the Medicare prescription drug program under part D of title XVIII of such Act, and the Medicaid program under title XIX of such Act. Finally, the report should list the drugs that have been registered for sale by the Food and Drug Administration (FDA) in the past five years that have benefited significantly from government grants or research subsidies in either the pre-clinical or clinical stages of development, as well as the price (net of rebates) and total spending in Medicare and Medicaid for each of those drugs.”

SECTION 2: MEDICARE PART B

This section presents information about prescription drugs in Medicare Part B between 2006 and 2017. It presents data pertaining to trends in overall spending for prescription drugs and the top 10 highest-cost drugs and top 10 most frequently prescribed drugs in Medicare Part B. The data presented in this section include only spending in fee-for-service Medicare Part B and exclude Medicare Advantage spending.

Program Overview

Medicare is a federal health insurance program created in 1965 for people ages 65 and older; it was expanded in 1972 to cover people under age 65 with permanent disabilities and end-stage renal disease (ESRD). Medicare Part B, also known as the Supplementary Medical Insurance (SMI) program, helps pay for physician, outpatient, some home health, and preventive services.

Part B is financed through a combination of general revenues, premiums paid by beneficiaries, interest and other sources. Premiums are automatically set to cover 25 percent of spending in the aggregate, while general revenues subsidize 73 percent and the remaining 2 percent is financed through interest and other sources. Higher-income beneficiaries pay a larger share of spending, ranging from 35 percent to 80 percent of Part B costs.

Certain types of drugs including infusible and injectable drugs and biologics administered in physician offices and hospital outpatient departments, as well as certain other drugs provided by pharmacies and suppliers (e.g., inhalation drugs and certain oral anticancer, oral antiemetic, and immunosuppressive drugs) are covered by Part B.⁷ Providers purchase these Part B drugs and Medicare payments are made directly to these providers.

Through the passage of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003 (MMA)⁸, beginning in 2005 payments for Part B drugs generally are tied to health care providers' acquisition costs by paying for a drug's average sales price (ASP) plus a 6 percent add-on (106 percent of ASP) as computed by CMS using quarterly sales price and volume of sales data.⁹ The Secretary was provided discretion for drugs administered in hospital outpatient settings, to determine payment based on average acquisition costs or similarly to how payment is made in a physician's office. The Secretary has used ASP based pricing for most Part B drugs provided in hospital outpatient departments since 2006.

⁷ Steven Sheingold, Elena Marchettie-Bowick, Nguyen Nguyen and Robin Yabroff, *Medicare Part B Drugs: Pricing and Incentives*, ASPE, March 8, 2016. Available from: <https://aspe.hhs.gov/system/files/pdf/187581/PartBDrug.pdf>

⁸ *Medicare Prescription Drug, Improvement, and Modernization Act of 2003*. 2003. retrieved from: <https://www.congress.gov/108/plaws/publ173/PLAW-108publ173.pdf>

⁹ Medicare payments on the claims data reflect the 2 percent reduction due to the sequester in effect during the period from April 2013 through September 2027.

Medicare Part B Spending and Spending Trends

Overall spending and spending trends

In Calendar Year (CY) 2017, total Medicare expenditures were \$710 billion, of which, \$314 billion were for total Part B benefit.¹⁰ The total fee-for-service Part B benefit was \$193.5 billion after netting out spending for Medicare Advantage and administrative expenses (Table 2-1). As shown in Table 2-1, fee-for-service Part B drug program spending grew from \$10.1 billion in 2006 to \$24.3 billion in 2017, representing an average annual growth rate of 8.3 percent.¹¹ Comparatively, total fee-for-service Part B benefit spending grew at 3.4 percent annually over the same period. Part B drug spending has particularly increased since 2014, with annual average growth of 11.9 percent compared to 5.6 percent for total Part B benefit spending.

Table 2-1 Medicare Fee-for-Service Part B Program Spending for Drug Benefits, 2006-2017¹²

Year	<u>Total Part B Benefit</u>		<u>Part B Drug Program</u>		Part B Drugs' Share of Part B Benefit
	Spending (\$B)	Annual Growth	Spending (\$B)	Annual Growth	
2006	134.4	-	10.1	-	7.5%
2007	137.5	2.3%	10.5	3.3%	7.6%
2008	132.2	-3.9%	10.8	3.7%	8.2%
2009	149.2	12.9%	11.5	6.5%	7.7%
2010	154.5	3.6%	12.3	6.8%	8.0%
2011	162.6	5.2%	13.7	11.3%	8.4%
2012	170.5	4.9%	15.2	10.7%	8.9%
2013	171.3	0.5%	16.2	6.8%	9.5%
2014	176.3	2.9%	17.2	6.2%	9.8%
2015	182.1	3.3%	19.0	10.2%	10.4%
2016	186.1	2.2%	21.8	14.6%	11.7%
2017	193.5	4.0%	24.3	11.3%	12.6%
Average Annual 2006-17		3.4%		8.3%	

Source: Total Part B benefit spending from Trustees Reports 2007-2018 (Table III. C5 for 2007-2011 and Table III. C1 for 2012-2018) netting out spending in Medicare Advantage (MA numbers provided by the Office of the CMS Office of the Actuary). The data presented in this table include only spending in fee-for-service Medicare Part B and exclude Medicare Advantage spending.

¹⁰ Table II.B1, p. 11. Medicare Trustees Report (2018). 2018 Annual Report Of The Boards Of Trustees Of The Federal Hospital Insurance And Federal Supplementary Medical Insurance Trust Funds. Retrieved from: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2018.pdf>

¹¹ Program spending excludes beneficiary liability and third party payments. Total FFS Part B spending (Medicare program, beneficiary liability and third party payments) grew from \$12.7 B. in 2006 to \$30.6 B. in 2017.

¹² Medicare payments on the claims data reflect the 2 percent reduction due to the sequester in effect during the period from April 2013 through September 2017.

Table 2-2 Medicare Fee-for-Service Part B Program Spending per Enrollee and User for Drug Benefits, 2006-2017

Year	Fee-for-Service Enrollees (M)	Total Part B Benefit		Part B Drug Program	
		Spending per Enrollee (\$)	Annual Growth	Payment per Enrollee (\$)	Annual Growth
2006	33.1	4,064	-	305	-
2007	32.4	4,240	4.3%	324	6.0%
2008	32.0	4,136	-2.5%	338	4.3%
2009	31.8	4,691	13.4%	362	7.0%
2010	32.2	4,800	2.3%	382	5.7%
2011	32.5	4,998	4.1%	421	10.2%
2012	32.9	5,184	3.7%	462	9.8%
2013	33.1	5,174	-0.2%	489	5.9%
2014	33.2	5,315	2.7%	519	6.0%
2015	33.3	5,475	3.0%	571	10.2%
2016	33.7	5,528	1.0%	648	13.3%
2017	33.6	5,762	4.2%	724	11.8%

Source: Total Part B benefit spending from Trustees Reports 2007-2018 (Table III. C5 for 2007-2011 and Table III. C1 for 2012-2018); Enrollment from Trustees Report 2018 Table V. B3. The data presented in this section include only spending in fee-for-service Medicare Part B and exclude Medicare Advantage spending.

Spending concentration for top ten drugs

A relatively small number of Part B drugs account for a significant share of the spending.¹³ Table 2-3¹⁴ presents the top 10 drugs in term of Medicare Part B drug program payment over the last ten years. For brevity, we present only 2008, 2011, 2014, and 2017 here, with tables for all years included in Appendix Table A-1. Concentrated spending for a relatively small number of drugs has been consistent for the past decade with the top 10 highest-cost drugs accounting for 45 to 50 percent of total Part B spending on drugs.

In 2017, the top 10 highest-cost drugs accounted for \$14.0 billion in Part B payments including beneficiary cost-sharing, or 46 percent of \$30.3 billion in total Part B spending for all drugs. At nearly \$2.5 billion in Medicare Part B payments, aflibercept accounted for more spending than any other drug in 2017. Medicare Part B payments including beneficiary cost-sharing for aflibercept was \$961.29 per unit in 2017, or \$1,922.58 for a standard adult dose of 2 mg. We defined unit based on the Healthcare Common Procedure Coding System (HCPCS) billing unit, which, in many cases, is the lowest dispensable amount or the lowest denomination (e.g., one pill or a standardized volume for liquids) and may not be the common dose.¹⁵ Rituximab, which has

¹³ Spending numbers presented are program spending, net of beneficiary cost sharing, and include sequester.

¹⁴ The drug spending presented in Table 2-3 includes claims by critical access hospitals, Maryland hospitals and third party claims that were excluded in the data underlying the CMS dashboard even without imposing the restriction that a drug must have been present in two consecutive years (for calculating annual change). Source: CMS Office of Enterprise Data and Analytics (OEDA).

¹⁵ Per the above example, a unit of aflibercept is 1mg, although the common dose for aflibercept is 2mg. On the claims data the unit is the MTUS_CNT.

historically been in the top two of the top ten list over the last decade, accounts for the second most Medicare Part B payments with approximately \$1.8 billion. Table 2-4 presents the top 10 highest-cost prescribed drugs in Medicare Part B ranked by spending per unit for 2011, 2014, and 2017 with all years 2011-2017 presented in Appendix Table A-2

As displayed in Table 2-5, the top 10 most frequently prescribed drugs in Medicare Part B, are relatively inexpensive and typically account for less than 10 percent of total Part B drug spending. In 2017, spending on the top 10 most frequently prescribed drugs was \$2.6 billion, or 9% of \$30.3 billion in total Part B spending for all drugs, although aflibercept, the 10th most prescribed drug accounted for \$2.5 billion in Part B spending. The remaining nine drugs each accounted for at most \$25.0 million in spending and had average per unit spending of less than \$11. Spending and pricing data for all years are included in Appendix Table A-3.

Table 2-3 Top 10 Highest-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Rank	Description	<u>2008</u>		Description	<u>2011</u>	
		Spending per Unit (\$)	Total Spending (\$M)		Spending per Unit (\$)	Total Spending (\$M)
1	Rituximab cancer treatment (Rituxan)	516.88	1,151.1	Ranibizumab injection (Lucentis)	405.36	1,428.9
2	Bevacizumab injection (Avastin)	57.40	944.7	Rituximab injection (Rituxan)	611.58	1,373.0
3	Infliximab injection (Remicade)	55.85	814.8	Bevacizumab injection (Avastin)	60.45	1,012.5
4	Injection, pegfilgrastim (Neulasta) 6mg	2,206.63	798.8	Injection, pegfilgrastim (Neulasta) 6mg	2,643.78	1,020.5
5	Ranibizumab injection (Lucentis)	397.09	735.8	Infliximab injection (Remicade)	61.49	960.5
6	Darbepoetin alfa, non-esrd (Aranesp)	2.91	676.7	Oxaliplatin (Eloxatin)	9.42	498.3
7	Oxaliplatin (Eloxatin)	9.42	457.5	Pemetrexed injection (Alimta)	53.07	464.4
8	Epoetin alfa, non-esrd (Epogen/Procrit)	9.26	462.3	Darbepoetin alfa, non-esrd (Aranesp)	3.15	435.4
9	Docetaxel (Taxotere)	327.85	396.7	Trastuzumab injection (Herceptin)	70.60	410.7
10	Gemcitabine HCl (Gemzar)	132.43	330.8	Docetaxel injection (Taxotere)	18.70	395.9
Medicare Part B Spending, Top 10			6,769.2			
Medicare Part B Spending, All Drugs			13,614.3			

Rank	Description	<u>2014</u>		Description	<u>2017</u>	
		Spending per Unit (\$)	Total Spending (\$M)		Spending per Unit (\$)	Total Spending (\$M)
1	Rituximab injection (Rituxan)	693.39	1,552.5	Aflibercept injection (Eylea)	961.29	2,473.4
2	Ranibizumab injection (Lucentis)	390.64	1,336.0	Rituximab injection (Rituxan)	819.18	1,815.3

3	Aflibercept injection (Eylea)	964.44	1,302.0	Injection, nivolumab (Opdivo)	25.95	1,516.5
4	Injection, pegfilgrastim (Neulasta) 6mg	3,312.87	1,235.7	Injection, pegfilgrastim (Neulasta) 6mg	4,188.25	1,461.7
5	Infliximab injection (Remicade)	71.72	1,223.5	Infliximab not biosimilar (Remicade) 10mg	85.01	1,413.9
6	Bevacizumab injection (Avastin)	65.17	1,091.4	Denosumab injection (Prolia)	16.75	1,296.6
7	Denosumab injection	14.30	799.3	Bevacizumab injection (Avastin)	73.26	1,100.2
8	Trastuzumab injection (Herceptin)	80.78	581.0	Inj pembrolizumab (Keytruda)	46.15	1,062.2
9	Pemetrexed injection (Alimta)	59.50	575.4	Ranibizumab injection (Lucentis)	372.44	1,039.1
10	Bortezomib injection (Velcade)	\$36.00	489.3	Trastuzumab injection (Herceptin)	94.87	814.1
Medicare Part B Spending, Top 10			10,186.1			13,993.0
Medicare Part B Spending, All Drugs			21,597.8			30,294.0

Source: Analysis of carrier, durable medical, and outpatient claims data 2006-2017. Data include Part B covered drugs administered in physicians' offices and furnished by suppliers, covered drugs in hospital outpatient departments; and reflect only Part B drugs paid under the average sales price plus 6 percent (ASP). HCPCS codes and prices for carrier and DM were obtained from the CMS ASP file, those for OP come from the CMS Addendum B file. Lines with denied payments or Medicare as secondary payer were dropped. Total Spending and Spending per Unit are net of beneficiary cost-sharing and include the sequester.

Table 2-4 Top 10 Highest-Cost Prescribed Drugs, Medicare Part B, Ranked by Spending per Unit

Rank	Description	2011		Description	2014	
		Spending per Unit (\$)	Total Spending (\$M)		Spending per Unit (\$)	Total Spending (\$M)
1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion	32,857.47	89.9	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion (Provenge)	33,864.70	173.2
2	Fluocinolone acetonide, intravitreal implant	16,253.07	1.4	Injection, pegaspargase, per single dose vial (Oncaspar)	5,952.34	1.1
3	Injection, porfimer sodium, 75 mg	5,041.82	0.9	Injection, pegfilgrastim, 6 mg (Neulasta)	3,270.26	1,172.9
4	Leuprolide acetate implant, 65 mg	4,378.09	0.3	Histrelin implant (vantas), 50 mg (Vantas)	2,915.55	5.9
5	Ganciclovir, 4.5 mg, long-acting implant	3,485.88	0.4	Injection, basiliximab, 20 mg (Simulect)	2,525.33	0.7

6	Histrelin implant (vantas), 50 mg	2,945.12	17.1	Injection, crotalidae polyvalent immune fab (ovine), up to 1 gram (Crofab)	2,409.87	1.7
7	Injection, pegaspargase, per single dose vial	2,680.69	0.3	Injection, vincristine sulfate liposome, 1 mg (Marqibo)	1,849.51	1.2
8	Injection, pegfilgrastim, 6 mg	2,615.20	972.0	Injection, digoxin immune fab (ovine), per vial (Digifab)	1,490.59	0.7
9	Injection, denileukin diftitox, 300 micrograms	1,585.58	7.0	Injection, carmustine, 100 mg (Bicnu)	1,431.81	1.3
10	Injection, reteplase, 18.1 mg	1,425.91	0.5	Injection, pentostatin, 10 mg (Nipent)	1,425.10	0.8
Medicare Part B Spending, Top 10						1,359.5
Medicare Part B Spending, All Drugs						21,597.8

		2017	
Rank	Description	Spending per Unit (\$)	Total Spending (\$M)
1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion (Provenge)	38,716.24	202.5
2	Injection, pegaspargase, per single dose vial (Oncaspar)	9,666.53	2.3
3	Injection, pegfilgrastim, 6 mg (Neulasta)	4,142.60	1,400.1
4	Injection, basiliximab, 20 mg (Simulect)	3,309.41	1.1
5	Injection, carmustine, 100 mg (Bicnu)	3,278.80	1.9
6	Histrelin implant (vantas), 50 mg (Vantas)	3,127.67	3.0
7	Injection, digoxin immune fab (ovine), per vial (Digifab)	2,933.29	0.9
8	Injection, crotalidae polyvalent immune fab (ovine), up to 1 gram (Crofab)	2,766.58	1.3
9	Injection, vincristine sulfate liposome, 1 mg (Marqibo)	2,325.16	1.1

10	Injection, pentostatin, 10 mg (Nipent)	1,925.04	0.8
	Medicare Part B Spending, Top 10		1,399.3
	Medicare Part B Spending, All Drugs		30,294.0

Note: Medicare Part B Spending per Unit data only available for years 2011-2017.

Source: Analysis of carrier, durable medical, and outpatient claims data 2006-2017. Data include Part B covered drugs administered in physicians' offices and furnished by suppliers, covered drugs in hospital outpatient departments; and reflect only Part B drugs paid under the average sales price plus 6 percent (ASP). HCPCS codes and prices for carrier and DM were obtained from the CMS ASP file, those for OP come from the CMS Addendum B file. Lines with denied payments or Medicare as secondary payer were dropped. Total Spending and Spending per Unit include beneficiary cost-sharing and include the sequester.

Table 2-5 Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Rank	Description	2008		Description	2011	
		Spending per Unit (\$)	Total Spending (\$M)		Spending per Unit (\$)	Total Spending (\$M)
1	Vitamin b12 injection (Cobal-1000, Cobolin-M)	0.28	0.9	Vitamin b12 injection (Cobal-1000, Cobolin-M)	0.36	1.0
2	Dexamethasone sodium phos (Hexadrol)	0.09	1.9	Triamcinolone acet inj NOS (Kenalog)	1.62	17.1
3	Ondansetron hcl injection (Zofran)	0.43	7.8	Dexamethasone sodium phos (Hexadrol)	0.09	1.8
4	Triamcinolone acetone inj (Kenalog)	1.44	13.3	Albuterol non-comp unit	0.06	28.2
5	Albuterol ipratrop non-comp (Duoneb)	0.66	157.8	Albuterol ipratrop non-comp (Duoneb)	0.24	45.0
6	Normal saline solution infus	0.29	0.8	Methylprednisolone 40 MG inj (Medrol)	2.76	6.7
7	Methylprednisolone 40 MG inj (Medrol)	4.40	10.1	Methylprednisolone 80 MG inj (Depo-Medrol)	6.91	11.9
8	Epoetin alfa, non-esrd (Epogen/Procrit)	9.26	462.3	Normal saline solution infus	0.26	0.5
9	Albuterol non-comp unit	0.04	15.7	LOCM 300-399mg/ml iodine,1ml	0.17	15.3
10	Methylprednisolone 80 MG inj (Depo Medrol)	8.54	14.2	Epoetin alfa, non-esrd (Epogen/Procrit)	9.96	354.8
	Medicare Part B Spending, Top 10		684.8			482.3
	Medicare Part B Spending, All Drugs		13,614.3			17,191.6

Rank	Description	2014		Description	2017	
		Spending per Unit (\$)	Total Spending (\$M)		Spending per Unit (\$)	Total Spending (\$M)
1	Triamcinolone acet inj nos (Kenalog)	1.75	19.5	Triamcinolone acet inj nos(Kenalog)	1.80	24.1

2	Dexamethasone sodium phos (Hexadrol)	0.13	2.6	Dexamethasone sodium phos (Hexadrol)	0.12	2.3
3	Vitamin b12 injection (Cobal-1000)	2.02	4.7	Vitamin b12 injection (Cobal-1000)	2.83	6.8
4	Methylprednisolone 40 mg inj (Medrol)	2.94	7.8	Methylprednisolone 40 mg inj (Medrol)	5.70	16.2
5	Albuterol non-comp unit	0.05	18.1	Albuterol non-comp unit	0.05	13.6
6	Albuterol ipratrop non-comp (Duoneb)	0.18	26.9	Methylprednisolone 80 mg inj (Medrol)	10.88	18.8
7	Methylprednisolone 80 mg inj	5.60	9.7	Albuterol ipratrop non-comp (Duoneb)	0.15	19.9
8	Locm 300-399mg/ml iodine,1ml	0.18	15.8	Locm 300-399mg/ml iodine,1ml	0.12	11.2
9	Betamethasone (Celestone Soluspan) acet&sod phosp	5.59	14.6	Betamethasone acet&sod phosp	6.74	20.1
10	Ceftriaxone sodium injection (Rocephin)	0.67	2.6	Aflibercept injection (Eylea)	961.29	2,473.4
Medicare Part B Spending, Top 10			122.3			2,606.4
Medicare Part B Spending, All Drugs			21,597.8			30,294.0

Source: Analysis of carrier, durable medical, and outpatient claims data 2006-2017. Data include Part B covered drugs administered in physicians' offices and furnished by suppliers, covered drugs in hospital outpatient departments; and reflect only Part B drugs paid under the average sales price plus 6 percent (ASP). HCPCS codes and prices for carrier and DM were obtained from the CMS ASP file, those for OP come from the CMS Addendum B file. Lines with denied payments or Medicare as secondary payer were dropped. Total Spending and Spending per Unit include beneficiary cost-sharing and include the sequester.

Data and Methods

The Medicare claims data used in the analyses of spending and trends in spending include Part B¹⁶ covered drugs administered in physicians' offices and furnished by suppliers (carrier and durable medical equipment (DME) claims files) and covered drugs in hospital outpatient departments (outpatient claims files) from 2006 to 2017. Many of the analyses start with calendar year 2006 because it is the first year that most hospital outpatient departments were paid using the ASP methodology.

Medicare Part B drugs are identified by the HCPCS codes in the claims data. Analyses are restricted to Part B drugs paid under the methodology described in section 1847A of the Social Security Act.¹⁷ As a result, the analyses exclude vaccines; blood products with P* codes (but

¹⁶ Part B drugs that are separately paid, i.e., not bundled and paid under a bundled system.

¹⁷ Typically, this means ASP, but may also include WAC or AMP based payments. In fact, WAC-based payment occurs in limited situations, like when a drug is new, and AMP-based payment occurs infrequently when AMP exceeds ASP by a threshold percentage and other safeguards are met. The pricing files do not always indicate which source is used for a payment amount.

include blood clotting with J & Q codes); claims in the DME file with an AWP flag¹⁸; and enteral and parenteral drugs that have B* codes.

Claims with HCPCS codes that represent ESRD¹⁹ drugs as well as claims with HCPCS codes that do not represent drugs were dropped from the analyses. Codes and prices for carrier and DME were obtained from the CMS ASP files, while those for hospital outpatient departments come from the CMS Addendum B files. Claim lines with denied payments or Medicare as secondary payer were dropped from the analyses. Medicare payments include Medicare program payments and beneficiary cost sharing, and include the effects of the budget sequestration beginning in 2013, which reduced Medicare spending rates by a fixed 2 percent per year.²⁰

The top 10 highest cost drugs and top 10 most frequently prescribed drugs present average spending per billing unit. We define unit based on the combination of HCPCS unit per beneficiary per date, which, in many cases, is the lower of the lowest dispensable amount or the lowest denomination (e.g., one pill or a standardized volume for liquids) and may not be the common dose.²¹

¹⁸ Claims in the durable medical equipment (DME) file with an AWP flag include infusion drugs which used to appear in the ASP Drug Pricing Files. This indicator was not maintained in the ASP Drug Pricing files and its use has been discontinued (because of the change in DME infusion payment resulting from the Cures Act).

¹⁹ ESRD drugs were mostly bundled into the ESRD facility composite rates by 2014.

²⁰ The budget sequestration in 2013 refers to the automatic spending cuts to United States federal government spending in particular categories of outlays that were initially set to begin on January 1, 2013, as an austerity fiscal policy as a result of Budget Control Act of 2011 (BCA), and were postponed by two months by the American Taxpayer Relief Act of 2012 until March 1 when this law went into effect. The nine-year cuts (2013-2021) are split evenly (by dollar amounts, not by percentages) between the defense and non-defense categories. Some major programs like Social Security, Medicaid, federal pensions and veteran's benefits are exempt. By a special provision in the BCA, Medicare spending rates were reduced by a fixed 2 percent per year. That is providers and health insurance plans will be paid 98 cents on the dollar under Medicare for the entire nine-year period 2013-2021. As the sequester applies to federal payment only (80 percent of total payment while beneficiaries still pay the full 20 percent copay), the effective federal payment under ASP+6% is $ASP+(1.06*(1-2%*80%))$ or ASP+4.3%. The bipartisan budget package that keeps the government funded through March 23, 2018 approved by Congress and signed into law on February 9, 2018 extended the mandatory Medicare sequestration cut until 2027.

²¹ An example where the billing unit is lower than the dispensable amount is bevacizumab. This drug is available in 100mg and 400mg vials, so the lowest dispensable amount (without pharmacy/outsourcer repackaging) is 100mg. The lowest denomination is 10mg, hence the HCPCS billing unit is 10mg. Payment in Oct 2017 was about \$75 per 10mg, and Medicare's share was about \$60; these figures correspond to the unit being equal to the HCPCS code descriptor amount.

SECTION 3: MEDICARE PART D

This section presents information about prescription drugs in Medicare Part D between 2006 and 2017. Specifically, in response to the information requested by the House Committee on Appropriations, this section presents data pertaining to trends in overall spending for prescription drugs and the top 10 highest-cost drugs and top 10 most frequently prescribed drugs in Medicare Part D.²²

For many of the analyses contained in this chapter, measures of drug spending are constructed from Part D Prescription Drug Event (PDE) records to include payments to the pharmacy by the Part D plan sponsor and the beneficiary's out-of-pocket liability. These measures are referred to as gross drug costs (GDC). In some cases we estimate Medicare program spending for Part D, which differs from gross drug costs to the extent that rebates and other price concessions affect plan premiums but are not reflected in prices paid at the pharmacy.²³

Program Overview

The Medicare Modernization Act of 2003 (MMA) authorized Medicare Part D as a voluntary drug benefit for Medicare beneficiaries, and the Part D program was implemented in January 2006. Private plans compete for enrollees by providing and managing the drug benefit.²⁴ Each enrollee in either Part A or Part B is also entitled to enroll in a Part D prescription drug plan. In addition, some Medicare Advantage plans also cover the Part D benefit. These plans are known as MA-PDs. Similar to Part B, enrollment in Part D is voluntary and the enrollee pays a monthly premium.²⁵ In 2017, total enrollment in Medicare was 58.0 million, of which enrollment in Part D was 44.5 million.²⁶ Enrollees in Part D pay a monthly premium, in addition to cost sharing and typically costs up to a deductible for their drugs. Low-income beneficiaries (LIS) pay lower or no premiums, cost sharing, or deductibles. Under Part D, private plan sponsors submit annual premium bids for providing the benefit. Medicare subsidizes 74.5 percent of the national average

²² Rebate data at the drug level and even at the therapeutic class level are considered proprietary data and therefore not available for this report.

²³ Total Government payment is estimated as the sum of Premium Subsidies (PG), Reinsurance (RI), Low-Income Premium Subsidies (LIPS), and Low-Income Cost Sharing (LICS), with the government paying 74.5% of premiums and beneficiaries paying 25.5%.

²⁴ The Medicare Part D drug benefit is administered through private prescription drug plans, which each separately design and manage benefits and pay claims. Private prescription drug plans use purchasing arrangements and utilization management, including negotiation of prices with manufacturers and pharmacies, formularies, step therapy, quantity limitations, and prior authorization. All formularies must include "all (with specified exceptions)" drugs in the immunosuppressant, antidepressant, antipsychotic, anticonvulsant, antiretroviral, and antineoplastic classes to ensure patient access to these protected classes of drugs. The current exceptions are that the formulary does not have to include all therapeutic equivalents (i.e., generics) and can use safety edits to limit quantities (see 42 CFR 423.120(b)(2)(vi)).

²⁵ Starting in 2011, higher income enrollees pay higher premiums, as in Part B.

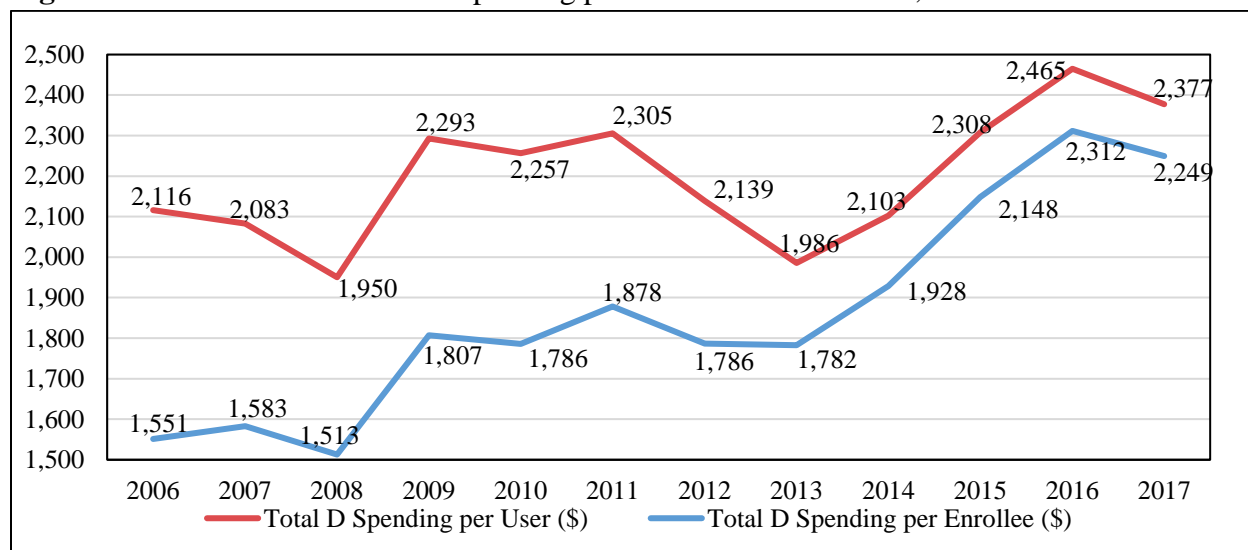
²⁶ Medicare Trustees Report 2018 Table II.B.1, p. 11 Medicare Trustees Report (2018). 2018 Annual Report Of The Boards Of Trustees Of The Federal Hospital Insurance And Federal Supplementary Medical Insurance Trust Funds. Retrieved from: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2018.pdf>

premium and provides additional assistance for premiums and out-of-pocket costs to LIS beneficiaries. In CY 2017, total Medicare benefit payment is \$710 billion, of which, \$100 billion (or 14 percent) is for the Part D benefit.²⁷

Medicare Part D Program Spending and Program Spending Trends

Medicare Part D program spending per enrollee²⁸ rose about 3.4 percent annually between CY 2006 to CY 2017.²⁹ In recent years, program spending per enrollee grew from \$1,782 per enrollee in 2013 to \$2,312 per enrollee in 2016, before decreasing to \$2,249 in 2017 (Figure 3-1). As the number of enrollees increased about 3.5 percent annually, or 45 percent in total from 2006 to 2017, total spending increased 7.0 percent annually from 2006 to 2017 (Table 3-1).

Figure 3-1 Medicare Part D Total Spending per Enrollee and Per User, 2006-2017



Source: Spending and Enrollment from Trustees Report 2018, Tables III. D3 and V.B3; Users from Acumen analysis of claims data for ASPE

²⁷ Medicare Trustees Report 2018, Table II.B1, p. 10. Medicare Trustees Report (2018). 2018 Annual Report Of The Boards Of Trustees Of The Federal Hospital Insurance And Federal Supplementary Medical Insurance Trust Funds. Retrieved from: <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2018.pdf> Medicare benefit payment is program payment for the benefits net of rebates.

²⁸ Federal spending (Medicare Part D net program spending) is based on a percent of premiums which in turn reflect the rebates plans expect to receive. Federal spending is estimated as the sum of Premium Subsidies, Reinsurance, Low-Income Premium Subsidies, Low-Income Cost Sharing, and, risk corridor payments. CMS pays plans a monthly prospective payment for each enrollee (the direct subsidy). This payment is first adjusted by the enrollee’s case mix and other subsidy factors, namely low-income status and longterm institutionalized status. A second adjustment to the plan’s approved bid is the subtraction of the enrollee’s premium. (See the following section on how premiums are calculated.) CMS also provides plans with interim prospective payment adjustments for individual reinsurance and low-income subsidies. The agency reconciles actual levels of enrollment, risk factors, levels of incurred allowable drug costs (after rebates and other discounts), reinsurance amounts, and low-income subsidies after the end of each year.

²⁹ Annual compound growth rate of total program spending per enrollee and enrollment growth computed from United States Centers for Medicare & Medicaid Services. Medicare Trustees Reports, 2018. June 2018. Part D total spending from Table III.D3 (p. 105) and Part D enrollment from Table V.B3 (p. 181).

In 2017, total program spending was estimated to be \$100.0 billion, while net benefit spending was \$100.1 billion (Table 3-1). The difference reflects federal administrative costs.³⁰

Table 3-1 Medicare Part D Total Program Spending and Benefit Spending, 2006-2017

Year	Total Part D Enrollees		Part D Total Program Spending		Part D Benefits Spending	
	(M)	(M)	(\$B)	(\$B)	(\$B)	(\$B)
	Enrollment (M)	Annual Growth	Spending (\$B)	Annual Growth	Spending (\$B)	Annual Growth
2006	30.6		47.4		47.1	
2007	31.4	2.7%	49.7	4.9%	48.8	3.6%
2008	32.6	3.8%	49.3	-0.8%	49.0	0.4%
2009	33.6	3.2%	60.8	23.3%	60.5	23.5%
2010	34.8	3.4%	62.1	2.1%	61.7	2.0%
2011	35.7	2.7%	67.1	8.1%	66.7	8.1%
2012	37.4	4.8%	66.9	-0.3%	66.5	-0.3%
2013	39.1	4.4%	69.7	4.2%	69.3	4.2%
2014	40.5	3.6%	78.1	12.1%	77.7	12.1%
2015	41.8	3.2%	89.8	15.0%	89.5	15.2%
2016	43.2	3.4%	99.9	11.2%	99.5	11.2%
2017	44.5	2.9%	100.0	0.1%	100.1	0.6%
Average Annual 2006-17		3.5%		7.0%		7.1%

Source: Spending and Enrollment from Trustees Report 2018, Tables III. D3 and V. B3

Given that the total drug cost obtained from the 2017 claims data was over \$154.2 billion (Table 3-2); this implies that Medicare spending (\$100.0 billion) was about 65 percent of the gross drug cost in 2017. This difference reflects primarily beneficiary cost sharing and rebates, and to a lesser extent administrative cost and profits of plan sponsors, low-income subsidies, net risk corridor payment, coverage gap discount, and the timing of reconciliation payments, among other factors.

Medicare Part D Gross Drug Costs and Costs Trends

In CY 2017, total gross drug costs (GDC) for the Medicare Part D drugs is estimated to be \$154.2 billion (Table 3-2).³¹ This reflects a 6.0 percent increase from the previous year's \$145.4 billion in GDC. In recent years, the growth in GDC has slowed from its peak in 2013 through 2015, when GDC exhibited double digit growth each year. The higher rates of growth in 2013 to 2015 in total GDC were primarily the result of increases in both utilization (number of users, claims, and days) and unit cost (per user, per script, and per day) driven in large part because of spending for drugs used to treat hepatitis C and even faster growth in prices for existing brand-

³⁰ For 2017, total program spending is lower than benefit payments because of a larger-than-usual downward adjustment of \$0.3 billion for prior-year allocations among Part A, Part B, and Part D (2018 Trustees, Table III.D3)

³¹ Estimate based on Medicare Part D events (PDE) 2007-17 files by Acumen for ASPE

name drugs.³² Over the entire 2007-17 period, total gross drug cost increased by 9.6 percent annually, while Medicare benefit spending (net of rebates and cost-sharing) grew at 7.4 percent (Table 3-1). The divergence likely reflects the growth in manufacturer rebates over time.³³ Moreover, the period from 2007 to 2017 encompasses two sub-periods: the period from 2007 to 2012 saw increasing entry of generic drugs into the market, while the subsequent period from 2013 to 2017 experienced the arrivals of expensive drugs such as the hepatitis C and specialty drugs. As shown in Table 3-2, although the annual average growth of GDC over the whole 2007-17 period was 9.6 percent, the annual rate during 2007-12 was 7.7 percent, increasing to 11.5 percent during 2012 to 2017.

Table 3-2 Medicare Part D Prescription Gross Drug Costs (GDC): 2007-2017

Year	Total Gross Drug Cost		Users		Drug Cost Per User	
	Gross Drug Cost (\$B)	Annual Growth	Users (M)	Annual Growth	Cost per User (\$)	Annual Growth
2007	\$61.9	-	23.9	-	\$2,594	-
2008	\$68.2	10.2%	25.3	5.9%	\$2,699	4.1%
2009	\$73.5	7.8%	26.5	4.9%	\$2,773	2.7%
2010	\$77.4	5.3%	27.5	3.8%	\$2,813	1.5%
2011	\$84.6	9.3%	29.1	5.8%	\$2,908	3.4%
2012	\$89.5	5.8%	31.3	7.5%	\$2,862	-1.6%
2013	\$103.3	15.4%	35.1	12.2%	\$2,944	2.9%
2014	\$121.0	17.1%	37.1	5.8%	\$3,258	10.7%
2015	\$136.8	13.1%	38.9	4.7%	\$3,517	8.0%
2016	\$145.4	6.3%	40.5	4.2%	\$3,589	2.0%
2017	\$154.2	6.0%	42.1	3.8%	\$3,666	2.2%
Average Annual						
2007-17		9.6%		5.8%		3.5%
2007-12		7.7%		5.6%		2.0%
2012-17		11.5%		6.1%		5.1%

Source: Analysis of Medicare Part D Events data 2007-2017 by Acumen for HHS/ASPE.

³² IQVIA Institute for Human Data Science. Medicine use and spending in the U.S.: a review of 2017 and outlook to 2022. Parsippany (NJ): IQVIA Institute for Human Data Science; 2018 Apr.

³³ IMS Institute. *Medicine Use and Cost Trends: Overall Market and Oncology. Discussion with ASPE.* July 11, 2016.

Top 10 Drugs by Total Spending and by Number of Claims

Over the last 10 years, the top 10 highest-cost drugs in Part D account for approximately 20 percent of total Part D GDC. Table 3-3 presents the top 10 drugs in term of Medicare Part D GDC over the last ten years. For brevity, we present only 2008, 2011, 2014, and 2017 here, with tables for all years included in Appendix Table A-4.

In 2017, the top 10 highest-cost drugs accounted for \$25.5 billion in Part D GDC, or 17 percent of \$154.2 billion in total Part D GDC. At \$3.3 billion in Medicare Part D GDC, Revlimid, used to treat blood cancers, accounted for more spending than any other drug in 2017. Medicare Part D GDCs for Revlimid was \$626.98 per unit in 2017 (Table A-4 shows that the GDC per user for Revlimid was \$88,442 in 2017). A unit refers to the lowest dispensable amount (e.g. one pill or a standardized volume for liquids). In addition, Medicare beneficiaries using these high cost drugs face high patient liabilities despite the catastrophic coverage provisions of Part D. More detailed spending and pricing data for the top highest-cost drugs for all years are included in Appendix Table A-4. Table 3-4 presents the top 10 highest-cost prescribed drugs in Medicare Part D ranked by spending per unit for 2008, 2011, 2014, and 2017 with all years 2008-2017 presented in Appendix Table A-5

As shown in Table 3-5, the top 10 most frequently prescribed drugs in Medicare Part D (as calculated by number of claims), are relatively inexpensive and typically account for less than 10 percent of total Part D GDC. In 2017, spending on the top 10 most frequently prescribed drugs was \$4.1 billion, or 3% of \$154.2 billion in total Part D GDC. Spending and pricing data for all years are included in Appendix Table A-6.

Table 3-3 Top 10 Highest-Cost Drugs, Medicare Part D, Ranked by Total Spending

<u>2008</u>				<u>2011</u>		
Rank	Drug Name	GDC Per Unit (\$)	GDC (\$M)	Drug Name	GDC Per Unit (\$)	GDC (\$M)
1	Lipitor	\$2.95	\$2,397.8	Plavix	\$6.18	\$3,656.7
2	Plavix	\$3.83	\$2,305.1	Lipitor	\$4.57	\$2,672.9
3	Nexium	\$4.73	\$1,487.0	Seroquel	\$7.28	\$2,045.3
4	Seroquel	\$4.78	\$1,462.2	Nexium	\$5.89	\$1,970.1
5	Aricept	\$5.18	\$1,326.1	Advair Diskus	\$3.81	\$1,664.9
6	Zyprexa	\$12.65	\$1,229.0	Zyprexa	\$19.88	\$1,625.3
7	Advair Diskus	\$2.94	\$1,213.3	Abilify	\$18.97	\$1,469.6
8	Actos	\$4.82	\$1,063.0	Crestor	\$4.44	\$1,416.3
9	Prevacid	\$4.58	\$947.2	Actos	\$7.01	\$1,294.1
10	Abilify	\$14.13	\$837.1	Spiriva	\$7.48	\$1,288.4
Medicare Part D GDC, Top 10			\$14,267.8			\$19,103.6
Medicare Part D GDC, All Drugs			\$68,223.6			\$84,639.2

<u>2014</u>				<u>2017</u>		
Rank	Drug Name	GDC Per Unit (\$)	GDC (\$M)	Drug Name	GDC Per Unit (\$)	GDC (\$M)
1	Sovaldi	\$1,016.87	\$3,102.2	Revlimid	\$626.98	\$3,312.8
2	Nexium	\$7.82	\$2,658.3	Eliquis	\$6.41	\$3,078.9
3	Crestor	\$6.07	\$2,541.2	Januvia	\$12.86	\$2,786.1
4	Abilify	\$28.67	\$2,524.9	Lantus Solostar	\$24.82	\$2,632.4
5	Advair Diskus	\$4.94	\$2,273.8	Xarelto	\$12.76	\$2,611.8
6	Spiriva	\$9.43	\$2,156.2	Harvoni	\$1,119.62	\$2,555.8
7	Lantus Solostar	\$21.74	\$2,014.7	Lyrca	\$6.66	\$2,516.9
8	Januvia	\$9.67	\$1,773.8	Advair Diskus	\$6.22	\$2,374.8
9	Lantus	\$21.52	\$1,724.2	Humira Pen	\$2,235.96	\$2,015.7
10	Revlimid	\$450.86	\$1,670.5	Spiriva	\$12.15	\$1,662.0
Medicare Part D GDC, Top 10			\$22,439.8			\$25,547.2
Medicare Part D GDC, All Drugs			\$121,001.4			\$154,229.6

Source: Analysis of Medicare claims data (carrier, outpatient, and Prescription Drug Event) by Acumen for ASPE.

Table 3-4 Top 10 Highest-Cost Drugs, Medicare Part D, Ranked by Spending per Unit

<u>2008</u>				<u>2011</u>		
Rank	Drug Name	GDC Per Unit (\$)	GDC (\$M)	Drug Name	GDC Per Unit (\$)	GDC (\$M)
1	Retisert	19784.33	0.1	Lucentis	38985.58	1.1
2	Somatuline Depot	7648.06	0.3	Eylea	37720.00	0.0
3	Animas 2020	5663.20	0.0	Ilaris	16278.40	0.8
4	Arcalyst	5198.06	1.1	Stelara	10756.61	31.7
5	Viadur	4905.50	0.1	Somatuline Depot	8342.85	3.5
6	Vantas	4738.90	0.5	Neulasta	5952.62	28.3
7	H.P. Acthar	4547.26	6.9	Mozobil	5703.27	1.1
8	Fabrazyme	3443.73	1.4	Sylatron 4-Pack	5567.04	0.1
9	Neulasta	3399.84	19.5	Jevtana	5528.20	1.2
10	Herceptin	2728.76	2.3	H.P. Acthar	5303.69	49.5
Medicare Part D GDC, Top 10			\$32.2			\$117.4
Medicare Part D GDC, All Drugs			\$68,223.6			\$84,639.2

<u>2014</u>				<u>2017</u>		
Rank	Drug Name	GDC Per Unit (\$)	GDC (\$M)	Drug Name	GDC Per Unit (\$)	GDC (\$M)
1	Eylea	38360.36	2.9	Eylea	38341.55	13.0
2	Lucentis	36442.45	2.7	Lucentis	37542.48	3.2
3	Gattex	28077.72	46.7	Gattex	35331.78	164.8
4	Ilaris	16381.65	4.1	Spinraza	25650.18	1.2
5	Stelara	14510.12	156.9	Krystexxa	19152.45	13.6
6	Jetrea	11850.00	0.0	Lemtrada	18062.64	7.7
7	Somatuline Depot	11421.89	10.2	Jetrea	16868.29	0.0
8	Krystexxa	7744.50	0.8	Ilaris	16621.41	8.1
9	Neulasta	7384.42	57.8	Somatuline Depot	15515.58	25.7
10	H.P. Acthar	6497.68	391.1	Signifor Lar	11541.03	2.7
Medicare Part D GDC, Top 10			\$673.1			\$239.9
Medicare Part D GDC, All Drugs			\$121,001.4			\$154,229.6

Source: Analysis of Medicare claims data (carrier, outpatient, and Prescription Drug Event) by Acumen for ASPE.

Table 3-5 Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

<u>2008</u>				<u>2011</u>		
Rank	Drug Name	GDC Per Unit (\$)	GDC (\$M)	Drug Name	GDC Per Unit (\$)	GDC (\$M)
1	Lisinopril	\$0.25	\$345.0	Simvastatin	\$0.31	\$594.3
2	Simvastatin	\$0.57	\$694.1	Lisinopril	\$0.19	\$322.3
3	Furosemide	\$0.11	\$131.8	Hydrocodone-Acetaminophen	\$0.18	\$430.1
4	Hydrocodone-Acetaminophen	\$0.18	\$312.5	Amlodipine Besylate	\$0.30	\$383.1
5	Levothyroxine Sodium	\$0.24	\$207.8	Omeprazole	\$0.50	\$674.7
6	Amlodipine Besylate	\$0.45	\$401.5	Levothyroxine Sodium	\$0.22	\$256.5
7	Lipitor	\$2.95	\$2,397.8	Furosemide	\$0.11	\$133.5
8	Omeprazole	\$0.86	\$695.6	Metformin Hcl	\$0.12	\$214.4
9	Hydrochlorothiazide	\$0.12	\$94.1	Metoprolol Tartrate	\$0.09	\$126.1
10	Atenolol	\$0.11	\$111.7	Hydrochlorothiazide	\$0.12	\$95.2
Medicare Part D GDC, Top 10			\$5,391.9			\$3,230.2
Medicare Part D GDC, All Drugs			\$68,223.6			\$84,639.2

<u>2014</u>				<u>2017</u>		
Rank	Drug Name	GDC Per Unit (\$)	GDC (\$M)	Drug Name	GDC Per Unit (\$)	GDC (\$M)
1	Lisinopril	\$0.13	\$281.4	Atorvastatin Calcium	\$0.28	\$808.9
2	Levothyroxine Sodium	\$0.33	\$631.5	Levothyroxine Sodium	\$0.36	\$836.1
3	Amlodipine Besylate	\$0.16	\$303.6	Amlodipine Besylate	\$0.11	\$267.1
4	Simvastatin	\$0.19	\$346.5	Lisinopril	\$0.10	\$256.2
5	Hydrocodone-Acetaminophen	\$0.26	\$676.2	Omeprazole	\$0.21	\$394.3
6	Omeprazole	\$0.29	\$527.6	Gabapentin	\$0.14	\$494.5
7	Atorvastatin Calcium	\$0.44	\$747.2	Furosemide	\$0.09	\$139.7
8	Furosemide	\$0.10	\$135.6	Simvastatin	\$0.13	\$219.2
9	Metformin Hcl	\$0.08	\$203.8	Hydrocodone-Acetaminophen	\$0.24	\$498.4
10	Gabapentin	\$0.20	\$491.2	Metformin Hcl	\$7.41	\$188.2
Medicare Part D GDC, Top 10			\$4,344.5			\$4,102.6
Medicare Part D GDC, All Drugs			\$121,001.4			\$154,229.6

Source: Analysis of Medicare claims data (carrier, outpatient, and Prescription Drug Event) by Acumen for ASPE.

Data and Methods

Medicare Part D PDE data were used from 2007 to 2017 to calculate annual total gross drug costs, price, and utilization. Although the Medicare Part D program started in 2006, data in the initial year are not considered reliable for analyses. As a result, 2007 was the first year used for evaluating trends.

The analysis is based on all drugs reported in the PDE data, excluding non-covered claims and compound drugs. Additional information was obtained from the Health Plan Management System (HPMS), Medispan, and First Data Bank.³⁴

The unit of analysis for the study is the National Drug Code (NDC), a unique product identifier. The NDC is a unique 10-digit, 3-segment numeric identifier assigned to each medication identifying the labeler or vendor, product (specific strength, dosage form, and formulation for a particular firm), and trade package (package forms and sizes).

The top 10 highest cost drugs and top 10 most frequently prescribed drugs present average spending per dosage unit. Units refer to both the number of claims or the quantity dispensed in the PDE data. Quantity dispensed describes how many dosage units of the medication were dispensed in the current drug event (normally, it is the number of units, grams, milliliters, other. If compounded item, total of all ingredients will be supplied as Quantity Dispensed). Since drugs are available in multiple strengths and dosage forms, the average spending per dosage unit at the brand name and generic name level is weighted to account for variation in claims volume for specific brand name, generic name, strength, dosage form, routes of administration, and manufacturer levels.

³⁴ The Health Plan Management System (HPMS) provides such information as plan type, cost share tier level, and utilization management (quantity limit, prior authorization, step therapy). The First Data Bank (FDB) and Medispan provide such information as generic and brand name, dosage form, strength, and route of administration. In addition, Medispan provides information on drug class and protected class.

SECTION 4: MEDICAID

This section presents information about prescription drugs in Medicaid between 2006 and 2017. It presents data pertaining to trends in overall spending for prescription drugs and the top 10 highest-cost drugs and top 10 most frequently prescribed drugs in Medicaid.

Program overview

Medicaid, created alongside Medicare in 1965, provides comprehensive health coverage, including prescription drug benefits, to disabled and low-income individuals and families. Unlike Medicare, Medicaid is administered by states in accord with federal statutes and regulations. Financial responsibility for Medicaid is apportioned between the federal government and the states according to the applicable Federal Medical Assistance Percentage (FMAP). Although prescription drug coverage is legally an optional rather than a mandatory Medicaid benefit, all states and the District of Columbia have elected to provide this coverage.

About 74 million people were enrolled in Medicaid in 2017.³⁵ Most enrollees receive services under some form of managed care.³⁶ States can carve prescription drugs out of managed care but fewer do so since the Affordable Care Act (ACA) extended Medicaid prescription drug rebates to cover Managed Care Organizations (MCOs) as well as Fee for Service (FFS) utilization, allowing states to receive full rebates under either type of utilization

More than half of the gross cost of Medicaid prescription drugs comes back to the federal government and the states through rebates.³⁷ Since the Omnibus Budget Reconciliation Act of 1990, manufacturers have been required to provide rebates on prescription drugs as a condition of state Medicaid coverage for their products. For single source/innovator multiple source (brand name) drugs, rebate amounts are based on the greater of a percentage of the Average Manufacturer Price (AMP) or the difference between AMP and the “best price” available to other purchasers.³⁸ Additional rebates that apply when the cost of a branded drug increases faster than inflation now account for about half of total rebate amounts on these drugs.³⁹ The

³⁵ Department of Health and Human Services [HHS]. *2017 Actuarial Report on the Financial Outlook for Medicaid*. 2018. Available at <https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/ActuarialStudies/Downloads/MedicaidReport2017.pdf>

³⁶ Centers for Medicare & Medicaid Services [CMS]. *Medicaid Managed Care Enrollment and Program Characteristics, 2016* Spring 2018. Available at <https://www.medicare.gov/medicaid/managed-care/downloads/enrollment/2016-medicare-managed-care-enrollment-report.pdf>

³⁷ MACPAC. MACStats: Medicaid and CHIP Data Book. EXHIBIT 28. Medicaid Gross Spending and Rebates for Drugs by Delivery System, FY 2017 (millions). December 2018. Available from: <https://www.macpac.gov/wp-content/uploads/2015/11/EXHIBIT-28.-Medicaid-Gross-Spending-and-Rebates-for-Drugs-by-Delivery-System-FY-2017.pdf>

³⁸ “Best price” is defined at section 1927(c)(1)(C) of the Social Security Act, and 42 CFR 447.505. Exclusions from the prices used in this calculation include the prices charged to Medicare Part D Plans and to the Veterans Health Administration.

³⁹ U.S. Department of Health and Human Services, Office of Inspector General. *Medicaid rebates for brand-name drugs exceeded Part D rebates by a substantial margin*. Publication number OEI-03-00650. April 2015. Available at <http://oig.hhs.gov/oei/reports/oei-03-13-00650.pdf>.

Bipartisan Budget Act of 2015 (Public Law 114-74) amended the Social Security Act to provide for the payment of additional inflation-based rebates for non-innovator multiple source drugs (generic drugs).

The ACA made several important changes to Medicaid prescription drug rebates. The minimum rebate percentage for single source/innovator multiple source (brand name) drugs was raised from 15.1 percent to 23.1 percent of AMP for most drugs, with a lower rate of 17.1 percent for blood clotting factors and drugs approved by the FDA exclusively for pediatric indications. The minimum rebate percentage for non-innovator (generic) drugs was increased from 11.0 to 13.0 percent of AMP. A line extension of a single source drug or an innovator multiple source drug that is an oral dosage was made subject to an additional penalty that discourages manufacturers from making trivial changes to avoid inflation rebates.⁴⁰ The ACA also provided for a maximum rebate amount (or cap) with respect to each dosage form and strength of a brand drug for a rebate period (basic plus additional inflation-based) at 100 percent of AMP; this maximum rebate amount or cap applies to rebates for generic drugs (basic plus additional inflation-based) as well.⁴¹

Medicaid Spending and Spending Trends

Overall spending and spending trends

Medicaid gross spending on prescription drugs in CY 2017 totaled \$67.6 billion (Table 4-1). However, more than half of that spending came back to the federal government and the states as rebates. Table 4-1 shows estimates of Medicaid prescription drug gross and net spending. In 2014, the combination of new, expensive drugs for hepatitis C and other conditions, price increases in existing drugs, a relatively low number of patent expirations, and increased enrollment due to Medicaid expansion under the ACA increased gross prescription drug spending by 21.6 percent to \$47.3 billion. From 2006 to 2017, Medicaid gross spending on prescription drugs grew from \$13.0 billion to \$67.6 billion with an average annual growth rate of 16.2 percent. The Medicaid Drug Rebate Program, however, substantially reduced spending in all years, and pushed net spending below half of gross spending in 2016 and 2017. Due to the expansion of rebates, the average annual growth for net spending, 5.1 percent was much lower than the gross growth rate over this period.

⁴⁰ Line extension is defined in statute at section 1927(c)(2)(C) of the Social Security Act to mean, with respect to a drug, a new formulation of the drug, such as an extended release formulation, but does not include an abuse-deterrent formulation of the drug (as determined by the Secretary), regardless of whether such abuse-deterrent formulation is an extended release formulation.

⁴¹ The President's FY 2020 budget proposes elimination of the cap. See Department of Health and Human Services, *Budget in Brief* (<https://www.hhs.gov/sites/default/files/fy-2020-budget-in-brief.pdf>), p. 15.

Table 4-1 Medicaid Prescription Drug Gross and Net Spending, 2006-2017

Year	Total Gross Medicaid Spending (\$B)	Annual Growth	Total Net Medicaid Spending (\$B)	Annual Growth
2006	13.0	-	19.1	-
2007	16.7	28.5%	18.3	-4.1%
2008	24.7	47.5%	19.2	4.9%
2009	26.0	5.6%	20.3	5.8%
2010	33.0	26.8%	20.4	0.4%
2011	37.7	14.2%	21.0	2.6%
2012	37.8	0.2%	21.4	2.3%
2013	38.9	3.0%	22.1	2.9%
2014	47.3	21.6%	27.3	23.9%
2015	57.8	22.2%	30.5	11.6%
2016	64.5	11.5%	32.0	5.0%
2017	67.6	4.9%	33.0	3.1%
Average Annual 2006-17		16.2%		5.1%

Sources: Gross Spending: 2006-2012 Lewin analysis of Medicaid State Drug Utilization public-use data, 2013-2017 Centers for Medicaid and Medicaid Services analysis of Medicaid State Drug Utilization public-use data. Medicaid data for years before 2010 does not include spending by Managed Care Organizations and may be subject to data errors. Net Spending: National Health Expenditure Accounts (<https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/Tables.zip>), Table 16.

Spending concentration for top ten drugs

The top 10 highest cost drugs have historically accounted for approximately 20 percent of Medicaid spending on all drugs, although the contraction of spending in the top 10 has decreased over the last few years as certain brand drugs have been moved to the generic market. Table 4-2 presents the top 10 drugs in term of Medicaid drug program spending over the last ten years. For brevity, we present only 2008, 2011, 2014, and 2017 here, with tables for all years included in Appendix Table A-7.

In 2008, the top 10 highest-cost drugs accounted for \$5.5 billion in Medicaid spending, or 22 percent of \$24.7 billion in Medicaid spending for all drugs. Comparatively, in 2017, the top 10 highest-cost drugs accounted for \$9.2 billion in Medicaid spending, or 14 percent of \$67.6 billion in Medicaid spending for all drugs. At \$1.3 billion in Medicaid spending, Humira Pen, used to treat rheumatoid arthritis and other chronic conditions, accounted for more spending than any other drug in 2017. Medicaid spending for the Humira Pen was \$2,152.22 per unit in 2017. A unit refers to the lowest dispensable amount (e.g. one pill or a standardized volume for liquids). Prior to 2017, the psychotropic drug Abilify was one of the highest-cost drugs in Medicaid, with \$2.5 billion in spending in 2014, but generic equivalents for Abilify became available in mid-2015. Medicaid spending on Abilify decreased with the availability of a lower-cost generic version of the drug.

Table 4-3 shows the top 10 drugs by gross unit cost. The competing macular degeneration drugs Eylea and Lucentis topped the list in 2014, but the emphysema drug Aralast was highest in 2017, with an average price over \$36,000. Spending and pricing data for all years are included in Appendix Table A-8. Because Medicaid volume for the highest unit cost drugs is typically low, the top 10 accounted for less than 1 percent of total Medicaid gross spending in all the years shown.

As shown in Table 4-4, the top 10 most frequently prescribed drugs in Medicaid (as calculated by number of claims), are relatively inexpensive and typically account for less than 5 percent of total Medicaid drug spending. In 2017, spending on the top 10 most frequently prescribed drugs was \$1.5 billion, or 2% of \$67.6 billion in total Medicaid spending for all drugs. Hydrocodone-Acetaminophen and Amoxicillin are typically among the most prescribed drugs in Medicaid. Spending and pricing data for all years are included in Appendix Table A-9.

Table 4-2 Top 10 High-Cost Prescribed Drugs, Medicaid, Ranked by Total Spending

Rank	Generic Drug Name	2008		Generic Drug Name	2011	
		Spending per Unit	Total Spending		Spending per Unit	Total Spending
1	Quetiapine Fumarate	\$5.59	\$962,610,903	Aripiprazole	\$16.92	\$1,667,289,509
2	Aripiprazole	\$12.98	\$864,665,984	Quetiapine Fumarate	\$8.47	\$1,618,779,336
3	Olanzapine	\$14.00	\$655,125,344	Olanzapine	\$20.49	\$983,556,014
4	Risperidone	\$5.54	\$624,080,668	Montelukast Sodium	\$4.65	\$892,903,221
5	Montelukast Sodium	\$3.46	\$452,731,574	Methylphenidate HCL	\$4.09	\$709,352,216
6	Palivizumab	\$1,603.26	\$440,111,778	Fluticasone/Salmeterol	\$4.14	\$640,832,463
7	Lansoprazole	\$4.80	\$396,513,136	Esomeprazole Mag Trihydrate	\$5.82	\$573,215,157
8	Fluticasone/Salmeterol	\$3.38	\$372,878,837	Emtricitabine/Tenofovir	\$35.81	\$455,304,078
9	Esomeprazole Mag Trihydrate	\$5.00	\$351,395,745	Albuterol Sulfate	\$3.10	\$453,110,973
10	Topiramate	\$3.79	\$335,536,619	Efavirenz/Emtricitabine/Tenofovir	\$55.06	\$443,793,760
Medicaid Spending, Top 10			\$5,455,650,587			\$8,438,136,726
Medicaid Spending, All Drugs			\$24,655,613,645			\$37,679,593,904

Rank	Generic Drug Name	2014		Generic Drug Name	2017	
		Spending per Unit	Total Spending		Spending per Unit	Total Spending
1	Abilify	\$27.91	\$2,464,660,026	Humira Pen	\$2,152.22	\$1,263,696,300
2	Sovaldi	\$1,023.55	\$1,386,209,781	Harvoni	\$1,084.68	\$1,211,321,698
3	Atorvastatin Calcium	\$8.31	\$1,139,715,919	Latuda	\$37.35	\$1,096,733,005
4	Vyvanse	\$6.75	\$659,026,202	Vyvanse	\$8.87	\$971,454,153
5	Truvada	\$43.53	\$616,663,462	Epclusa	\$874.83	\$943,299,246
6	Methylphenidate Er	\$4.96	\$581,063,019	Genvoya	\$90.40	\$814,372,297
7	Atripla	\$68.56	\$579,363,530	Invega Sustenna	\$1,530.28	\$743,459,699
8	Lantus	\$21.66	\$573,919,545	Methylphenidate Er	\$6.69	\$734,238,237
9	Advair Diskus	\$4.98	\$546,197,570	Lyrica	\$6.54	\$721,237,876
10	Lantus Solostar	\$22.55	\$460,267,881	Zepatier	\$647.27	\$705,462,489
Medicaid Spending, Top 10			\$9,007,086,936			\$9,205,275,001
Medicaid Spending, All Drugs			\$47,308,056,863			\$67,585,558,174

Source: 2006-2012 Lewin analysis of Medicaid State Drug Utilization public-use data, 2013-2017 Centers for Medicaid and Medicaid Services analysis of Medicaid State Drug Utilization public-use data.

Table 4-3 Top 10 Most Frequently Prescribed Drugs, Medicaid, Ranked by Unit Cost

Rank	Generic Drug Name	2014		Generic Drug Name	2017	
		Spending per Unit	Total Spending		Spending per Unit	Total Spending
1	Lucentis	\$22,890.95	\$42,675,634	Aralast	\$36,417.29	\$164,897
2	Eylea	\$18,281.66	\$18,866,688	Eylea	\$33,809.93	\$155,473,882
3	Supprelin La	\$17,858.48	\$12,554,513	Supprelin La	\$28,283.06	\$20,986,031
4	Ilaris	\$16,106.46	\$17,651,242	Lucentis	\$24,721.29	\$39,847,591
5	Stelara	\$14,515.75	\$ 52,042,820	Spinraza	\$23,477.05	\$119,583,270
6	Jetrea	\$11,938.28	\$ 211,307	Retisert	\$19,168.74	\$274,535
7	Somatuline Depot	\$11,768.56	\$2,221,257	Lemtrada	\$18,289.10	\$17,467,005
8	Marqibo	\$6,895.33	\$151,697	Xofigo	\$18,227.44	\$2,320,827
9	Jevtana	\$6,450.22	\$ 3,252,343	Stelara	\$17,235.71	\$221,874,939
10	H.P. Acthar	\$6,258.93	\$126,837,119	Krystexxa	\$16,421.79	\$1,299,374
Medicaid Spending, Top 10			\$276,464,623	Medicaid Spending, All Drugs		
			\$47,308,056,863			
				\$67,585,558,174		

Source: Centers for Medicaid and Medicaid Services analysis of Medicaid State Drug Utilization public-use data.

Table 4-4 Top 10 Most Frequently Prescribed Drugs, Medicaid, Ranked by Number of Claims

2008				2011		
Rank	Generic Drug Name	Spending per Unit	Total Spending	Generic Drug Name	Spending per Unit	Total Spending
1	Hydrocodone bit/Acetaminophen	\$0.23	\$112,492,086	Hydrocodone bit/Acetaminophen	\$0.20	\$185,851,039
2	Amoxicillin	\$0.09	\$64,329,996	Amoxicillin	\$0.09	\$127,704,574
3	Ibuprofen	\$0.09	\$49,200,240	Ibuprofen	\$0.09	\$82,215,957
4	Azithromycin	\$2.40	\$145,355,482	Albuterol Sulfate	\$3.10	\$453,110,973
5	Alprazolam	\$0.13	\$39,489,546	Azithromycin	\$1.47	\$182,600,085
6	Clonazepam	\$0.20	\$51,623,548	Alprazolam	\$0.12	\$59,014,244
7	Lorazepam	\$0.27	\$57,573,711	Loratadine	\$0.16	\$54,014,819
8	Montelukast sodium	\$3.46	\$452,731,574	Clonazepam	\$0.13	\$53,746,692
9	Aspirin	\$0.09	\$14,808,907	Lisinopril	\$0.19	\$43,334,762
10	Loratadine	\$0.24	\$44,987,853	Montelukast sodium	\$4.65	\$892,903,221
Medicaid Spending, Top 10			\$1,032,592,942			\$2,134,496,367
Medicaid Spending, All Drugs			\$24,655,613,645			\$37,679,593,904

2014				2017		
Rank	Generic Drug Name	Spending per Unit	Total Spending	Generic Drug Name	Spending per Unit	Total Spending
1	Hydrocodone-Acetaminophen	\$0.29	\$232,638,855	Amoxicillin	\$0.12	\$104,708,104
2	Amoxicillin	\$0.13	\$98,843,746	Ibuprofen	\$0.11	\$89,449,829
3	Ibuprofen	\$0.10	\$74,011,233	Gabapentin	\$0.16	\$202,816,058
4	Lisinopril	\$0.14	\$43,124,965	Lisinopril	\$0.12	\$51,994,254
5	Omeprazole	\$0.34	\$107,844,436	Hydrocodone-Acetaminophen	\$0.31	\$176,562,712
6	Azithromycin	\$1.58	\$121,677,230	Atorvastatin Calcium	\$0.31	\$120,312,292
7	Gabapentin	\$0.23	\$164,292,251	Omeprazole	\$0.24	\$98,121,378
8	Cetirizine Hcl	\$0.15	\$56,034,828	Ventolin Hfa	\$2.92	\$543,229,325
9	Loratadine	\$0.16	\$38,240,930	Cetirizine Hcl	\$0.16	\$77,908,465
10	Levothyroxine Sodium	\$0.37	\$83,000,884	Metformin Hcl	\$0.08	\$52,936,615
Medicaid Spending, Top 10			\$1,019,709,357			\$1,518,039,032
Medicaid Spending, All Drugs			\$47,308,056,863			\$67,585,558,174

Source: 2006-2012 Lewin analysis of Medicaid State Drug Utilization public-use data, 2013-2017 Centers for Medicaid and Medicaid Services analysis of Medicaid State Drug Utilization public-use data.

Data and Methods

Gross spending amounts and utilization volumes were summarized for individual brand drugs. Gross spending amounts and utilization volumes for multi-source generic drugs (generic drugs manufactured by more than one company) were combined. Net spending amounts are CMS estimates from the National Health Expenditure Accounts, as released in 2018. Annual prescription drug costs as shown are not adjusted for inflation.

Medicaid drug data represent national-level drug utilization data for covered outpatient drugs paid for by State Medicaid agencies and include both FFS and MCO drug spending.⁴² These data include state and national-level reports listing the number of prescription fills and amounts paid by states by NDC. Data were summarized by drug by linking NDCs to a commercially available database and aggregated to the drug brand name and generic name.

The following Medicaid drugs were excluded from the 2013 to 2017 analysis: over-the-counter drugs in the Medicaid State Drug Utilization data as well as NDCs with fewer than 50 claims in the current (2017) or previous year (2016). In addition, NDCs with large variations in reported units from year to year were reviewed on a case-by-case basis and data anomalies were excluded.

Medicaid drug spending contains both the federal and state reimbursement and is inclusive of any applicable dispensing fees.⁴³ In addition, this total is not reduced or affected by Medicaid rebates paid to the states.

The top 10 highest cost drugs, top 10 most frequently prescribed drugs, and top 10 drugs by unit cost present average spending per dosage unit. Units refer to the drug unit in the lowest dispensable amount. Since drugs are available in multiple strengths and dosage forms, the average spending per dosage unit at the brand name and generic name level is weighted to account for variation in claims volume for specific brand name, generic name, strength, dosage form, routes of administration, and manufacturer levels. The overall brand name/generic name claim weighted spending per unit is calculated by first summarizing each drug to specific strength, form, route of administration, and manufacture levels. For each unique level, spending is divided by the number of units and multiplied by its proportion of total claims, so that claims volume becomes the weight. The claim-weighted average spending per dosage unit at the overall brand name/generic name level is then calculated by summarizing across the strength, form, route, and manufacturer levels. We use number of claims to identify the “most frequently prescribed drugs” as more directly related to the Congressional request than number of units. Number of scripts (including prescriptions that were never filled) is not available from the Medicaid drug data discussed above.

⁴² The Medicaid drug spending dashboard is based on non-public data, but the public Medicaid State Drug Utilization data are available at <https://www.medicaid.gov/medicaid/prescription-drugs/state-drug-utilization-data/index.html>.

⁴³ Medicaid drug spending is based on the “Total Amount Reimbursed” field in the publicly available data.

SECTION 5: DRUGS BENEFITING FROM GOVERNMENT GRANTS OR RESEARCH SUBSIDIES

Congress requested that HHS identify prescription drug products recently approved by the Food and Drug Administration (FDA) whose development “benefited significantly from government grants or research subsidies in either the pre-clinical or clinical stages of development.” There is some empirical evidence which suggests that in virtually all cases, new drug products approved for sale in recent years involved research and development activity that was based at least in part on advances in basic medical science that were made possible by public funding.

The mission of the National Institutes of Health (NIH) is to improve human health by conducting and supporting research in the causes, diagnosis, prevention, and cure of diseases. Basic science research funded by NIH identifies mechanisms of disease and describes biological processes, highlighting potential drug targets that offer the promise of valuable new strategies for therapy. Knowledge gleaned from such research is often described as a “public good” available to all parties for use. Private markets are known to underproduce public goods such as basic scientific knowledge because private investments in their development yield economic benefits that cannot be held solely for private use, so such investments are not profitable; that dilemma provides the rationale for public funding of basic science.

In a typical case of new commercial drug development, private investments in research on the safety and efficacy of specific drug compounds are based directly or indirectly on insights into basic science knowledge made possible by public funding. Private firms have strong incentives to conduct applied research into the development of new drug therapies because patent protection confers time-limited exclusive sales rights, allowing drugmakers to earn potentially-high rates of return on investments in new product development. Those high rates of return are necessary to induce investments in pharmaceutical R&D given the high capital costs of such investments and the fact that such investments are made in the face of scientific uncertainty as to a compound’s clinical value. Of the many compounds that are studied by innovative drugmakers, the overwhelming majority fail to reach FDA approval and marketing by the sponsor.. Even when a drug is approved, and marketed, the drugmaker sees no revenue for years after the initial investment decision, so there are high opportunity costs for investment capital during the research stage.

A recent analysis addresses the question of how public funding has contributed to the development of new prescription drug products in recent years.⁴⁴ The authors examine every one of the 210 new molecular entities (NMEs)—essentially, new drugs that contain active ingredients not previously approved—which were approved for marketing by the FDA from

⁴⁴ Ekaterina Galkina Cleary, Jennifer M. Beierlein, Navleen Surjit Khanuja, Laura M. McNamee, and Fred D. Ledley, “Contribution of NIH funding to new drug approvals 2010–2016”, www.pnas.org/cgi/doi/10.1073/pnas.1715368115.

2010 to 2016. In an extensive analysis of published medical literature related to those drugs as well as a thorough review of government data on NIH-funded research projects, the authors find that “NIH funding contributed to every one of the NMEs approved from 2010–2016 and was focused primarily on the drug targets rather than on the NMEs themselves” and that the contribution of public funding “primarily involved funding for research related to molecular targets for new drugs and likely represents basic research.” These findings are consistent with the idea that publicly-funded basic science enables subsequent private research efforts which focus on applications of basic science with viable commercial prospects.

In some cases, the development of a newly-approved drug might benefit from public research funding in ways that go beyond basic science. In other words, some new drugs likely have more-extensive public funding in their development history than others do, and determining the extent of the contribution of publicly-funded research presents complex challenges. It appears safe to conclude, however, that all or nearly all new drugs have at least some history of public funding in their development, usually in the form of basic science.

The Committee requested a list of all drugs approved for sale in the past five years that involved public funding. Below (Table 5-1) is a list of all drugs approved during the five-year period for which data are currently available, 2013 through 2017. This list does not correspond exactly to the set of drugs examined in the study mentioned above, but because that study examined all new NMEs from 2010 to 2016 that said, there will be considerable overlap in the two sets of drugs. Because all NMEs examined in that study had at least some history of public funding, it appears highly likely that a similar conclusion would be drawn in a full analysis of more-recent drug approvals. Table 5-1 also presents 2017 total and per unit spending in Medicare Part D and Medicaid where available for each prescription drug. Because Medicare Part B drug claims are aggregated to the HCPCS level, which may include multiple drugs, we are unable to include Medicare Part B spending for individual drugs.

Table 5-1 Prescription Drugs Approved for Sale by the Food and Drug Administration from 2013 to 2017, and 2017 Spending by Program Where Applicable

Brand Name	Medicare Part D		Medicaid		Year of FDA Approval
	Total Spending in 2017	Spending per Unit in 2017	Total Spending in 2017	Spending per Unit in 2017	
Actemra	\$86,400,039	\$906.83	\$48,017,654	\$407.56	2013
Addyi			\$77,832	\$27.04	2015
Adempas	\$241,035,244	\$106.26	\$31,569,719	\$105.88	2013
Adlyxin	\$24,669	\$91.64	\$76,034	\$93.08	2016
Akynzeo	\$756,007	\$544.51	\$537,990	\$531.37	2014
Alecensa	\$47,575,891	\$56.89	\$10,434,411	\$56.73	2015
Aliqopa			**	**	2017
Alunbrig	\$3,389,101	\$81.74	\$1,136,002	\$80.65	2017
Anoro Ellipta	\$384,993,452	\$5.91	\$37,371,071	\$5.87	2013
Anthim					2016
Aptiom	\$59,766,627	\$28.36	\$40,899,769	\$27.35	2013
Aristada	\$68,821,741	\$726.04	\$66,279,961	\$692.26	2015
Austedo	\$17,550,907	\$71.55	\$2,028,124	\$69.57	2017

Brand Name	Medicare Part D		Medicaid		Year of FDA Approval
	Total Spending in 2017	Spending per Unit in 2017	Total Spending in 2017	Spending per Unit in 2017	
Avycaz	\$2,664,813	\$12.94	\$1,742,468	\$334.46	2015
Axumin					2016
Bavencio	\$74,642	\$162.27	\$71,948	\$117.95	2017
Baxdela					2017
Beleodaq	\$412,260	\$1,717.75	\$626,679	\$1,808.81	2014
Belsomra	\$60,805,250	\$10.25	\$11,919,689	\$10.18	2014
Benznidazole					2017
Besponsa			\$55,539	\$1,988.29	2017
Bevyxxa					2017
Blincyto	\$1,821,295	\$853.67	\$8,387,395	\$2,982.89	2014
Breo Ellipta	\$812,599,446	\$5.39	\$148,483,935	\$5.33	2013
Bridion			\$2,190,176	\$177.65	2015
Brineura					2017
Brintellix	\$550,472	\$10.76	\$471,539	\$10.03	2013
Briviact	\$24,739,138	\$16.70	\$20,725,853	\$15.38	2016
Calquence	\$705,323	\$239.91	\$71,093	\$236.98	2017
Cerdelga	\$15,314,837	\$429.32	\$4,322,241	\$385.91	2014
Cholbam	\$388,599	\$863.55	\$11,994,900	\$497.67	2015
Cinqair	\$378,335	\$86.58	\$920,851	\$77.68	2016
Corlanor	\$11,571,724	\$7.05	\$4,499,295	\$6.99	2015
Cosentyx*	\$220,359,536	\$2,187.78	\$110,977,552	\$2,124.10	2015
Cotellic	\$3,844,912	\$105.39	\$1,888,687	\$102.43	2015
Cresemba	\$16,905,039	\$80.16	\$7,312,790	\$80.96	2015
Cyramza	\$2,368,992	\$113.09	\$19,016,530	\$111.32	2014
Daklinza	\$137,214,398	\$761.14	\$18,353,791	\$730.63	2015
Dalvance	\$2,246,625	\$109.23	\$3,298,764	\$588.67	2014
Darzalex	\$7,540,100	\$97.13	\$18,464,378	\$90.12	2015
Defitelio					2016
Dotarem					2013
Duavee	\$1,680,209	\$5.21	\$371,192	\$5.32	2013
Dupixent	\$26,650,730	\$719.14	\$14,313,170	\$702.69	2017
Emflaza	\$1,256,323	\$192.01	\$8,531,153	\$167.53	2017
Empliciti	\$3,305,028	\$2,226.89	\$3,453,119	\$696.66	2015
Entresto	\$227,622,190	\$6.97	\$29,009,236	\$6.96	2015
Entyvio	\$16,196,446	\$1,282.99	\$57,372,196	\$4,314.59	2014
Epclusa	\$941,351,453	\$897.35	\$943,299,246	\$874.83	2016
Esbriet	\$477,230,088	\$36.34	\$14,076,495	\$34.97	2014
Eucrisa	\$3,634,363	\$9.68	\$9,247,846	\$9.55	2016
Exondys 51	\$3,231,919	\$839.84	\$24,164,485	\$878.73	2016
Farxiga	\$193,250,737	\$14.20	\$33,515,739	\$14.16	2014
Farydak	\$5,798,773	\$1,256.47	\$545,332	\$1,247.83	2015
Fasenra	**	**	\$52,329	\$4,757.22	2017
Gazyva	\$1,106,000	\$151.92	\$3,930,261	\$144.47	2013
Genvoya	\$689,941,011	\$92.88	\$814,372,297	\$90.40	2015
Giapreza					2017
Gilotrif	\$86,748,908	\$265.82	\$12,856,461	\$261.17	2013

Brand Name	Medicare Part D		Medicaid		Year of FDA Approval
	Total Spending in 2017	Spending per Unit in 2017	Total Spending in 2017	Spending per Unit in 2017	
Harvoni	\$2,555,839,934	\$1,119.62	\$1,211,321,698	\$1,084.68	2014
Hemlibra					2017
Hetlioz	\$65,211,444	\$459.85	\$11,579,569	\$450.67	2014
Ibrance	\$1,399,517,851	\$534.68	\$245,368,530	\$522.25	2015
Idhifa	\$11,692,885	\$841.90	\$480,611	\$801.02	2017
Imbruvica	\$1,368,727,295	\$125.74	\$63,978,556	\$122.79	2013
Imfinzi	\$265,553	\$353.36	\$391,938	\$210.55	2017
Impavido			\$484,603	\$572.82	2014
Ingrezza	\$83,396,864	\$188.23	\$14,189,177	\$181.77	2017
Invokana	\$717,362,001	\$13.97	\$188,379,479	\$14.05	2013
Jardiance	\$321,839,321	\$14.07	\$107,278,880	\$14.20	2014
Jublia	\$34,526,305	\$141.47	\$4,089,011	\$137.37	2014
Kadcyla	\$2,202,844	\$3,319.95	\$26,953,379	\$1,495.48	2013
Kanuma			\$4,460,821	\$1,148.22	2015
Kengreal			\$3,427	\$63.44	2015
Kerydin	\$13,288,567	\$143.91	\$986,819	\$141.46	2014
Kevzara	\$3,161,323	\$1,331.57	\$498,150	\$1,314.41	2017
Keytruda	\$14,585,744	\$1,158.70	\$91,215,243	\$1,010.15	2014
Kisqali*	\$28,028,426	\$187.07	\$5,365,840	\$181.57	2017
Kybella					2015
Kynamro	\$3,228,484	\$7,543.19	\$791,688	\$7,330.45	2013
Lartruvo	\$907,506	\$49.19	\$3,571,383	\$60.57	2016
Lenvima	\$79,194,380	\$282.00	\$12,858,211	\$2,333.81	2015
Lonsurf	\$88,408,625	\$181.29	\$20,183,636	\$182.72	2015
Lumason					2014
Luzu	\$723,546	\$7.50	\$163,167	\$7.33	2013
Lymphoseek					2013
Lynparza	\$45,911,717	\$47.09	\$10,737,846	\$45.25	2014
Macrilen					2017
Mavyret	\$71,065,533	\$158.30	\$113,895,225	\$348.72	2017
Mekinist	\$50,847,497	\$296.26	\$22,623,999	\$280.01	2013
Mepsevii					2017
Movantik	\$75,658,178	\$10.56	\$18,997,726	\$10.41	2014
Myalept	\$11,515,682	\$3,991.57	\$17,656,249	\$3,845.84	2014
Natpara	\$36,971,388	\$4,565.51	\$16,838,925	\$4,624.66	2015
Nerlynx	\$4,096,875	\$59.57	\$1,988,772	\$59.72	2017
Nesina	\$4,485,458	\$11.81	\$701,140	\$12.38	2013
Netspot					2016
Neuraceq					2014
Ninlaro	\$212,933,728	\$3,188.19	\$10,711,088	\$3,149.17	2015
Northera	\$169,715,303	\$49.90	\$8,009,720	\$45.23	2014
Nucala	\$18,862,489	\$2,775.12	\$17,115,079	\$2,240.99	2015
Nuplazid	\$107,725,863	\$38.29	\$1,871,758	\$37.45	2016
Ocaliva	\$38,666,557	\$201.92	\$7,377,148	\$199.58	2016
Ocrevus	\$24,098,189	\$1,375.39	\$11,222,699	\$386.36	2017
Odomzo	\$6,310,591	\$339.61	\$719,842	\$333.26	2015

Brand Name	Medicare Part D		Medicaid		Year of FDA Approval
	Total Spending in 2017	Spending per Unit in 2017	Total Spending in 2017	Spending per Unit in 2017	
Ofev	\$494,127,312	\$148.10	\$15,465,997	\$146.87	2014
Olysio	\$5,838,192	\$801.73	\$2,043,069	\$768.07	2013
Opdivo	\$28,619,177	\$263.10	\$206,274,929	\$256.36	2014
Opsumit	\$400,507,430	\$288.39	\$65,587,260	\$281.88	2013
Orbactiv	\$687,031	\$41.06	\$1,617,463	\$441.91	2014
Orkambi	\$83,330,029	\$185.36	\$297,773,454	\$181.62	2015
Osphena	\$12,547	\$6.08	\$415,292	\$6.02	2013
Otezla	\$243,149,801	\$49.57	\$81,355,941	\$48.30	2014
Ozempic					2017
Parsabiv					2017
Plegridy*	\$81,390,738	\$6,353.99	\$18,163,470	\$3,316.23	2014
Pomalyst	\$639,636,457	\$711.31	\$35,511,974	\$691.35	2013
Portrazza	\$66,922	\$83.65	\$881,034	\$135.58	2015
Praluent*	\$168,199,351	\$572.01	\$5,362,029	\$556.06	2015
Praxbind			\$5,511	\$51.51	2015
Prevymis	\$22,064	\$197.00			2017
Radicava	\$8,801,715	\$5.55	\$637,544	\$5.85	2017
Rapivab					2014
Repatha*	\$149,192,429	\$569.87	\$10,077,857	\$549.22	2015
Rexulti	\$154,854,512	\$33.93	\$128,082,228	\$32.86	2015
Rhopressa					2017
Rubraca	\$17,003,163	\$116.90	\$3,701,960	\$117.40	2016
Rydapt	\$9,817,343	\$136.03	\$4,149,975	\$133.61	2017
Savaysa	\$11,775,581	\$10.40	\$926,475	\$10.45	2015
Siliq	\$123,026	\$1,188.66	\$35,778	\$1,192.60	2017
Simponi Aria*	\$129,030,017	\$405.81	\$56,037,375	\$336.45	2013
Sivextro	\$5,228,331	\$323.04	\$1,217,779	\$299.05	2014
Solosec					2017
Sovaldi	\$211,121,755	\$1,013.14	\$36,998,037	\$976.07	2013
Spinraza	\$1,154,258	\$25,650.18	\$119,583,270	\$23,477.05	2016
Steglatro					2017
Strensiq	\$56,537,768	\$5,955.45	\$38,702,500	\$4,030.50	2015
Striverdi Respimat	\$2,751,942	\$45.51	\$821,392	\$44.77	2014
Sylvant	\$72,030	\$3,601.50	\$515,545	\$1,176.55	2014
Symproic	\$123,285	\$10.54	\$28,694	\$10.58	2017
Tafinlar	\$45,644,597	\$78.00	\$17,179,644	\$77.14	2013
Tagrisso	\$189,639,073	\$486.90	\$26,195,457	\$475.02	2015
Taltz*	\$72,197,880	\$4,786.28	\$26,175,641	\$4,660.38	2016
Tanzeum	\$29,166,096	\$125.31	\$37,829,320	\$126.75	2014
Tecentriq	\$4,135,067	\$447.52	\$9,307,801	\$97.35	2016
Tecfidera	\$1,024,106,779	\$116.81	\$307,295,038	\$395.11	2013
Tivicay	\$518,567,843	\$51.87	\$412,871,260	\$50.42	2013
Tremfya	\$9,424,317	\$9,766.13	\$3,059,127	\$9,529.99	2017
Tresiba*	\$438,621,820	\$59.22	\$75,764,368	\$58.85	2015
Trulance	\$4,360,061	\$11.78	\$1,398,081	\$11.71	2017
Trulicity	\$699,368,134	\$329.75	\$95,090,166	\$326.93	2014

Brand Name	Medicare Part D		Medicaid		Year of FDA Approval
	Total Spending in 2017	Spending per Unit in 2017	Total Spending in 2017	Spending per Unit in 2017	
Tymlos	\$4,903,353	\$1,060.81	\$211,071	\$1,025.02	2017
Unituxin					2015
Upravi	\$216,625,694	\$222.21	\$54,168,963	\$224.56	2015
Vabomere					2017
Varubi	\$4,054,107	\$281.73	\$858,429	\$268.24	2015
Veltassa	\$38,802,627	\$23.11	\$3,936,528	\$22.95	2015
Venclexta*	\$45,993,352	\$81.85	\$3,269,134	\$84.17	2016
Verzenio	\$6,131,338	\$199.67	\$789,734	\$198.09	2017
Viberzi	\$52,540,250	\$17.42	\$14,203,963	\$17.23	2015
Viekira Pak*	\$24,361,652	\$332.47	\$120,328,382	\$951.48	2014
Vimizim	\$11,021,290	\$226.03	\$51,750,474	\$237.53	2014
Vizamyl					2013
Vosevi	\$74,489,556	\$886.12	\$24,056,794	\$880.98	2017
Vraylar	\$98,960,685	\$36.65	\$88,857,469	\$35.53	2015
Vyzulta	\$17,484	\$69.93	\$1,049	\$69.96	2017
Xadago	\$1,419,720	\$22.76	\$33,261	\$22.70	2017
Xepi					2017
Xermelo	\$6,617,349	\$63.54	\$604,116	\$61.87	2017
Xiidra	\$74,508,228	\$7.47	\$14,516,011	\$28.20	2016
Xofigo			\$2,320,827	\$18,227.44	2013
Xtoro					2014
Xuriden					2015
Yondelis	\$153,287	\$2,875.94	\$1,180,431	\$2,282.48	2015
Zejula	\$33,844,004	\$168.91	\$5,041,899	\$166.09	2017
Zepatier	\$520,138,312	\$660.44	\$705,462,489	\$647.27	2016
Zerbaxa	\$2,461,143	\$4.30	\$1,193,668	\$72.17	2014
Zinbryta	\$19,662,817	\$7,367.11	\$5,798,931	\$7,123.99	2016
Zinplava	\$112,316	\$67.95	\$20,963	\$82.75	2016
Zontivity	\$2,734,005	\$9.59	\$233,591	\$9.40	2014
Zurampic	\$723,921	\$12.06	\$220,875	\$12.07	2015
Zydelig	\$50,968,069	\$168.68	\$2,743,861	\$164.00	2014
Zykadia	\$14,779,325	\$105.62	\$2,820,819	\$100.40	2014

Source: The list of approved drugs was obtained at

<https://www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/DrugandBiologicApprovalReports/NDAandBLAApprovalReports/ucm373420.htm>

Spending data is from an analysis of CMS Medicare and Medicaid State Drug Utilization data. Blank fields indicate no associated volume or spending in 2017. Some of these drugs may be orphan or pediatric drugs.

* Drugs with an asterisk next to the name have more than one product listed separately in the dashboard data for Medicare Part B, Medicare Part B, or Medicaid. In such cases, Total Spending represents the sum of those products. Spending per Dosage Unit represents the reported figure for the product with the largest number of service units in 2017.

** Drugs with 1-11 service units have drug information redacted to protect patient confidentiality

APPENDIX: TOP 10 DRUGS BY TOTAL COST, SPENDING PER UNIT, AND PRESCRIPTION FREQUENCY IN MEDICARE PART B, MEDICARE PART D, AND MEDICAID

Table A-1 Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2008	1	J9310	Rituximab cancer treatment	1,151.1	63	18,271.43	299	3,849.83	2,227	516.88	918.7
	2	J9035	Bevacizumab injection	944.7	149	6,340.27	581	1,625.99	16,457	57.40	761.3
	3	J1745	Infliximab injection	814.8	59	13,810.17	339	2,403.54	14,589	55.85	647.8
	4	J2505	Injection, pegfilgrastim 6mg	798.8	101	7,908.91	361	2,212.74	362	2,206.63	634.3
	5	J2778	Ranibizumab injection	735.8	87	8,457.47	364	2,021.43	1,853	397.09	588.1
	6	J0881	Darbepoetin alfa, non-esrd	676.7	203	3,333.50	1,142	592.56	232,618	2.91	534.5
	7	J9263	Oxaliplatin	457.5	26	17,596.15	149	3,070.47	48,582	9.42	365.9
	8	J0885	Epoetin alfa, non-esrd	462.3	185	2,498.92	1,522	303.75	49,918	9.26	362.3
	9	J9170	Docetaxel	396.7	46	8,623.91	240	1,652.92	1,210	327.85	316.8
	10	J9201	Gemcitabine HCl	330.8	46	7,191.30	313	1,056.87	2,498	132.43	263.7
			Medicare Part B Spending, Top 10	6,769.2							5,393.4
			Medicare Part B Spending, All Drugs	13,614.3							10,843.8

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost- Sharing (\$M)
2009	1	J9310	Rituximab injection	1,195.5	64	18,679.69	293	4,080.20	2,203	542.67	954.5
	2	J9035	Bevacizumab injection	1,086.7	167	6,507.19	679	1,600.44	19,024	57.12	875.5
	3	J2778	Ranibizumab injection	899.0	99	9,080.81	435	2,066.67	2,236	402.06	718.6
	4	J1745	Infliximab injection	854.4	59	14,481.36	338	2,527.81	14,943	57.18	678.7
	5	J2505	Injection, pegfilgrastim 6mg	793.1	99	8,011.11	355	2,234.08	1,356	584.88	628.5
	6	J0881	Darbepoetin alfa, non-esrd	583.6	164	3,558.54	966	604.14	193,897	3.01	460.5
	7	J9263	Oxaliplatin	467.5	27	17,314.81	152	3,075.66	49,594	9.43	373.7
	8	J0885	Epoetin alfa, non-esrd	463.9	170	2,728.82	1,453	319.27	48,219	9.62	364.0
	9	J9170	Docetaxel injection	409.8	46	8,908.70	234	1,751.28	1,200	341.50	327.3
	10	J9305	Pemetrexed injection	363.9	20	18,195.00	81	4,492.59	7,505	48.49	292.6
			Medicare Part B Spending, Top 10	7,117.4							5,673.9
			Medicare Part B Spending, All Drugs	14,488.5							11,547.5

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost- Sharing (\$M)
2010	1	J9310	Rituximab injection	1,253.1	65	19,278.46	290	4,321.03	2,171	577.20	1,000.9
	2	J2778	Ranibizumab injection	1,171.8	115	10,189.57	557	2,103.77	2,900	404.07	936.4
	3	J9035	Bevacizumab injection	1,105.6	162	6,824.69	699	1,581.69	19,142	57.76	890.7
	4	J1745	Infliximab injection	899.8	59	15,250.85	339	2,654.28	15,232	59.07	713.9
	5	J2505	Injection, pegfilgrastim 6mg	876.2	100	8,762.00	357	2,454.34	358	2,447.49	694.3
	6	J0881	Darbepoetin alfa, non-esrd	500.4	138	3,626.09	833	600.72	169,876	2.95	393.5
	7	J9305	Pemetrexed injection	429.8	22	19,536.36	92	4,671.74	8,439	50.93	346.0
	8	J0885	Epoetin alfa, non-esrd	421.9	150	2,812.67	1,297	325.29	43,247	9.76	330.6
	9	J9171	Docetaxel injection	392.4	44	8,918.18	221	1,775.57	21,902	17.92	312.8
	10	J9355	Trastuzumab injection	365.4	14	26,100.00	177	2,064.41	5,510	66.32	291.5
			Medicare Part B Spending, Top 10	7,416.4							5,910.6
			Medicare Part B Spending, All Drugs	15,478.6							12,336.5

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost- Sharing (\$M)
2011	1	J2778	Ranibizumab injection	1,428.9	133	10,743.61	670	2,132.69	3,525	405.36	1,141.9
	2	J9310	Rituximab injection	1,373.0	68	20,191.18	298	4,607.38	2,245	611.58	1,098.3
	3	J9035	Bevacizumab injection	1,012.5	174	5,818.97	756	1,339.29	16,750	60.45	817.4
	4	J2505	Injection, pegfilgrastim 6mg	1,020.5	106	9,627.36	386	2,643.78	386	2,643.78	808.4
	5	J1745	Infliximab injection	960.5	60	16,008.33	344	2,792.15	15,620	61.49	761.6
	6	J9263	Oxaliplatin	498.3	30	16,610.00	164	3,038.41	52,882	9.42	398.0
	7	J9305	Pemetrexed injection	464.4	22	21,109.09	97	4,787.63	8,751	53.07	374.0
	8	J0881	Darbepoetin alfa, non-esrd	435.4	112	3,887.50	687	633.77	138,222	3.15	341.9
	9	J9355	Trastuzumab injection	410.7	15	27,380.00	182	2,256.59	5,817	70.60	327.2
	10	J9171	Docetaxel injection	395.9	45	8,797.78	210	1,885.24	21,168	18.70	315.8
			Medicare Part B Spending, Top 10	8,000.1							6,384.5
			Medicare Part B Spending, All Drugs	17,191.6							13,733.3

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost- Sharing (\$M)
2012	1	J9310	Rituximab injection	1,466.2	70	20,945.71	302	4,854.97	2,364	620.22	1,175.0
	2	J2778	Ranibizumab injection	1,268.0	136	9,323.53	605	2,095.87	3,166	400.51	1,013.4
	3	J2505	Injection, pegfilgrastim 6mg	1,118.7	107	10,455.14	395	2,832.15	396	2,825.00	886.0
	4	J9035	Bevacizumab injection	1,027.5	183	5,614.75	789	1,302.28	16,713	61.48	831.2
	5	J1745	Infliximab injection	1,040.5	61	17,057.38	352	2,955.97	16,201	64.22	824.7
	6	J9263	Oxaliplatin	532.7	31	17,183.87	172	3,097.09	55,077	9.67	425.6
	7	J9305	Pemetrexed injection	521.9	23	22,691.30	103	5,066.99	9,386	55.60	421.1
	8	J0897	Denosumab injection	503.8	164	3,071.95	386	1,305.18	34,654	14.54	400.4
	9	J9355	Trastuzumab injection	478.6	17	28,152.94	192	2,492.71	6,441	74.31	381.5
	10	J9041	Bortezomib injection	436.4	20	21,820.00	311	1,403.22	10,145	43.02	347.5
			Medicare Part B Spending, Top 10	8,394.3							6,706.4
			Medicare Part B Spending, All Drugs	19,001.0							15,201.6

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost- Sharing (\$M)
2013	1	J9310	Rituximab injection	1,554.8	72	21,594.44	304	5,114.47	2,321	669.88	1,245.7
	2	J2778	Ranibizumab injection	1,354.1	144	9,403.47	678	1,997.20	3,443	393.29	1,078.9
	3	J2505	Injection, pegfilgrastim 6mg	1,159.5	105	11,042.86	386	3,003.89	387	2,996.12	915.1
	4	J1745	Infliximab injection	1,139.7	62	18,382.26	359	3,174.65	16,779	67.92	900.8
	5	J0178	Aflibercept injection	1,079.3	109	9,901.83	520	2,075.58	1,117	966.25	859.7
	6	J9035	Bevacizumab injection	1,060.2	188	5,639.36	795	1,333.58	16,689	63.53	855.6
	7	J0897	Denosumab injection	655.9	237	2,767.51	537	1,221.42	46,311	14.16	517.8
	8	J9305	Pemetrexed injection	564.6	23	24,547.83	107	5,276.64	9,664	58.42	455.2
	9	J9355	Trastuzumab injection	518.5	18	28,805.56	190	2,728.95	6,670	77.74	413.2
	10	J9041	Bortezomib injection	465.3	21	22,157.14	321	1,449.53	10,448	44.53	368.8
			Medicare Part B Spending, Top 10	9,551.9							7,610.8
			Medicare Part B Spending, All Drugs	20,331.5							16,231.8

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2014	1	J9310	Rituximab injection	1,552.5	70	22,178.57	292	5,316.78	2,239	693.39	1,244.6
	2	J2778	Ranibizumab injection	1,336.0	142	9,408.45	676	1,976.33	3,420	390.64	1,063.4
	3	J0178	Aflibercept injection	1,302.0	133	9,789.47	627	2,076.56	1,350	964.44	1,036.1
	4	J2505	Injection, pegfilgrastim 6mg	1,235.7	102	12,114.71	373	3,312.87	373	3,312.87	974.4
	5	J1745	Infliximab injection	1,223.5	62	19,733.87	360	3,398.61	17,060	71.72	965.6
	6	J9035	Bevacizumab injection	1,091.4	217	5,029.49	907	1,203.31	16,747	65.17	880.3
	7	J0897	Denosumab injection	799.3	306	2,612.09	670	1,192.99	55,891	14.30	629.8
	8	J9355	Trastuzumab injection	581.0	19	30,578.95	198	2,934.34	7,192	80.78	464.0
	9	J9305	Pemetrexed injection	575.4	24	23,975.00	107	5,377.57	9,670	59.50	463.6
	10	J9041	Bortezomib injection	489.3	21	23,300.00	328	1,491.77	10,745	45.54	387.3
			Medicare Part B Spending, Top 10	10,186.1							8,109.1
			Medicare Part B Spending, All Drugs	21,597.8							17,240.2

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost- Sharing (\$M)
2015	1	J0178	Aflibercept injection	1,823.5	181	10,074.59	870	2,095.98	1,890	964.81	1,451.2
	2	J9310	Rituximab injection	1,615.8	70	23,082.86	286	5,649.65	2,213	730.14	1,297.7
	3	J2505	Injection, pegfilgrastim 6mg	1,326.4	100	13,264.00	369	3,594.58	369	3,594.58	1,047.4
	4	J1745	Infliximab injection	1,302.7	61	21,355.74	354	3,679.94	17,064	76.34	1,026.8
	5	J9035	Bevacizumab injection	1,155.0	209	5,526.32	906	1,274.83	16,985	68.00	931.9
	6	J2778	Ranibizumab injection	1,153.9	120	9,615.83	575	2,006.78	2,980	387.21	918.5
	7	J0897	Denosumab injection	956.8	371	2,578.98	791	1,209.61	64,348	14.87	753.1
	8	J9355	Trastuzumab injection	669.5	20	33,475.00	207	3,234.30	7,857	85.21	536.1
	9	J9305	Pemetrexed injection	566.2	22	25,736.36	104	5,444.23	9,362	60.48	456.1
	10	J9041	Bortezomib injection	526.2	22	23,918.18	345	1,525.22	11,347	46.37	416.2
			Medicare Part B Spending, Top 10	11,096.0							8,835.0
			Medicare Part B Spending, All Drugs	23,813.3							19,007.1

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost- Sharing (\$M)
2016	1	J0178	Aflibercept injection	2,224.1	211	10,540.76	1,052	2,114.16	2,303	965.74	1,769.4
	2	J9310	Rituximab injection	1,723.1	72	23,931.94	286	6,024.83	2,235	770.96	1,388.1
	3	J2505	Injection, pegfilgrastim 6mg	1,433.3	99	14,477.78	367	3,905.45	367	3,905.45	1,137.9
	4	J1745	Infliximab injection	1,402.9	60	23,381.67	354	3,962.99	17,241	81.37	1,105.9
	5	J9299	Injection, nivolumab	1,260.3	28	45,010.71	217	5,807.83	49,748	25.33	1,010.3
	6	J9035	Bevacizumab injection	1,141.9	208	5,489.90	904	1,263.16	16,205	70.47	923.2
	7	J0897	Denosumab injection	1,133.4	436	2,599.54	904	1,253.76	71,943	15.75	890.4
	8	J2778	Ranibizumab injection	1,046.8	107	9,783.18	526	1,990.11	2,765	378.59	833.1
	9	J9355	Trastuzumab injection	730.6	21	34,790.48	211	3,462.56	8,137	89.79	585.7
	10	J0129	Abatacept injection	601.0	23	26,130.43	198	3,035.35	14,727	40.81	474.5
			Medicare Part B Spending, Top 10	12,697.4							10,118.5
			Medicare Part B Spending, All Drugs	27,266.7							21,789.6

Table A-1 continued Top 10 High-Cost Prescribed Drugs, Medicare Part B, Ranked by Total Spending

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost- Sharing (\$M)
2017	1	J0178	Aflibercept injection	2,473.4	230	10,753.91	1,166	2,121.27	2,573	961.29	1,967.3
	2	J9310	Rituximab injection	1,815.3	72	25,212.50	282	6,437.23	2,216	819.18	1,467.6
	3	J9299	Injection, nivolumab	1,516.5	30	50,550.00	252	6,017.86	58,432	25.95	1,207.8
	4	J2505	Injection, pegfilgrastim 6mg	1,461.7	94	15,550.00	349	4,188.25	349	4,188.25	1,164.3
	5	J1745	Infliximab not biosimil 10mg	1,413.9	59	23,964.41	336	4,208.04	16,633	85.01	1,113.0
	6	J0897	Denosumab injection	1,296.6	491	2,640.73	995	1,303.12	77,429	16.75	1,016.7
	7	J9035	Bevacizumab injection	1,100.2	220	5,000.91	935	1,176.68	15,017	73.26	887.5
	8	J9271	Inj pembrolizumab	1,062.2	22	48,281.82	119	8,926.05	23,017	46.15	885.9
	9	J2778	Ranibizumab injection	1,039.1	105	9,896.19	525	1,979.24	2,790	372.44	826.9
	10	J9355	Trastuzumab injection	814.1	21	38,766.67	208	3,913.94	8,581	94.87	654.3
			Medicare Part B Spending, Top 10	13,993.0							11,191.3
			Medicare Part B Spending, All Drugs	30,294.0							24,260.5

Source: Analysis of carrier, durable medical, and outpatient claims data 2006-2017 by Acumen for ASPE. Data include Part B covered drugs administered in physicians' offices and furnished by suppliers, covered drugs in hospital outpatient departments; and reflect only Part B drugs paid under the average sales price plus 6 percent (ASP). The Healthcare Common Procedure Coding System (HCPCS) codes and prices for carrier and DM were obtained from the CMS ASP file, those for OP come from the CMS Addendum B file. Lines with denied payments or Medicare as secondary payer were dropped. Spending per Beneficiary, Spending per Service, and Spending per Unit include beneficiary cost-sharing and include the sequester.

Table A-2 Top 10 Highest-Cost Prescribed Drugs, Medicare Part B, Ranked by Spending per Unit

Year	Rank	Description	Spending per Unit (\$)	Total Payment (\$)
2011	1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion	32,857.47	89,930,907
	2	Fluocinolone acetonide, intravitreal implant	16,253.07	1,397,764
	3	Injection, porfimer sodium, 75 mg	5,041.82	857,110
	4	Leuprolide acetate implant, 65 mg	4,378.09	341,491
	5	Ganciclovir, 4.5 mg, long-acting implant	3,485.88	400,876
	6	Histrelin implant (vantas), 50 mg	2,945.12	17,096,411
	7	Injection, pegaspargase, per single dose vial	2,680.69	343,128
	8	Injection, pegfilgrastim, 6 mg	2,615.20	972,009,437
	9	Injection, denileukin diftitox, 300 micrograms	1,585.58	7,020,970
	10	Injection, reteplase, 18.1 mg	1,425.91	517,605

Year	Rank	Description	Spending per Unit (\$)	Total Payment (\$)
2012	1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion	32,775.67	218,482,586
	2	Injection, porfimer sodium, 75 mg	18,961.14	2,768,327
	3	Fluocinolone acetonide, intravitreal implant	18,838.95	2,241,835
	4	Injection, pegaspargase, per single dose vial	4,857.72	563,495
	5	Ganciclovir, 4.5 mg, long-acting implant	4,679.71	196,548
	6	Leuprolide acetate implant, 65 mg	4,639.39	259,806
	7	Histrelin implant (vantas), 50 mg	3,055.20	12,272,745
	8	Injection, pegfilgrastim, 6 mg	2,788.06	1,060,046,676
	9	Injection, basiliximab, 20 mg	2,193.03	767,562
	10	Injection, crotalidae polyvalent immune fab (ovine), up to 1 gram	2,163.68	1,514,578

Table A-2 continued Top 10 Highest-Cost Prescribed Drugs, Medicare Part B, Ranked by Spending per Unit

Year	Rank	Description	Spending per Unit (\$)	Total Payment (\$)
2013	1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion	32,301.81	178,822,808
	2	Injection, porfimer sodium, 75 mg	19,061.72	2,611,456
	3	Fluocinolone acetonide, intravitreal implant	18,766.14	2,364,534
	4	Ganciclovir, 4.5 mg, long-acting implant	5,970.86	298,543
	5	Injection, pegaspargase, per single dose vial	5,872.50	669,465
	6	Leuprolide acetate implant, 65 mg	4,364.58	183,312
	7	Injection, pegfilgrastim, 6 mg	2,960.29	1,098,433,150
	8	Histrelin implant (vantas), 50 mg	2,923.37	8,115,285
	9	Injection, basiliximab, 20 mg	2,397.81	721,741
	10	Injection, reteplase, 18.1 mg	2,243.78	40,388

Year	Rank	Description	Spending per Unit (\$)	Total Payment (\$)
2014	1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion	33,866.12	173,767,079
	2	Injection, porfimer sodium, 75 mg	19,291.79	2,778,018
	3	Fluocinolone acetonide, intravitreal implant	19,003.57	1,748,329
	4	Injection, pegaspargase, per single dose vial	5,952.34	1,148,802
	5	Leuprolide acetate implant, 65 mg	3,666.89	47,670
	6	Injection, pegfilgrastim, 6 mg	3,270.46	1,174,026,333
	7	Histrelin implant (vantas), 50 mg	2,916.24	5,858,729
	8	Injection, basiliximab, 20 mg	2,527.25	710,157
	9	Injection, crotalidae polyvalent immune fab (ovine), up to 1 gram	2,410.05	1,689,442
	10	Ganciclovir, 4.5 mg, long-acting implant	2,254.84	54,116

Table A-2 continued Top 10 Highest-Cost Prescribed Drugs, Medicare Part B, Ranked by Spending per Unit

Year	Rank	Description	Spending per Unit (\$)	Total Payment (\$)
2015	1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion	35,205.98	170,854,604
	2	Injection, porfimer sodium, 75 mg	19,691.17	2,225,102
	3	Fluocinolone acetonide, intravitreal implant	18,543.62	2,225,234
	4	Injection, pegaspargase, per single dose vial	6,103.05	860,529
	5	Injection, pegfilgrastim, 6 mg	3,550.86	1,259,962,339
	6	Histrelin implant (vantas), 50 mg	2,935.87	4,427,293
	7	Injection, basiliximab, 20 mg	2,744.71	930,456
	8	Injection, aldesleukin, per single use vial	2,489.43	1,453,825
	9	Injection, crotalidae polyvalent immune fab (ovine), up to 1 gram	2,480.59	1,781,064
	10	Injection, digoxin immune fab (ovine), per vial	2,300.00	1,060,302

Year	Rank	Description	Spending per Unit (\$)	Total Payment (\$)
2016	1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion	36,980.27	179,058,484
	2	Injection, pegaspargase, per single dose vial	10,333.47	3,007,040
	3	Injection, pegfilgrastim, 6 mg	3,868.65	1,374,291,300
	4	Injection, carmustine, 100 mg	3,281.57	1,476,708
	5	Injection, basiliximab, 20 mg	3,042.49	1,025,318
	6	Histrelin implant (vantas), 50 mg	3,014.13	3,662,168
	7	Injection, digoxin immune fab (ovine), per vial	2,864.88	1,054,277
	8	Injection, crotalidae polyvalent immune fab (ovine), up to 1 gram	2,614.49	1,113,773
	9	Injection, vincristine sulfate liposome, 1 mg	2,304.81	1,601,842
	10	Injection, melphalan hydrochloride, 50 mg	1,741.54	4,555,858

Table A-2 continued Top 10 Highest-Cost Prescribed Drugs, Medicare Part B, Ranked by Spending per Unit

Year	Rank	Description	Spending per Unit (\$)	Total Payment (\$)
2017	1	Sipuleucel-t, minimum of 50 million autologous cd54+ cells activated with pap-gm-csf, including leukapheresis and all other preparatory procedures, per infusion	38,716.24	202,485,909
	2	Injection, pegaspargase, per single dose vial	9,666.53	2,281,300
	3	Injection, pegfilgrastim, 6 mg	4,142.60	1,400,100,685
	4	Injection, basiliximab, 20 mg	3,309.41	1,102,034
	5	Injection, carmustine, 100 mg	3,278.80	1,891,865
	6	Histrelin implant (vantas), 50 mg	3,127.67	3,002,560
	7	Injection, digoxin immune fab (ovine), per vial	2,933.29	882,920
	8	Injection, crotalidae polyvalent immune fab (ovine), up to 1 gram	2,766.58	1,269,859
	9	Injection, vincristine sulfate liposome, 1 mg	2,325.16	1,064,924
	10	Injection, pentostatin, 10 mg	1,925.04	843,166

Note: Medicare Part B Spending per Unit data only available for years 2011-2017.

Source: Analysis of carrier, durable medical, and outpatient claims data 2006-2017. Data include Part B covered drugs administered in physicians' offices and furnished by suppliers, covered drugs in hospital outpatient departments; and reflect only Part B drugs paid under the average sales price plus 6 percent (ASP). HCPCS codes and prices for carrier and DM were obtained from the CMS ASP file, those for OP come from the CMS Addendum B file. Lines with denied payments or Medicare as secondary payer were dropped. Total Spending and Spending per Unit include beneficiary cost-sharing and include the sequester.

Table A-3 Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2008	1	J3420	Vitamin b12 injection	0.9	638	1.41	2,824	0.32	3,226	0.28	0.6
	2	J1100	Dexamethasone sodium phos	1.9	824	2.31	2,466	0.77	21,530	0.09	1.5
	3	J2405	Ondansetron hcl injection	7.8	1,520	5.13	2,281	3.42	17,940	0.43	5.4
	4	J3301	Triamcinolone acetonide inj	13.3	1,404	9.47	2,250	5.91	9,213	1.44	10.0
	5	J7620	Albuterol ipratrop non-comp	157.8	435	362.76	1,790	88.16	240,892	0.66	121.6
	6	J7050	Normal saline solution infus	0.8	389	2.06	1,630	0.49	2,734	0.29	0.6
	7	J1030	Methylprednisolone 40 MG inj	10.1	1,013	9.97	1,591	6.35	2,294	4.40	7.7
	8	J0885	Epoetin alfa, non-esrd	462.3	185	2498.92	1,522	303.75	49,918	9.26	362.3
	9	J7613	Albuterol non-comp unit	15.7	457	34.35	1,455	10.79	366,913	0.04	12.5
	10	J1040	Methylprednisolone 80 MG inj	14.2	840	16.90	1,340	10.60	1,663	8.54	10.8
			Medicare Part B Spending, Top 10	684.8							533.0
			Medicare Part B Spending, All Drugs	13,614.3							10,843.8

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2009	1	J3420	Vitamin b12 injection	0.8	673	1.19	3,014	0.27	3,299	0.24	0.6
	2	J2405	Ondansetron hcl injection	8.2	1,841	4.45	2,792	2.94	20,737	0.40	5.6
	3	J1100	Dexamethasone sodium phos	2.0	849	2.36	2,484	0.81	21,572	0.09	1.5
	4	J3301	Triamcinolone acet inj NOS	14.7	1,453	10.12	2,345	6.27	9,619	1.53	11.2
	5	J7613	Albuterol non-comp unit	22.6	510	44.31	1,909	11.84	479,730	0.05	17.0
	6	J7620	Albuterol ipratrop non-comp	51.7	407	127.03	1,730	29.88	205,555	0.25	39.0
	7	J1030	Methylprednisolone 40 MG inj	9.4	1,053	8.93	1,661	5.66	2,395	3.92	7.2
	8	J7050	Normal saline solution infus	0.7	382	1.83	1,547	0.45	2,532	0.28	0.5
	9	J0885	Epoetin alfa, non-esrd	463.9	170	2728.82	1,453	319.27	48,219	9.62	364.0
	10	J1040	Methylprednisolone 80 MG inj	12.8	878	14.58	1,403	9.12	1,701	7.52	9.7
			Medicare Part B Spending, Top 10	586.8							456.3
			Medicare Part B Spending, All Drugs	14,488.5							11,547.5

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2010	1	J3420	Vitamin b12 injection	0.8	654	1.22	2,930	0.27	3,008	0.27	0.6
	2	J1100	Dexamethasone sodium phos	2.0	894	2.24	2,536	0.79	21,768	0.09	1.5
	3	J3301	Triamcinolone acet inj NOS	15.5	1,501	10.33	2,426	6.39	10,007	1.55	11.8
	4	J7613	Albuterol non-comp unit	27.0	519	52.02	1,863	14.49	467,175	0.06	20.5
	5	J7620	Albuterol ipratrop non-comp	44.3	404	109.65	1,790	24.75	202,350	0.22	33.4
	6	J1030	Methylprednisolone 40 MG inj	9.0	1,079	8.34	1,702	5.29	2,394	3.76	6.9
	7	J1040	Methylprednisolone 80 MG inj	12.2	907	13.45	1,449	8.42	1,742	7.00	9.3
	8	J7050	Normal saline solution infus	0.6	341	1.76	1,368	0.44	2,155	0.28	0.5
	9	J0885	Epoetin alfa, non-esrd	421.9	150	2812.67	1,297	325.29	43,247	9.76	330.6
	10	Q9967	LOCM 300-399mg/ml iodine,1ml	16.5	857	19.25	1,139	14.49	94,413	0.17	13.0
Medicare Part B Spending, Top 10				549.8							428.1
Medicare Part B Spending, All Drugs				15,478.6							12,336.5

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2011	1	J3420	Vitamin b12 injection	1.0	638	1.57	2,753	0.36	2,759	0.36	0.7
	2	J3301	Triamcinolone acet inj NOS	17.1	1,590	10.75	2,568	6.66	10,559	1.62	13.0
	3	J1100	Dexamethasone sodium phos	1.8	855	2.11	2,388	0.75	20,543	0.09	1.4
	4	J7613	Albuterol non-comp unit	28.2	537	52.51	1,886	14.95	456,741	0.06	21.2
	5	J7620	Albuterol ipratrop non-comp	45.0	403	111.66	1,774	25.37	191,322	0.24	34.5
	6	J1030	Methylprednisolone 40 MG inj	6.7	1,108	6.05	1,741	3.85	2,424	2.76	5.1
	7	J1040	Methylprednisolone 80 MG inj	11.9	927	12.84	1,477	8.06	1,721	6.91	9.0
	8	J7050	Normal saline solution infus	0.5	298	1.68	1,207	0.41	1,901	0.26	0.4
	9	Q9967	LOCM 300-399mg/ml iodine, 1ml	15.3	842	18.17	1,129	13.55	91,794	0.17	12.0
	10	J0885	Epoetin alfa, non-esrd	354.8	129	2750.39	1,086	326.70	35,638	9.96	278.1
Medicare Part B Spending, Top 10				482.3							375.4
Medicare Part B Spending, All Drugs				17,191.6							13,733.3

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2012	1	J3420	Vitamin b12 injection	1.5	662	2.27	2,842	0.53	2,848	0.53	1.1
	2	J3301	Triamcinolone acet inj NOS	17.9	1,560	11.47	2,514	7.12	10,659	1.68	13.9
	3	J1100	Dexamethasone sodium phos	2.4	915	2.62	2,456	0.98	20,347	0.12	1.9
	4	J7613	Albuterol non-comp unit	26.7	558	47.85	1,902	14.04	449,362	0.06	19.9
	5	J1030	Methylprednisolone 40 MG inj	8.6	1,127	7.63	1,774	4.85	2,469	3.48	6.6
	6	J7620	Albuterol ipratrop non-comp	45.2	412	109.71	1,746	25.89	182,771	0.25	33.9
	7	J1040	Methylprednisolone 80 MG inj	11.7	938	12.47	1,491	7.85	1,742	6.72	8.9
	8	J2785	Regadenoson injection	231.9	1,111	208.73	1,128	205.59	4,357	53.22	183.7
	9	Q9967	LOCM 300-399mg/ml iodine,1ml	11.9	819	14.53	1,122	10.61	87,385	0.14	9.4
	10	J0702	Betamethasone acet&sod phosp	13.9	687	20.23	1,074	12.94	2,526	5.50	10.7
Medicare Part B Spending, Top 10				371.7							290.0
Medicare Part B Spending, All Drugs				19,001.0							15,201.6

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2013	1	J3420	Vitamin b12 injection	2.9	635	4.57	2,611	1.11	2,616	1.11	2.2
	2	J3301	Triamcinolone acet inj NOS	19.3	1,611	11.98	2,609	7.40	11,041	1.75	14.6
	3	J1100	Dexamethasone sodium phos	2.1	953	2.20	2,460	0.85	19,725	0.11	1.7
	4	J7613	Albuterol non-comp unit	21.6	581	37.18	1,871	11.54	429,856	0.05	16.1
	5	J1030	Methylprednisolone 40 MG inj	7.2	1,153	6.24	1,816	3.96	2,542	2.83	5.5
	6	J7620	Albuterol ipratrop non-comp	32.6	423	77.07	1,673	19.49	169,941	0.19	24.3
	7	J1040	Methylprednisolone 80 MG inj	9.5	946	10.04	1,500	6.33	1,745	5.44	7.2
	8	J2785	Regadenoson injection	248.6	1,181	210.50	1,199	207.34	4,638	53.60	196.2
	9	Q9967	LOCM 300-399mg/ml iodine,1ml	14.0	820	17.07	1,146	12.22	86,550	0.16	11.1
	10	J0702	Betamethasone acet&sod phosp	14.2	707	20.08	1,099	12.92	2,559	5.55	10.9
Medicare Part B Spending, Top 10				372.0							289.8
Medicare Part B Spending, All Drugs				20,331.5							16,231.8

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2014	1	J3301	Triamcinolone acet inj nos	19.5	1,641	11.88	2,642	7.38	11,168	1.75	14.8
	2	J1100	Dexamethasone sodium phos	2.6	982	2.65	2,461	1.06	19,556	0.13	2.0
	3	J3420	Vitamin b12 injection	4.7	581	8.09	2,327	2.02	2,331	2.02	3.4
	4	J1030	Methylprednisolone 40 mg inj	7.8	1,192	6.54	1,880	4.15	2,656	2.94	6.0
	5	J7613	Albuterol non-comp unit	18.1	530	34.15	1,647	10.99	354,647	0.05	13.4
	6	J7620	Albuterol ipratrop non-comp	26.9	409	65.77	1,508	17.84	151,477	0.18	20.0
	7	J1040	Methylprednisolone 80 mg inj	9.7	946	10.25	1,491	6.51	1,732	5.60	7.4
	8	Q9967	Locm 300-399mg/ml iodine,1ml	15.8	827	19.11	1,160	13.62	86,806	0.18	12.4
	9	J0702	Betamethasone acet&sod phosp	14.6	721	20.25	1,110	13.15	2,611	5.59	11.1
	10	J0696	Ceftriaxone sodium injection	2.6	598	4.35	1,019	2.55	3,857	0.67	2.0
Medicare Part B Spending, Top 10				122.3							92.5
Medicare Part B Spending, All Drugs				21,597.8							17,240.2

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2015	1	J3301	Triamcinolone acet inj nos	20.8	1,724	12.06	2,783	7.47	11,915	1.75	15.8
	2	J1100	Dexamethasone sodium phos	2.7	1,032	2.62	2,483	1.09	19,403	0.14	2.1
	3	J3420	Vitamin b12 injection	6.8	572	11.89	2,367	2.87	2,369	2.87	5.0
	4	J1030	Methylprednisolone 40 mg inj	9.8	1,233	7.95	1,943	5.04	2,774	3.53	7.5
	5	J7613	Albuterol non-comp unit	20.6	517	39.85	1,556	13.24	321,972	0.06	15.4
	6	J1040	Methylprednisolone 80 mg inj	11.5	960	11.98	1,511	7.61	1,759	6.54	8.7
	7	J7620	Albuterol ipratrop non-comp	23.6	416	56.73	1,457	16.20	144,047	0.16	17.5
	8	Q9967	Locm 300-399mg/ml iodine,1ml	13.2	837	15.77	1,165	11.33	87,560	0.15	10.3
	9	J0702	Betamethasone acet&sod phosp	15.9	750	21.20	1,156	13.75	2,744	5.79	12.1
	10	J0696	Ceftriaxone sodium injection	2.8	634	4.42	1,072	2.61	4,071	0.69	2.1
Medicare Part B Spending, Top 10				127.7							96.5
Medicare Part B Spending, All Drugs				23,813.3							19,007.1

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2016	1	J3301	Triamcinolone acet inj nos	22.5	1,819	12.37	2,950	7.63	12,824	1.75	16.9
	2	J1100	Dexamethasone sodium phos	2.6	1,091	2.38	2,536	1.03	19,762	0.13	2.0
	3	J3420	Vitamin b12 injection	9.1	584	15.58	2,448	3.72	2,454	3.71	6.8
	4	J1030	Methylprednisolone 40 mg inj	13.2	1,254	10.53	1,969	6.70	2,840	4.65	10.0
	5	J7613	Albuterol non-comp unit	14.3	510	28.04	1,508	9.48	304,221	0.05	10.5
	6	J1040	Methylprednisolone 80 mg inj	15.6	960	16.25	1,507	10.35	1,763	8.85	11.7
	7	J7620	Albuterol ipratrop non-comp	22.5	426	52.82	1,439	15.64	139,231	0.16	16.7
	8	Q9967	Locm 300-399mg/ml iodine,1ml	11.1	864	12.85	1,209	9.18	90,733	0.12	8.7
	9	J0702	Betamethasone acet&sod phosp	17.0	777	21.88	1,204	14.12	2,922	5.82	12.9
	10	J0696	Ceftriaxone sodium injection	2.5	642	3.89	1,091	2.29	4,165	0.60	1.8
Medicare Part B Spending, Top 10				130.4							98.0
Medicare Part B Spending, All Drugs				27,266.7							21,789.6

Table A-3 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part B, Ranked by Total Number of Services

Year	Rank	HCPCS	Description	Total Payment (\$M)	Beneficiaries (1000s)	Spending per Beneficiary (\$)	Services (1000s)	Spending per Service (\$)	Units (1000s)	Spending per Unit (\$)	Medicare Payment net of Cost-Sharing (\$M)
2017	1	J3301	Triamcinolone acet inj nos	24.1	1,873	12.87	3,033	7.95	13,373	1.80	18.0
	2	J1100	Dexamethasone sodium phos	2.3	1,145	2.01	2,538	0.91	19,677	0.12	1.7
	3	J3420	Vitamin b12 injection	6.8	571	11.91	2,399	2.83	2,400	2.83	4.8
	4	J1030	Methylprednisolone 40 mg inj	16.2	1,258	12.88	1,966	8.24	2,840	5.70	12.2
	5	J7613	Albuterol non-comp unit	13.6	528	25.76	1,481	9.18	288,582	0.05	9.9
	6	J1040	Methylprednisolone 80 mg inj	18.8	939	20.02	1,474	12.75	1,728	10.88	14.0
	7	J7620	Albuterol ipratrop non-comp	19.9	459	43.36	1,451	13.71	136,709	0.15	14.5
	8	Q9967	Locm 300-399mg/ml iodine,1ml	11.2	872	12.84	1,209	9.26	91,796	0.12	8.7
	9	J0702	Betamethasone acet&sod phosp	20.1	781	25.74	1,209	16.63	2,982	6.74	15.2
	10	J0178	Aflibercept injection	2,473.4	230	10753.91	1,166	2121.27	2,573	961.29	1,967.3
Medicare Part B Spending, Top 10				2,606.4							2,066.3
Medicare Part B Spending, All Drugs				30,294.0							24,260.5

Source: Analysis of carrier, durable medical, and outpatient claims data 2006-2017 by Acumen for ASPE. Data include Part B covered drugs administered in physicians' offices and furnished by suppliers, covered drugs in hospital outpatient departments; and reflect only Part B drugs paid under the average sales price plus 6 percent (ASP). The Healthcare Common Procedure Coding System (HCPCS) codes and prices for carrier and DM were obtained from the CMS ASP file, those for OP come from the CMS Addendum B file. Lines with denied payments or Medicare as secondary payer were dropped. Spending per Beneficiary, Spending per Service, and Spending per Unit include beneficiary cost-sharing and include the sequester.

Table A-4 Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2008	1	Lipitor	2,397,810,581	18,446,176	812,966,497	3,124,832	129.99	2.95	767.34	1,349,438,705
	2	Plavix	2,305,109,427	14,268,262	601,948,554	2,156,115	161.56	3.83	1,069.10	1,319,750,590
	3	Nexium	1,487,032,499	7,910,170	314,143,679	1,480,139	187.99	4.73	1,004.66	978,699,313
	4	Seroquel	1,462,192,107	6,038,847	306,095,001	767,140	242.13	4.78	1,906.03	1,152,462,605
	5	Aricept	1,326,127,575	7,102,698	256,076,304	1,041,464	186.71	5.18	1,273.33	803,585,924
	6	Zyprexa	1,229,036,652	2,814,458	97,134,631	339,610	436.69	12.65	3,618.96	1,004,409,138
	7	Advair Diskus	1,213,291,695	5,507,722	413,199,209	1,278,659	220.29	2.94	948.88	774,547,166
	8	Actos	1,062,971,313	5,174,585	220,536,473	846,079	205.42	4.82	1,256.35	663,050,193
	9	Prevacid	947,177,275	5,176,233	206,602,227	949,056	182.99	4.58	998.02	780,493,358
	10	Abilify	837,069,575	1,841,706	59,250,742	279,425	454.51	14.13	2,995.69	696,702,527
		Medicare Part D Spending, Top 10	14,267,818,700							
		Medicare Part D Spending, All Drugs	68,223,634,359							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2009	1	Plavix	2,721,310,465	15,091,663	577,272,241	2,308,937	180.32	4.71	1,178.60	1,527,909,326
	2	Lipitor	2,288,382,394	16,124,575	653,606,534	2,797,115	141.92	3.50	818.12	1,236,373,392
	3	Nexium	1,676,837,923	8,185,878	316,028,844	1,538,118	204.85	5.31	1,090.19	1,097,548,465
	4	Seroquel	1,646,967,166	6,114,594	335,895,271	778,728	269.35	4.90	2,114.95	1,276,249,228
	5	Aricept	1,585,272,216	7,537,448	247,633,819	1,107,884	210.32	6.40	1,430.90	939,773,260
	6	Advair Diskus	1,394,191,141	5,919,710	427,927,470	1,360,522	235.52	3.26	1,024.75	871,329,957
	7	Zyprexa	1,341,353,367	2,730,627	117,748,028	328,810	491.23	11.39	4,079.42	1,085,095,774
	8	Actos	1,188,283,678	5,105,629	213,588,728	839,028	232.74	5.56	1,416.26	729,316,458
	9	Abilify	1,079,226,741	2,209,956	73,310,515	337,848	488.35	14.72	3,194.42	879,179,487
	10	Flomax	958,921,116	6,533,776	288,158,779	1,226,255	146.76	3.33	781.99	500,814,755
		Medicare Part D Spending, Top 10	15,880,746,208							
		Medicare Part D Spending, All Drugs	73,519,974,148							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2010	1	Plavix	3,105,178,149	15,235,338	573,566,385	2,371,198	203.81	5.41	1,309.54	1,772,649,718
	2	Lipitor	2,280,928,513	14,347,583	586,401,338	2,457,157	158.98	3.89	928.28	1,244,905,964
	3	Nexium	1,858,708,061	8,488,232	332,456,521	1,555,953	218.97	5.59	1,194.58	1,270,385,767
	4	Seroquel	1,817,003,253	5,989,979	282,975,890	771,668	303.34	6.42	2,354.64	1,415,035,158
	5	Aricept	1,796,634,659	7,206,450	238,494,833	1,096,902	249.31	7.53	1,637.92	1,083,048,836
	6	Advair Diskus	1,517,451,761	6,113,502	423,206,311	1,402,405	248.21	3.59	1,082.04	959,574,589
	7	Zyprexa	1,487,036,867	2,688,409	91,173,519	325,262	553.13	16.31	4,571.81	1,215,283,825
	8	Actos	1,270,431,244	5,019,208	199,166,341	853,424	253.11	6.38	1,488.63	788,749,236
	9	Abilify	1,226,393,347	2,296,670	71,850,284	338,610	533.99	17.07	3,621.85	1,003,896,670
	10	Crestor	1,095,786,398	7,020,891	273,762,886	1,304,029	156.08	4.00	840.31	617,814,149
		Medicare Part D Spending, Top 10	17,455,552,250							
		Medicare Part D Spending, All Drugs	77,418,365,994							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2011	1	Plavix	3,656,699,410	15,209,882	591,894,651	2,395,374	240.42	6.18	1,526.57	2,047,817,281
	2	Lipitor	2,672,879,391	13,773,982	584,820,877	2,607,477	194.05	4.57	1,025.08	1,441,606,472
	3	Seroquel	2,045,283,552	5,937,351	280,754,054	762,673	344.48	7.28	2,681.73	1,568,902,343
	4	Nexium	1,970,100,370	8,223,817	334,287,800	1,516,235	239.56	5.89	1,299.34	1,334,765,962
	5	Advair Diskus	1,664,854,955	6,168,133	436,745,338	1,402,384	269.91	3.81	1,187.16	1,028,444,936
	6	Zyprexa	1,625,313,684	2,408,081	81,766,333	312,584	674.94	19.88	5,199.61	1,317,403,357
	7	Abilify	1,469,648,771	2,447,937	77,464,364	360,656	600.36	18.97	4,074.93	1,186,107,582
	8	Crestor	1,416,291,996	7,826,713	318,709,283	1,496,029	180.96	4.44	946.70	782,545,280
	9	Actos	1,294,116,294	4,484,509	184,544,494	778,684	288.57	7.01	1,661.93	779,666,784
	10	Spiriva	1,288,422,807	4,815,356	172,359,461	981,349	267.57	7.48	1,312.91	765,469,240
		Medicare Part D Spending, Top 10	19,103,611,230							
		Medicare Part D Spending, All Drugs	84,639,248,565							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2012	1	Nexium	2,124,218,164	7,911,790	337,691,577	1,434,163	268.49	6.29	1,481.16	1,388,577,944
	2	Advair Diskus	1,886,299,997	6,288,946	452,552,646	1,424,280	299.94	4.17	1,324.39	1,131,579,989
	3	Crestor	1,789,810,336	8,624,468	361,021,613	1,598,135	207.53	4.96	1,119.94	971,693,605
	4	Abilify	1,758,037,036	2,571,956	82,133,718	376,576	683.54	21.40	4,668.48	1,388,120,259
	5	Plavix	1,690,659,194	6,468,845	258,051,370	2,032,708	261.35	6.55	831.73	968,418,803
	6	Spiriva	1,603,172,111	5,275,894	193,071,238	1,065,523	303.87	8.30	1,504.59	928,329,554
	7	Cymbalta	1,453,805,691	5,776,278	243,795,227	912,752	251.69	5.96	1,592.77	924,397,167
	8	Atorvastatin Calcium	1,347,821,093	16,152,770	734,283,287	3,655,888	83.44	1.84	368.67	752,733,860
	9	Namenda	1,327,400,166	5,425,391	345,808,953	757,593	244.66	3.84	1,752.13	750,941,044
	10	Januvia	1,112,999,393	3,766,131	149,648,728	666,558	295.53	7.44	1,669.77	645,275,326
		Medicare Part D Spending, Top 10	16,094,223,182							
		Medicare Part D Spending, All Drugs	89,524,597,876							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2013	1	Nexium	2,526,329,043	8,192,355	360,017,674	1,483,991	308.38	7.02	1,702.39	1,516,813,929
	2	Advair Diskus	2,263,078,809	6,605,655	492,979,426	1,527,214	342.60	4.59	1,481.83	1,246,651,185
	3	Crestor	2,216,220,164	9,066,550	401,735,047	1,732,744	244.44	5.52	1,279.02	1,098,929,360
	4	Abilify	2,107,112,690	2,886,903	86,132,660	396,757	729.89	24.46	5,310.84	1,593,920,589
	5	Cymbalta	1,961,193,714	6,887,719	279,891,880	1,032,763	284.74	7.01	1,898.98	1,147,155,273
	6	Spiriva	1,958,639,360	5,735,304	218,670,547	1,181,612	341.51	8.96	1,657.60	1,043,670,202
	7	Namenda	1,564,805,787	6,878,538	347,984,961	798,719	227.49	4.50	1,959.14	812,379,862
	8	Januvia	1,460,557,480	4,358,892	174,161,373	761,772	335.08	8.39	1,917.32	781,403,946
	9	Lantus Solostar	1,372,036,942	3,863,962	80,270,373	862,886	355.09	17.09	1,590.06	719,320,445
	10	Revlimid	1,349,922,413	153,778	3,227,508	24,636	8,778.38	418.26	54,794.71	853,549,484
		Medicare Part D Spending, Top 10	18,779,896,401							
		Medicare Part D Spending, All Drugs	103,334,267,690							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2014	1	Sovaldi	3,102,238,669	109,386	3,050,759	33,013	28,360.47	1,016.87	93,970.21	2,311,510,097
	2	Nexium	2,658,298,959	7,533,546	340,109,618	1,405,344	352.86	7.82	1,891.56	1,568,122,484
	3	Crestor	2,541,222,052	9,065,383	418,795,544	1,751,569	280.32	6.07	1,450.83	1,205,292,977
	4	Abilify	2,524,876,962	2,961,393	88,079,850	404,785	852.60	28.67	6,237.58	1,878,444,406
	5	Advair Diskus	2,273,757,268	6,087,461	459,844,720	1,419,693	373.51	4.94	1,601.58	1,185,536,668
	6	Spiriva	2,156,225,605	5,847,089	228,758,323	1,211,107	368.77	9.43	1,780.38	1,105,438,708
	7	Lantus Solostar	2,014,697,663	4,437,229	92,674,101	972,529	454.04	21.74	2,071.61	1,011,638,558
	8	Januvia	1,773,791,068	4,493,183	183,418,827	789,395	394.77	9.67	2,247.03	902,974,243
	9	Lantus	1,724,176,517	4,281,217	80,133,256	786,572	402.73	21.52	2,192.01	935,291,308
	10	Revlimid	1,670,480,534	178,256	3,705,059	27,137	9,371.24	450.86	61,557.30	972,203,098
		Medicare Part D Spending, Top 10	22,439,765,297							
		Medicare Part D Spending, All Drugs	121,001,364,760							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2015	1	Harvoni	7,031,577,074	225,872	6,238,770	75,734	31,130.80	1,127.08	92,845.71	4,771,342,376
	2	Crestor	2,883,152,025	8,712,209	416,827,231	1,733,013	330.93	6.92	1,663.66	1,270,232,886
	3	Lantus Solostar	2,483,345,299	4,861,704	100,569,084	1,041,383	510.80	24.69	2,384.66	1,175,390,020
	4	Advair Diskus	2,270,170,360	5,649,525	430,440,516	1,321,521	401.83	5.27	1,717.85	1,084,451,912
	5	Spiriva	2,191,689,316	5,447,163	212,261,764	1,142,233	402.35	10.33	1,918.78	1,042,474,509
	6	Januvia	2,131,939,796	4,623,562	193,043,850	828,797	461.10	11.04	2,572.33	1,011,428,998
	7	Revlimid	2,077,659,819	204,888	4,240,785	30,455	10,140.47	489.92	68,220.65	1,121,468,296
	8	Nexium	2,012,910,273	5,470,939	251,472,740	1,127,926	367.93	8.00	1,784.61	1,184,335,248
	9	Lantus	1,876,332,368	3,993,873	75,074,893	733,952	469.80	24.99	2,556.48	961,395,647
	10	Lyrca	1,765,662,458	4,731,568	346,639,553	825,518	373.17	5.09	2,138.85	963,667,184
		Medicare Part D Spending, Top 10	26,724,438,787							
		Medicare Part D Spending, All Drugs	136,841,893,327							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2016	1	Harvoni	4,399,701,570	141,708	3,933,297	52,801	31,047.66	1,118.58	83,326.10	2,957,983,690
	2	Revlimid	2,661,602,600	239,093	4,896,215	35,373	11,132.08	543.60	75,243.90	1,398,050,043
	3	Lantus Solostar	2,526,426,478	5,029,203	102,691,210	1,075,429	502.35	24.60	2,349.23	1,161,422,334
	4	Januvia	2,440,387,636	4,743,201	203,654,169	864,600	514.50	11.98	2,822.56	1,119,693,056
	5	Crestor	2,323,124,806	6,013,491	285,722,221	1,560,325	386.32	8.13	1,488.87	1,066,537,566
	6	Advair Diskus	2,320,125,120	5,195,116	401,111,250	1,196,197	446.60	5.78	1,939.58	1,070,421,686
	7	Lyrca	2,097,128,770	4,939,772	364,403,474	852,328	424.54	5.75	2,460.47	1,123,526,220
	8	Xarelto	1,954,991,423	4,403,860	167,518,130	807,951	443.93	11.67	2,419.69	729,566,986
	9	Eliquis	1,926,315,154	4,456,265	328,547,796	827,075	432.27	5.86	2,329.07	690,088,508
	10	Spiriva	1,819,080,770	4,153,674	164,588,242	903,637	437.95	11.05	2,013.07	817,848,163
		Medicare Part D Spending, Top 10	24,468,884,327							
		Medicare Part D Spending, All Drugs	145,439,626,252							

Table A-4 continued Top 10 High-Cost Prescribed Drugs, Medicare Part D, Ranked by Total Spending

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2017	1	Revlimid	3,312,773,264	259,693	5,283,681	37,457	12,756.50	626.98	88,442.03	1,654,079,040
	2	Eliquis	3,078,896,052	6,352,153	480,038,487	1,143,117	484.70	6.41	2,693.42	1,032,933,807
	3	Januvia	2,786,061,883	4,833,933	216,563,622	893,614	576.36	12.86	3,117.75	1,220,938,158
	4	Lantus Solostar	2,632,358,172	5,236,014	106,072,375	1,112,417	502.74	24.82	2,366.34	1,151,976,902
	5	Xarelto	2,611,788,536	5,246,063	204,631,912	952,928	497.86	12.76	2,740.80	949,587,410
	6	Harvoni	2,555,839,934	81,898	2,282,783	32,397	31,207.60	1,119.62	78,891.25	1,611,125,318
	7	Lyrca	2,516,912,784	5,071,920	377,949,770	876,088	496.24	6.66	2,872.90	1,275,493,366
	8	Advair Diskus	2,374,829,262	4,881,672	381,843,204	1,135,883	486.48	6.22	2,090.73	1,040,538,861
	9	Humira Pen	2,015,734,946	370,804	901,506	51,832	5,436.12	2,235.96	38,889.78	1,124,269,617
	10	Spiriva	1,662,019,377	3,358,319	136,812,844	717,857	494.90	12.15	2,315.25	702,724,704
		Medicare Part D Spending, Top 10	25,547,214,209							
		Medicare Part D Spending, All Drugs	154,229,569,493							

Source: Analysis of Medicare claims data (carrier, outpatient, and Part D event) by Acumen for ASPE.

Table A-5 Top 10 Highest-Cost Drugs, Medicare Part D, Ranked by Spending per Unit

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2008	1	Retisert	19,784.33	59,353
	2	Somatuline Depot	7,648.06	341,103
	3	Animas 2020	5,663.20	5,663
	4	Arcalyst	5,198.06	1,070,801
	5	Viadur	4,905.50	73,582
	6	Vantas	4,738.90	464,412
	7	H.P. Acthar	4,547.26	6,939,125
	8	Fabrazyme	3,443.73	1,422,259
	9	Neulasta	3,399.84	19,494,056
	10	Herceptin	2,728.76	2,326,592

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2009	1	Lucentis	41,126.75	164,507
	2	Ilaris	16,280.16	32,560
	3	Macugen	11,549.38	25,986
	4	Stelara	9,541.40	1,521,853
	5	Somatuline Depot	7,875.82	1,056,935
	6	Mozobil	5,564.27	687,744
	7	Arcalyst	5,235.69	2,209,461
	8	Neulasta	5,009.98	22,476,021
	9	H.P. Acthar	4,863.39	9,118,851
	10	Vantas	4,725.97	264,654

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2010	1	Lucentis	22,702.37	340,535
	2	Ilaris	16,322.31	440,702
	3	Macugen	11,403.58	28,737
	4	Stelara	9,739.63	16,966,439
	5	Somatuline Depot	7,898.25	2,137,268
	6	Mozobil	5,647.74	637,066
	7	Jevtana	5,441.85	334,674
	8	Neulasta	5,200.94	23,452,906
	9	Arcalyst	5,196.49	2,722,963
	10	H.P. Acthar	4,838.15	19,304,226

Table A-5 continued Top 10 Highest-Cost Drugs, Medicare Part D, Ranked by Spending per Unit

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2011	1	Lucentis	38,985.58	1,062,357
	2	Eylea	37,720.00	1,886
	3	Ilaris	16,278.40	797,641
	4	Stelara	10,756.61	31,699,743
	5	Somatuline Depot	8,342.85	3,539,038
	6	Neulasta	5,952.62	28,322,581
	7	Mozobil	5,703.27	1,142,936
	8	Sylatron 4-Pack	5,567.04	116,908
	9	Jevtana	5,528.20	1,218,969
	10	H.P. Acthar	5,303.69	49,456,911

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2012	1	Eylea	38,331.14	948,696
	2	Lucentis	36,617.53	1,812,568
	3	Supprelin La	16,614.57	16,615
	4	Ilaris	16,282.76	1,742,255
	5	Stelara	11,838.64	50,290,538
	6	Somatuline Depot	8,953.32	5,273,507
	7	Neulasta	6,308.60	33,028,023
	8	H.P. Acthar	5,977.25	141,451,608
	9	Mozobil	5,786.18	1,451,174
	10	Jevtana	5,680.17	1,644,409

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2013	1	Eylea	36,383.59	1,619,070
	2	Lucentis	34,887.59	2,300,139
	3	Gattex	20,118.72	15,169,518
	4	Ilaris	16,413.48	2,018,858
	5	Stelara	13,330.93	89,503,840
	6	Somatuline Depot	9,834.27	7,505,515
	7	Neulasta	6,810.18	46,715,657
	8	H.P. Acthar	6,158.54	262,581,602
	9	Mozobil	5,930.15	1,730,535
	10	Jevtana	5,770.35	1,834,972

Table A-5 continued Top 10 Highest-Cost Drugs, Medicare Part D, Ranked by Spending per Unit

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2014	1	Eylea	38,360.36	2,911,551
	2	Lucentis	36,442.45	2,653,011
	3	Gattex	28,077.72	46,665,171
	4	Ilaris	16,381.65	4,095,412
	5	Stelara	14,510.12	156,883,419
	6	Jetrea	11,850.00	18,960
	7	Somatuline Depot	11,421.89	10,216,877
	8	Krystexxa	7,744.50	774,450
	9	Neulasta	7,384.42	57,763,922
	10	H.P. Acthar	6,497.68	391,089,016

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2015	1	Eylea	35,457.43	6,431,977
	2	Lucentis	35,086.39	3,089,357
	3	Gattex	24,311.15	74,173,306
	4	Supprelin La	23,426.95	23,427
	5	Lemtrada	16,856.91	4,349,084
	6	Ilaris	16,395.66	4,295,664
	7	Stelara	16,219.81	205,334,691
	8	Krystexxa	14,054.97	224,880
	9	Somatuline Depot	12,493.25	13,715,094
	10	Jetrea	11,850.00	42,660

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2016	1	Eylea	37,668.61	9,503,791
	2	Lucentis	31,859.70	2,798,874
	3	Gattex	30,719.39	103,403,928
	4	Lemtrada	17,140.23	6,910,940
	5	Ilaris	16,446.43	5,032,608
	6	Krystexxa	16,273.54	4,995,976
	7	Somatuline Depot	13,662.80	18,752,192
	8	Stelara	13,181.51	265,146,000
	9	Jetrea	11,850.00	14,220
	10	Signifor Lar	11,505.09	2,945,303

Table A-5 continued Top 10 Highest-Cost Drugs, Medicare Part D, Ranked by Spending per Unit

Year	Rank	Brand Name	GDC per Unit (\$)	Gross Drug Cost (\$)
2017	1	Eylea	38,341.55	12,957,526
	2	Lucentis	37,542.48	3,202,374
	3	Gattex	35,331.78	164,787,435
	4	Spinraza	25,650.18	1,154,258
	5	Krystexxa	19,152.45	13,559,936
	6	Lemtrada	18,062.64	7,738,033
	7	Jetrea	16,868.29	16,868
	8	Ilaris	16,621.41	8,111,250
	9	Somatuline Depot	15,515.58	25,740,343
	10	Signifor Lar	11,541.03	2,654,436

Source: Analysis of Medicare claims data (carrier, outpatient, and Prescription Drug Event) by Acumen for ASPE.

Table A-6 Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2008	1	Lisinopril	345,033,179	28,462,483	1,384,923,981	4,672,266	12.12	0.25	73.85	212,887,358
	2	Simvastatin	694,107,981	27,433,873	1,210,910,748	4,849,045	25.30	0.57	143.14	446,009,244
	3	Furosemide	131,780,371	23,854,831	1,198,221,609	4,094,514	5.52	0.11	32.18	74,199,762
	4	Hydrocodone-Acetaminophen	312,498,142	23,826,679	1,706,051,986	5,434,878	13.12	0.18	57.50	226,672,109
	5	Levothyroxine Sodium	207,775,091	21,857,844	878,139,406	3,105,090	9.51	0.24	66.91	118,742,442
	6	Amlodipine Besylate	401,506,683	19,669,864	887,503,731	3,193,845	20.41	0.45	125.71	252,557,300
	7	Lipitor	2,397,810,581	18,446,176	812,966,497	3,124,832	129.99	2.95	767.34	1,349,438,705
	8	Omeprazole	695,597,941	16,717,326	807,699,386	3,280,259	41.61	0.86	212.06	501,866,622
	9	Hydrochlorothiazide	94,078,157	16,464,783	771,308,882	3,029,210	5.71	0.12	31.06	50,701,104
	10	Atenolol	111,703,979	16,257,632	983,693,838	2,574,951	6.87	0.11	43.38	60,040,517
		Medicare Part D Spending, Top 10	5,391,892,105							
		Medicare Part D Spending, All Drugs	68,223,634,359							

Table A-6 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2009	1	Simvastatin	739,059,008	34,591,760	1,507,177,776	6,049,843	21.37	0.49	122.16	456,274,026
	2	Lisinopril	342,621,227	30,379,362	1,439,338,602	5,160,809	11.28	0.24	66.39	206,411,392
	3	Hydrocodone-Acetaminophen	352,138,198	26,105,718	1,957,212,654	5,919,000	13.49	0.18	59.49	253,321,954
	4	Furosemide	134,203,910	23,854,239	1,155,844,748	4,211,379	5.63	0.12	31.87	74,709,691
	5	Levothyroxine Sodium	221,245,773	23,635,170	936,334,037	3,418,522	9.36	0.24	64.72	123,633,095
	6	Amlodipine Besylate	387,132,689	22,999,998	973,035,446	3,787,990	16.83	0.40	102.20	230,362,091
	7	Omeprazole	825,100,521	21,535,305	1,042,306,325	4,212,038	38.31	0.79	195.89	581,439,555
	8	Metoprolol Tartrate	129,371,197	18,572,045	1,265,381,666	3,162,689	6.97	0.10	40.91	77,522,705
	9	Metformin Hcl	247,928,104	16,815,327	1,466,211,597	2,790,467	14.74	0.17	88.85	163,227,762
	10	Hydrochlorothiazide	94,645,156	16,518,919	721,527,165	3,138,395	5.73	0.13	30.16	49,631,159
		Medicare Part D Spending, Top 10	3,473,445,785							
		Medicare Part D Spending, All Drugs	73,519,974,148							

Table A-6 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2010	1	Simvastatin	675,428,276	39,103,885	1,719,786,341	6,848,740	17.27	0.39	98.62	395,759,073
	2	Lisinopril	319,684,694	31,820,291	1,529,230,022	5,533,553	10.05	0.21	57.77	184,471,782
	3	Hydrocodone-Acetaminophen	380,274,782	28,106,992	2,077,239,358	6,402,734	13.53	0.18	59.39	270,596,470
	4	Amlodipine Besylate	369,003,406	25,763,034	1,105,779,372	4,302,789	14.32	0.33	85.76	206,241,277
	5	Levothyroxine Sodium	238,534,443	25,517,106	1,039,522,136	3,736,012	9.35	0.23	63.85	129,477,775
	6	Omeprazole	774,710,860	25,015,779	1,203,076,099	4,819,188	30.97	0.64	160.76	535,130,604
	7	Furosemide	134,475,703	23,836,584	1,170,099,919	4,297,705	5.64	0.11	31.29	73,471,916
	8	Metoprolol Tartrate	119,054,604	18,307,777	1,286,033,586	3,105,281	6.50	0.09	38.34	69,510,124
	9	Metformin Hcl	220,036,557	17,887,047	1,581,764,097	3,056,379	12.30	0.14	71.99	141,515,237
	10	Hydrochlorothiazide	93,037,111	16,505,621	744,455,405	3,209,348	5.64	0.12	28.99	45,743,869
		Medicare Part D Spending, Top 10	3,324,240,436							
		Medicare Part D Spending, All Drugs	77,418,365,994							

Table A-6 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2011	1	Simvastatin	594,308,786	40,947,753	1,893,225,089	7,410,716	14.51	0.31	80.20	321,402,216
	2	Lisinopril	322,301,752	32,756,394	1,656,392,986	5,883,803	9.84	0.19	54.78	178,264,025
	3	Hydrocodone-Acetaminophen	430,121,896	31,363,719	2,353,900,477	7,091,044	13.71	0.18	60.66	305,490,837
	4	Amlodipine Besylate	383,051,253	27,946,424	1,263,380,357	4,798,211	13.71	0.30	79.83	210,220,596
	5	Omeprazole	674,651,002	27,327,024	1,350,133,346	5,328,317	24.69	0.50	126.62	439,681,288
	6	Levothyroxine Sodium	256,520,252	27,308,831	1,174,724,349	4,132,613	9.39	0.22	62.07	132,976,493
	7	Furosemide	133,472,355	23,915,709	1,217,118,146	4,439,200	5.58	0.11	30.07	71,849,462
	8	Metformin Hcl	214,445,823	18,853,644	1,740,552,440	3,323,588	11.37	0.12	64.52	133,844,371
	9	Metoprolol Tartrate	126,066,900	18,486,839	1,373,459,423	3,245,116	6.82	0.09	38.85	71,778,272
	10	Hydrochlorothiazide	95,245,932	16,893,836	800,829,135	3,401,785	5.64	0.12	28.00	44,112,190
		Medicare Part D Spending, Top 10	3,230,185,951							
		Medicare Part D Spending, All Drugs	84,639,248,565							

Table A-6 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2012	1	Simvastatin	491,935,459	37,795,740	1,834,651,660	7,036,474	13.02	0.27	69.91	264,666,528
	2	Lisinopril	292,683,599	34,012,396	1,829,754,052	6,276,766	8.61	0.16	46.63	159,839,012
	3	Hydrocodone-Acetaminophen	462,029,176	32,935,666	2,514,651,919	7,463,025	14.03	0.18	61.91	322,540,612
	4	Amlodipine Besylate	311,355,670	30,511,012	1,458,302,520	5,393,157	10.20	0.21	57.73	161,173,503
	5	Levothyroxine Sodium	286,973,233	30,273,540	1,446,101,520	4,917,601	9.48	0.20	58.36	140,672,726
	6	Omeprazole	591,537,032	29,740,834	1,535,244,351	5,776,695	19.89	0.39	102.40	362,493,693
	7	Furosemide	128,685,671	24,196,918	1,287,834,193	4,603,545	5.32	0.10	27.95	69,277,692
	8	Metformin Hcl	209,919,385	19,993,847	1,919,371,720	3,625,576	10.50	0.11	57.90	128,292,608
	9	Metoprolol Tartrate	133,800,561	19,548,179	1,546,729,995	3,547,946	6.84	0.09	37.71	76,244,196
	10	Hydrochlorothiazide	98,048,635	17,097,618	848,605,473	3,513,708	5.73	0.12	27.90	44,579,142
		Medicare Part D Spending, Top 10	3,006,968,420							
		Medicare Part D Spending, All Drugs	89,524,597,876							

Table A-6 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2013	1	Lisinopril	307,023,086	36,880,032	2,038,993,274	7,006,455	8.32	0.15	43.82	165,132,109
	2	Simvastatin	433,683,805	36,746,623	1,895,722,816	7,030,150	11.80	0.23	61.69	215,334,706
	3	Levothyroxine Sodium	396,082,754	35,175,473	1,703,818,462	5,738,370	11.26	0.23	69.02	197,552,635
	4	Hydrocodone-Acetaminophen	567,716,086	34,757,836	2,665,245,306	8,086,390	16.33	0.21	70.21	397,778,705
	5	Amlodipine Besylate	343,309,667	34,597,626	1,718,554,639	6,244,392	9.92	0.20	54.98	174,600,712
	6	Omeprazole	641,680,721	32,217,559	1,723,529,693	6,378,142	19.92	0.37	100.61	390,294,673
	7	Atorvastatin Calcium	910,773,818	26,672,648	1,321,516,281	5,345,618	34.15	0.69	170.38	467,007,915
	8	Furosemide	144,859,527	26,440,872	1,368,750,164	5,002,906	5.48	0.11	28.96	81,770,831
	9	Metformin Hcl	226,616,424	22,041,145	2,221,651,225	4,134,234	10.28	0.10	54.81	134,001,853
	10	Metoprolol Tartrate	162,010,105	21,032,668	1,734,532,000	3,899,899	7.70	0.09	41.54	91,613,179
		Medicare Part D Spending, Top 10	4,133,755,992							
		Medicare Part D Spending, All Drugs	103,334,267,690							

Table A-6 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2014	1	Lisinopril	281,423,341	38,255,921	2,193,230,596	7,454,682	7.36	0.13	37.75	147,879,610
	2	Levothyroxine Sodium	631,467,084	37,693,854	1,887,046,786	6,245,423	16.75	0.33	101.11	310,562,769
	3	Amlodipine Besylate	303,562,645	36,323,451	1,880,188,070	6,749,857	8.36	0.16	44.97	150,729,392
	4	Simvastatin	346,503,211	34,075,701	1,855,648,813	6,768,036	10.17	0.19	51.20	167,199,379
	5	Hydrocodone-Acetaminophen	676,232,255	33,444,013	2,573,595,306	8,005,680	20.22	0.26	84.47	477,865,084
	6	Omeprazole	527,551,494	32,981,253	1,811,634,786	6,703,777	16.00	0.29	78.69	312,947,476
	7	Atorvastatin Calcium	747,160,164	32,583,821	1,690,100,159	6,739,232	22.93	0.44	110.87	361,926,836
	8	Furosemide	135,605,453	27,117,711	1,409,321,185	5,176,237	5.00	0.10	26.20	76,295,388
	9	Metformin Hcl	203,817,147	23,461,778	2,444,099,802	4,509,843	8.69	0.08	45.19	117,724,449
	10	Gabapentin	491,171,326	22,109,457	2,495,659,495	4,292,286	22.22	0.20	114.43	339,447,643
Medicare Part D Spending, Top 10			4,344,494,119							
Medicare Part D Spending, All Drugs			121,001,364,760							

Table A-6 continued Top 10 Most Frequently Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2015	1	Levothyroxine Sodium	777,766,567	39,439,604	2,036,719,775	6,640,827	19.72	0.38	117.12	362,907,764
	2	Lisinopril	252,964,497	39,119,711	2,318,174,238	7,766,977	6.47	0.11	32.57	127,546,282
	3	Atorvastatin Calcium	711,994,465	38,601,142	2,078,721,827	8,070,332	18.44	0.34	88.22	346,025,754
	4	Amlodipine Besylate	264,050,633	38,207,915	2,041,318,602	7,262,710	6.91	0.13	36.36	125,528,065
	5	Omeprazole	446,602,260	33,470,470	1,883,411,677	6,941,057	13.34	0.24	64.34	259,949,018
	6	Simvastatin	261,232,895	31,741,219	1,807,426,013	6,479,793	8.23	0.14	40.32	122,671,000
	7	Hydrocodone-Acetaminophen	727,097,347	29,544,091	2,359,202,982	7,482,217	24.61	0.31	97.18	504,564,352
	8	Furosemide	137,899,185	27,544,913	1,446,438,171	5,314,942	5.01	0.10	25.95	67,083,903
	9	Gabapentin	490,110,316	24,808,141	2,857,603,075	4,813,795	19.76	0.17	101.81	336,482,714
	10	Metformin Hcl	178,290,718	24,608,787	2,641,097,030	4,835,118	7.25	0.07	36.87	99,519,224
		Medicare Part D Spending, Top 10	4,248,008,883							
		Medicare Part D Spending, All Drugs	136,841,893,327							

Table A-6 continued Top 10 Mostly Frequent Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2016	1	Atorvastatin Calcium	757,045,111	44,481,095	2,491,418,627	9,407,705	17.02	0.30	80.47	343,684,650
	2	Levothyroxine Sodium	806,722,765	41,037,321	2,190,683,270	7,027,034	19.66	0.37	114.80	330,868,103
	3	Amlodipine Besylate	269,060,102	39,856,014	2,229,469,504	7,791,184	6.75	0.12	34.53	127,866,604
	4	Lisinopril	259,639,984	39,461,800	2,424,552,511	8,008,316	6.58	0.11	32.42	125,385,580
	5	Omeprazole	411,897,000	32,882,380	1,911,212,368	6,999,197	12.53	0.22	58.85	232,604,997
	6	Simvastatin	247,488,652	29,680,713	1,767,731,328	6,199,770	8.34	0.14	39.92	107,544,771
	7	Hydrocodone-Acetaminophen	727,445,566	28,504,601	2,264,853,371	7,222,639	25.52	0.32	100.72	507,647,217
	8	Furosemide	135,618,721	27,858,543	1,489,998,138	5,416,268	4.87	0.09	25.04	59,545,263
	9	Gabapentin	488,072,139	27,547,913	3,254,818,622	5,346,793	17.72	0.15	91.28	321,746,793
	10	Metformin Hcl	184,171,620	25,462,734	2,847,474,670	5,119,835	7.23	0.06	35.97	98,851,870
Medicare Part D Spending, Top 10			4,287,161,660							
Medicare Part D Spending, All Drugs			145,439,626,252							

Table A-6 continued Top 10 Mostly Frequent Prescribed Drugs, Medicare Part D, Ranked by Number of Claims

Year	Rank	Brand Name	Gross Drug Cost	Claims	Units Dispensed	Beneficiaries	GDC per Claim (\$)	GDC per Unit (\$)	GDC per User (\$)	Total Estimated Government (net of Cost-Sharing)
2017	1	Atorvastatin Calcium	808,877,969	48,580,471	2,883,654,566	10,662,425	16.65	0.28	75.86	358,090,160
	2	Levothyroxine Sodium	836,074,268	41,396,259	2,296,350,539	7,343,728	20.20	0.36	113.85	303,834,268
	3	Amlodipine Besylate	267,095,429	40,572,462	2,389,099,937	8,300,738	6.58	0.11	32.18	125,907,022
	4	Lisinopril	256,219,436	38,680,266	2,496,970,113	8,168,181	6.62	0.10	31.37	118,152,309
	5	Omeprazole	394,327,431	31,251,630	1,890,974,572	6,864,952	12.62	0.21	57.44	221,014,792
	6	Gabapentin	494,526,394	29,424,560	3,574,001,907	5,806,515	16.81	0.14	85.17	325,921,964
	7	Furosemide	139,683,736	27,504,873	1,508,572,667	5,494,606	5.08	0.09	25.42	58,644,109
	8	Simvastatin	219,202,502	27,023,810	1,699,708,464	5,882,757	8.11	0.13	37.26	91,937,232
	9	Hydrocodone-Acetaminophen	498,384,609	26,893,075	2,104,453,623	6,846,138	18.53	0.24	72.80	336,133,437
	10	Metformin Hcl	188,246,304	25,415,896	3,006,011,939	5,337,168	7.41	0.06	35.27	98,499,540
		Medicare Part D Spending, Top 10	4,102,638,079							
		Medicare Part D Spending, All Drugs	154,229,569,493							

Source: Analysis of Medicare claims data (carrier, outpatient, and Part D event) by Acumen for ASPE.

Table A-7 Top 10 High-Cost Prescribed Drugs, Medicaid, Ranked by Total Spending

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2008	1	Quetiapine Fumarate	\$5.59	\$962,610,903
	2	Aripiprazole	\$12.98	\$864,665,984
	3	Olanzapine	\$14.00	\$655,125,344
	4	Risperidone	\$5.54	\$624,080,668
	5	Montelukast Sodium	\$3.46	\$452,731,574
	6	Palivizumab	\$1,603.26	\$440,111,778
	7	Lansoprazole	\$4.80	\$396,513,136
	8	Fluticasone/Salmeterol	\$3.38	\$372,878,837
	9	Esomeprazole Mag Trihydrate	\$5.00	\$351,395,745
	10	Topiramate	\$3.79	\$335,536,619
		Medicaid Spending, Top 10		\$5,455,650,587
		Medicaid Spending, All Drugs		\$24,655,613,645
Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2009	1	Aripiprazole	\$14.05	\$1,086,225,218
	2	Quetiapine Fumarate	\$6.33	\$1,081,880,930
	3	Olanzapine	\$12.51	\$689,987,147
	4	Montelukast Sodium	\$3.73	\$509,973,605
	5	Esomeprazole Mag Trihydrate	\$5.31	\$435,692,163
	6	Lansoprazole	\$5.22	\$426,174,979
	7	Fluticasone/Salmeterol	\$3.58	\$413,942,343
	8	Palivizumab	\$1,689.25	\$398,919,752
	9	Methylphenidate Hcl	\$3.14	\$357,362,638
	10	Amphet Asp/Amphet/D-Amphet	\$5.50	\$286,553,078
		Medicaid Spending, Top 10		\$5,686,711,852
		Medicaid Spending, All Drugs		\$26,029,704,453

Table A-7 continued Top 10 High-Cost Prescribed Drugs, Medicaid, Ranked by Total Spending

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2010	1	Aripiprazole	\$15.29	\$1,424,014,486
	2	Quetiapine Fumarate	\$7.36	\$1,411,178,430
	3	Olanzapine	\$17.07	\$848,755,243
	4	Montelukast Sodium	\$4.07	\$731,230,131
	5	Esomeprazole Mag Trihydrate	\$5.52	\$577,427,457
	6	Fluticasone/Salmeterol	\$3.81	\$572,958,809
	7	Methylphenidate Hcl	\$3.72	\$559,315,101
	8	Ziprasidone Hcl	\$7.65	\$376,368,788
	9	Palivizumab	\$1,771.61	\$370,882,218
	10	Emtricitabine/Tenofovir	\$33.23	\$368,035,678
		Medicaid Spending, Top 10		\$7,240,166,341
		Medicaid Spending, All Drugs		\$32,999,520,529
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Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2011	1	Aripiprazole	\$16.92	\$1,667,289,509
	2	Quetiapine Fumarate	\$8.47	\$1,618,779,336
	3	Olanzapine	\$20.49	\$983,556,014
	4	Montelukast Sodium	\$4.65	\$892,903,221
	5	Methylphenidate Hcl	\$4.09	\$709,352,216
	6	Fluticasone/Salmeterol	\$4.14	\$640,832,463
	7	Esomeprazole Mag Trihydrate	\$5.82	\$573,215,157
	8	Emtricitabine/Tenofovir	\$35.81	\$455,304,078
	9	Albuterol Sulfate	\$3.10	\$453,110,973
	10	Efavirenz/Emtricitab/Tenofovir	\$55.06	\$443,793,760
		Medicaid Spending, Top 10		\$8,438,136,726
		Medicaid Spending, All Drugs		\$37,679,593,904

Table A-7 continued Top 10 High-Cost Prescribed Drugs, Medicaid, Ranked by Total Spending

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2012	1	Aripiprazole	\$19.15	\$1,827,786,498
	2	Quetiapine Fumarate	\$10.86	\$985,626,781
	3	Montelukast Sodium	\$6.23	\$713,394,035
	4	Methylphenidate Hcl	\$4.63	\$703,317,971
	5	Fluticasone/Salmeterol	\$4.59	\$670,347,610
	6	Emtricitabine/Tenofovir	\$39.39	\$549,689,170
	7	Albuterol Sulfate	\$3.54	\$538,800,846
	8	Insulin Glargine, Hum. Rec. Anlog	\$13.13	\$524,024,969
	9	Efavirenz/Emtricitab/Tenofovir	\$59.21	\$497,667,487
	10	Lisdexamfetamine Dimesylate	\$5.23	\$459,895,293
		Medicaid Spending, Top 10		\$7,470,550,662
		Medicaid Spending, All Drugs		\$37,771,206,170
Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2013	1	Abilify	\$23.72	\$2,011,387,678
	2	Advair Diskus	\$4.63	\$580,242,453
	3	Methylphenidate Er	\$5.09	\$578,534,690
	4	Vyvanse	\$6.01	\$559,256,432
	5	Truvada	\$41.69	\$522,333,513
	6	Cymbalta	\$6.97	\$498,940,945
	7	Atripla	\$63.69	\$494,445,974
	8	Seroquel Xr	\$14.44	\$414,436,248
	9	Synagis	\$2,346.53	\$387,004,169
	10	Adderall Xr	\$7.28	\$377,512,240
		Medicaid Spending, Top 10		\$6,424,094,342
		Medicaid Spending, All Drugs		\$38,896,894,112

Table A-7 continued Top 10 High-Cost Prescribed Drugs, Medicaid, Ranked by Total Spending

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2014	1	Abilify	\$27.91	\$2,464,660,026
	2	Sovaldi	\$1,023.55	\$1,386,209,781
	3	Atorvastatin Calcium	\$8.31	\$1,139,715,919
	4	Vyvanse	\$6.75	\$659,026,202
	5	Truvada	\$43.53	\$616,663,462
	6	Methylphenidate Er	\$4.96	\$581,063,019
	7	Atripla	\$68.56	\$579,363,530
	8	Lantus	\$21.66	\$573,919,545
	9	Advair Diskus	\$4.98	\$546,197,570
	10	Lantus Solostar	\$22.55	\$460,267,881
		Medicaid Spending, Top 10		\$9,007,086,936
		Medicaid Spending, All Drugs		\$47,308,056,863

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2015	1	Harvoni	\$1,136.52	\$2,195,135,262
	2	Abilify	\$32.00	\$2,033,716,141
	3	Lantus	\$25.32	\$787,864,582
	4	Vyvanse	\$7.43	\$776,733,121
	5	Truvada	\$46.32	\$735,793,787
	6	Methylphenidate Er	\$5.92	\$699,121,315
	7	Lantus Solostar	\$25.23	\$650,028,115
	8	Latuda	\$28.25	\$631,173,466
	9	Sovaldi	\$978.65	\$617,704,050
	10	Aripiprazole	\$21.31	\$605,337,794
		Medicaid Spending, Top 10		\$9,732,607,632
		Medicaid Spending, All Drugs		\$57,820,639,442

Table A-7 continued Top 10 High-Cost Prescribed Drugs, Medicaid, Ranked by Total Spending

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2016	1	Harvoni	\$1,128.11	\$2,210,702,438
	2	Abilify	\$31.80	\$1,079,159,586
	3	Humira Pen	\$1,918.91	\$968,237,888
	4	Vyvanse	\$8.24	\$897,132,794
	5	Latuda	\$32.73	\$864,739,470
	6	Lantus	\$25.05	\$785,372,480
	7	Truvada	\$49.78	\$754,171,178
	8	Lantus Solostar	\$24.95	\$752,034,059
	9	Methylphenidate Er	\$6.25	\$735,566,656
	10	Aripiprazole	\$11.16	\$672,887,842
		Medicaid Spending, Top 10		\$9,720,004,391
		Medicaid Spending, All Drugs		\$64,455,170,411
Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2017	1	Humira Pen	\$2,152.22	\$1,263,696,300
	2	Harvoni	\$1,084.68	\$1,211,321,698
	3	Latuda	\$37.35	\$1,096,733,005
	4	Vyvanse	\$8.87	\$971,454,153
	5	Epclusa	\$874.83	\$943,299,246
	6	Genvoya	\$90.40	\$814,372,297
	7	Invega Sustenna	\$1,530.28	\$743,459,699
	8	Methylphenidate Er	\$6.69	\$734,238,237
	9	Lyrica	\$6.54	\$721,237,876
	10	Zepatier	\$647.27	\$705,462,489
		Medicaid Spending, Top 10		\$9,205,275,001
		Medicaid Spending, All Drugs		\$67,585,558,174

Source: 2006-2012 Lewin analysis of Medicaid State Drug Utilization public-use data, 2013-2017 Centers for Medicaid and Medicaid Services analysis of Medicaid State Drug Utilization public-use data.

Table A-8 Top 10 High-Cost Prescribed Drugs, Medicaid, Ranked by Spending per Unit

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2013	1	Eylea	\$28,726.14	\$11,329,044
	2	Lucentis	\$27,154.34	\$35,875,600
	3	Ilaris	\$16,441.73	\$6,641,802
	4	Supprelin La	\$15,778.66	\$11,234,408
	5	Retisert	\$13,283.28	\$212,532
	6	Stelara	\$11,528.58	\$29,800,559
	7	Somatuline Depot	\$9,951.89	\$1,655,617
	8	Jevtana	\$7,152.10	\$2,891,192
	9	H.P. Acthar	\$5,841.24	\$83,938,624
	10	Mozobil	\$5,459.21	\$2,049,180
		Medicaid Spending, Top 10		\$185,628,558
		Medicaid Spending, All Drugs		\$38,896,894,112
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Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2014	1	Lucentis	\$22,890.95	\$42,675,634
	2	Eylea	\$18,281.66	\$18,866,688
	3	Supprelin La	\$17,858.48	\$12,554,514
	4	Ilaris	\$16,106.46	\$17,651,242
	5	Stelara	\$14,515.75	\$52,042,820
	6	Jetrea	\$11,938.28	\$211,308
	7	Somatuline Depot	\$11,768.56	\$2,221,257
	8	Marqibo	\$6,895.33	\$151,697
	9	Jevtana	\$6,450.22	\$3,252,344
	10	H.P. Acthar	\$6,258.93	\$126,837,119
		Medicaid Spending, Top 10		\$276,464,623
		Medicaid Spending, All Drugs		\$47,308,056,863
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Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2015	1	Eylea	\$30,640.15	\$57,442,354
	2	Lucentis	\$27,325.91	\$40,882,824
	3	Supprelin La	\$21,244.49	\$14,764,918
	4	Lemtrada	\$19,045.74	\$978,951
	5	Calcium Disodium Versenate	\$16,182.57	\$28,158
	6	Stelara	\$14,987.46	\$88,407,205
	7	Jetrea	\$14,746.69	\$210,199
	8	Xofigo	\$14,211.63	\$448,434
	9	Somatuline Depot	\$12,515.16	\$4,253,274
	10	Ilaris	\$10,860.14	\$31,064,973
		Medicaid Spending, Top 10		\$238,481,290
		Medicaid Spending, All Drugs		\$57,820,639,442

Table A-8 continued Top 10 High-Cost Prescribed Drugs, Medicaid, Ranked by Spending per Unit

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2016	1	Eylea	\$30,501.57	\$115,662,948
	2	Supprelin La	\$25,578.29	\$19,260,455
	3	L-Methionine	\$25,130.00	\$302
	4	Lucentis	\$23,391.50	\$38,852,316
	5	Stelara	\$16,331.53	\$142,687,915
	6	Lemtrada	\$13,020.43	\$10,081,942
	7	Jetrea	\$12,086.76	\$160,996
	8	Xofigo	\$11,823.87	\$1,019,111
	9	Signifor Lar	\$11,560.15	\$1,260,056
	10	Somatuline Depot	\$8,962.15	\$8,210,191
		Medicaid Spending, Top 10		\$337,196,232
		Medicaid Spending, All Drugs		\$64,455,170,411
Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2017	1	Aralast	\$36,417.29	\$164,897
	2	Eylea	\$33,809.93	\$155,473,882
	3	Supprelin La	\$28,283.06	\$20,986,031
	4	Lucentis	\$24,721.29	\$39,847,591
	5	Spinraza	\$23,477.05	\$119,583,270
	6	Retisert	\$19,168.74	\$274,535
	7	Lemtrada	\$18,289.10	\$17,467,005
	8	Xofigo	\$18,227.44	\$2,320,827
	9	Stelara	\$17,235.71	\$221,874,939
	10	Krystexxa	\$16,421.79	\$1,299,374
		Medicaid Spending, Top 10		\$579,292,351
		Medicaid Spending, All Drugs		\$67,585,558,174

Source: Centers for Medicaid and Medicaid Services analysis of Medicaid State Drug Utilization public-use data.

Table A-9 Top 10 Most Frequently Prescribed Drugs, Medicaid, Ranked by Number of Claims

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2008	1	Hydrocodone Bit/Acetaminophen	\$0.23	\$112,492,086
	2	Amoxicillin	\$0.09	\$64,329,996
	3	Ibuprofen	\$0.09	\$49,200,240
	4	Azithromycin	\$2.40	\$145,355,482
	5	Alprazolam	\$0.13	\$39,489,546
	6	Clonazepam	\$0.20	\$51,623,548
	7	Lorazepam	\$0.27	\$57,573,711
	8	Montelukast Sodium	\$3.46	\$452,731,574
	9	Aspirin	\$0.09	\$14,808,907
	10	Loratadine	\$0.24	\$44,987,853
		Medicaid Spending, Top 10		\$1,032,592,942
		Medicaid Spending, All Drugs		\$24,655,613,645

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2009	1	Hydrocodone Bit/Acetaminophen	\$0.24	\$128,705,221
	2	Amoxicillin	\$0.10	\$74,540,834
	3	Ibuprofen	\$0.09	\$54,549,556
	4	Azithromycin	\$1.76	\$138,836,617
	5	Albuterol Sulfate	\$3.05	\$221,791,801
	6	Alprazolam	\$0.12	\$40,524,359
	7	Clonazepam	\$0.13	\$38,998,901
	8	Lorazepam	\$0.16	\$36,034,159
	9	Montelukast Sodium	\$3.73	\$509,973,605
	10	Loratadine	\$0.22	\$47,178,424
		Medicaid Spending, Top 10		\$1,291,133,475
		Medicaid Spending, All Drugs		\$26,029,704,453

Table A-9 continued Top 10 Most Frequently Prescribed Drugs, Medicaid, Ranked by Number of Claims

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2010	1	Hydrocodone Bit/Acetaminophen	\$0.22	\$170,503,632
	2	Amoxicillin	\$0.09	\$108,328,686
	3	Ibuprofen	\$0.09	\$75,096,982
	4	Albuterol Sulfate	\$2.87	\$356,562,839
	5	Azithromycin	\$1.53	\$169,561,708
	6	Loratadine	\$0.17	\$60,859,947
	7	Alprazolam	\$0.13	\$53,806,189
	8	Clonazepam	\$0.13	\$48,683,997
	9	Montelukast Sodium	\$4.07	\$731,230,131
	10	Lisinopril	\$0.19	\$36,786,525
		Medicaid Spending, Top 10		\$1,811,420,636
		Medicaid Spending, All Drugs		\$32,999,520,529

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2011	1	Hydrocodone Bit/Acetaminophen	\$0.20	\$185,851,039
	2	Amoxicillin	\$0.09	\$127,704,574
	3	Ibuprofen	\$0.09	\$82,215,957
	4	Albuterol Sulfate	\$3.10	\$453,110,973
	5	Azithromycin	\$1.47	\$182,600,085
	6	Alprazolam	\$0.12	\$59,014,244
	7	Loratadine	\$0.16	\$54,014,819
	8	Clonazepam	\$0.13	\$53,746,692
	9	Lisinopril	\$0.19	\$43,334,762
	10	Montelukast Sodium	\$4.65	\$892,903,221
		Medicaid Spending, Top 10		\$2,134,496,367
		Medicaid Spending, All Drugs		\$37,679,593,904

Table A-9 continued Top 10 Most Frequently Prescribed Drugs, Medicaid, Ranked by Number of Claims

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2012	1	Hydrocodone Bit/Acetaminophen	\$0.21	\$185,509,603
	2	Amoxicillin	\$0.08	\$109,425,719
	3	Albuterol Sulfate	\$3.54	\$538,800,846
	4	Ibuprofen	\$0.08	\$71,155,236
	5	Azithromycin	\$1.29	\$160,450,118
	6	Omeprazole	\$0.42	\$116,061,714
	7	Alprazolam	\$0.11	\$55,748,894
	8	Loratadine	\$0.16	\$48,268,866
	9	Lisinopril	\$0.16	\$40,290,457
	10	Clonazepam	\$0.12	\$51,067,101
		Medicaid Spending, Top 10		\$1,376,778,555
		Medicaid Spending, All Drugs		\$37,771,206,170

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2013	1	Hydrocodone-Acetaminophen	\$0.26	\$195,051,575
	2	Amoxicillin	\$0.12	\$98,135,545
	3	Ibuprofen	\$0.11	\$62,215,054
	4	Omeprazole	\$0.38	\$114,616,969
	5	Azithromycin	\$1.66	\$129,482,064
	6	Lisinopril	\$0.15	\$38,977,743
	7	Loratadine	\$0.18	\$40,981,632
	8	Cetirizine Hcl	\$0.16	\$53,416,090
	9	Albuterol Sulfate	\$0.15	\$109,339,045
	10	Gabapentin	\$0.27	\$150,887,536
		Medicaid Spending, Top 10		\$993,103,255
		Medicaid Spending, All Drugs		\$38,896,894,112

Table A-9 continued Top 10 Most Frequently Prescribed Drugs, Medicaid, Ranked by Number of Claims

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2014	1	Hydrocodone-Acetaminophen	\$0.29	\$232,638,855
	2	Amoxicillin	\$0.13	\$98,843,746
	3	Ibuprofen	\$0.10	\$74,011,233
	4	Lisinopril	\$0.14	\$43,124,965
	5	Omeprazole	\$0.34	\$107,844,436
	6	Azithromycin	\$1.58	\$121,677,230
	7	Gabapentin	\$0.23	\$164,292,251
	8	Cetirizine Hcl	\$0.15	\$56,034,828
	9	Loratadine	\$0.16	\$38,240,930
	10	Levothyroxine Sodium	\$0.37	\$83,000,884
		Medicaid Spending, Top 10		\$1,019,709,357
		Medicaid Spending, All Drugs		\$47,308,056,863

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2015	1	Hydrocodone-Acetaminophen	\$0.37	\$282,984,779
	2	Amoxicillin	\$0.12	\$108,507,341
	3	Ibuprofen	\$0.12	\$94,664,783
	4	Lisinopril	\$0.12	\$48,649,631
	5	Omeprazole	\$0.27	\$113,501,036
	6	Gabapentin	\$0.21	\$211,713,845
	7	Azithromycin	\$1.53	\$125,819,100
	8	Metformin Hcl	\$0.08	\$46,714,921
	9	Levothyroxine Sodium	\$0.43	\$119,409,992
	10	Cetirizine Hcl	\$0.15	\$61,716,169
		Medicaid Spending, Top 10		\$1,213,681,596
		Medicaid Spending, All Drugs		\$57,820,639,442

Table A-9 continued Top 10 Most Frequently Prescribed Drugs, Medicaid, Ranked by Number of Claims

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2016	1	Amoxicillin	\$0.12	\$107,146,885
	2	Hydrocodone-Acetaminophen	\$0.33	\$240,061,664
	3	Ibuprofen	\$0.11	\$93,837,018
	4	Lisinopril	\$0.11	\$48,082,851
	5	Gabapentin	\$0.17	\$207,844,223
	6	Omeprazole	\$0.23	\$101,969,084
	7	Atorvastatin Calcium	\$0.35	\$112,539,544
	8	Cetirizine Hcl	\$0.14	\$66,964,155
	9	Metformin Hcl	\$0.07	\$48,221,985
	10	Levothyroxine Sodium	\$0.44	\$132,094,048
		Medicaid Spending, Top 10		\$1,158,761,456
		Medicaid Spending, All Drugs		\$64,455,170,411

Year	Rank	Generic Drug Name	Spending per Unit	Total Spending
2017	1	Amoxicillin	\$0.12	\$104,708,104
	2	Ibuprofen	\$0.11	\$89,449,829
	3	Gabapentin	\$0.16	\$202,816,058
	4	Lisinopril	\$0.12	\$51,994,254
	5	Hydrocodone-Acetaminophen	\$0.31	\$176,562,712
	6	Atorvastatin Calcium	\$0.31	\$120,312,292
	7	Omeprazole	\$0.24	\$98,121,378
	8	Ventolin Hfa	\$2.92	\$543,229,325
	9	Cetirizine Hcl	\$0.16	\$77,908,465
	10	Metformin Hcl	\$0.08	\$52,936,615
		Medicaid Spending, Top 10		\$1,518,039,032
		Medicaid Spending, All Drugs		\$67,585,558,174

Source: 2006-2012 Lewin analysis of Medicaid State Drug Utilization public-use data, 2013-2017 Centers for Medicaid and Medicaid Services analysis of Medicaid State Drug Utilization public-use data.