



# ASPE

## ISSUE BRIEF

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### Observations on Trends in Prescription Drug Spending

March 8, 2016

#### Key findings

- Expenditures on prescription drugs are rising and are projected to continue to rise faster than overall health spending thereby increasing this sector's share of health care spending.
- ASPE estimates that prescription drug spending in the United States was about \$457 billion in 2015, or 16.7 percent of overall personal health care services. Of that \$457 billion, \$328 billion (71.9 percent) was for retail drugs and \$128 billion (28.1 percent) was for non-retail drugs.
- Factors underlying the rise in prescription drug spending from 2010 to 2014 can be roughly allocated as follows: 10 percent of that rise was due to population growth; 30 percent to an increase in prescriptions per person; 30 percent to overall, economy-wide inflation; and 30 percent to either changes in the composition of drugs prescribed toward higher price products or price increases for drugs that together drove average price increases in excess of general inflation.
- Expenditures on specialty drugs generally appear to be rising more rapidly than expenditures on other drugs, though estimates of specialty drug expenditures are highly sensitive to which drugs are considered "specialty" products.

## Introduction

The rising cost of prescription medicines is putting pressure on public and family budgets in the United States. A recent nationally-representative poll of more than 1,200 adults found that the affordability of prescription drugs tops the public's list of priorities for the President and Congress, including "making sure that high-cost drugs are affordable to those who need them" and "government action to lower prescription drug prices". In particular, 77 percent of adults believe that "making sure that high-cost drugs for chronic conditions, such as HIV, hepatitis, mental illness and cancer, are affordable to those who need them" is a top priority.<sup>1</sup>

Many new drug products confer enormous clinical benefits to patients, but the cost associated with some of these therapies may place a financial strain on patients who might face high out-of-pocket costs even if they are insured. In addition, spending on prescription drugs contributes to overall health care spending growth and creates pressure on this portion of federal and state budgets. To inform discussion on the challenges posed by the rising cost of prescription drugs, this paper briefly discusses the magnitude of the recent rise in prescription drug spending, the relative importance of various factors which underlie it, and the contribution of drug spending to the overall rise in health care spending in recent years.

## *Estimates of Drug Spending Based on the National Health Expenditure Accounts*

The most widely used estimates of prescription drug spending in the United States come from the National Health Expenditure Accounts (NHEA). The NHEA estimates include only retail prescription drug spending (drug spending at outlets that directly serve patients); non-retail prescription drug spending (spending by medical providers for drugs they provide directly to patients) is classified under the spending category corresponding to the provider purchasing the drugs, such as hospital spending or physician services spending. Thus, most estimates of prescription drug spending in the United States omit the non-retail portion of drug spending and present an incomplete picture of the total cost associated with prescription drugs. The Assistant Secretary for Planning and Evaluation (ASPE) estimates that the United States spent about \$457 billion on retail plus non-retail prescription drugs in 2015, which was 16.7 percent of the estimated \$2.729 trillion spent on overall personal health care services. Of that \$457 billion, \$328 billion was for retail drugs and \$128 billion was for non-retail drugs. These estimates are based on data from the NHEA<sup>2</sup> and a recent analysis that estimates non-retail drugs as accounting for 28 percent of all drug spending.<sup>3</sup>

<sup>1</sup> Kaiser Family Foundation, *Kaiser Health Tracking Poll: October 2015*, October 28, 2015. See <http://kff.org/health-costs/poll-finding/kaiser-health-tracking-poll-october-2015/> accessed November 13, 2015.

<sup>2</sup> The NHEA, produced by the Office of the Actuary at the Centers for Medicare & Medicaid Services (CMS), provides estimates of total national spending on health care services by category. Its "Prescription Drug Expenditures" category represents retail sales of human-use dosage-form drugs, biological drugs, and diagnostic products that are available only by a prescription. Non-retail drug expenditures are counted separately. For example, a drug that is administered in a physician's office is counted under "Physician and Clinical Expenditures", and analogously for hospitals, nursing homes, and other non-retail settings.

<sup>3</sup> Altarum Institute, *Center for Sustainable Health Spending Data Brief: A Ten Year Projection of the Prescription Drug Share of National Health Expenditures Including Non-Retail*, Addendum Update August 2015. That analysis suggests that the ratio of non-retail drug spending to retail drug spending is about 0.4, or alternatively, that non-retail drug spending is about 28 percent of all (retail plus non-retail) drug spending.

Growth in spending on prescription drugs slowed substantially about a decade ago, due to greater generic product entry and fewer new blockbuster products being introduced.<sup>4</sup> In particular, 2008 to 2012 was a period of unusually slow growth in drug spending—about 2 percent per year. This slower growth was one factor that contributed to the relatively slow growth in total health care spending during that period. In 2014, growth in drug spending accelerated, and the contribution of drugs to growth in total health care costs rose as well.

Table 1 shows estimates of spending on all personal health care services, retail prescription drugs, and non-retail prescription drugs between 2009 and 2018.<sup>5</sup> After a period of subdued growth extending through 2013, drug spending rose by a remarkable 12.6 percent in 2014, and drug spending growth is estimated to have remained elevated in 2015. Although analysts do not expect the rates of increase seen in 2014 and 2015 to continue, current projections reflect an expectation of higher rates of growth during the next few years compared to the 2008-2013 period. Cumulatively from 2013 to 2018, prescription drug spending is projected to rise by an average of 7.3 percent annually. Since NHEA projections of total personal health care services indicate growth at a slower pace of 5.2 percent between 2013 and 2018, prescription drugs are projected to comprise a greater percentage of all health care spending. Assuming that total drug spending grows at the same projected rate as the retail component, total drug spending will reach \$535 billion in 2018, or 16.8 percent of all personal health care spending compared to 15.3 percent in 2013. Such a rise might appear modest, however it should be noted that during the 1990s retail prescription drugs typically accounted for about 7 percent of health care spending (data on non-retail drugs are not available for that period). This underscores the importance of prescription drugs as a potential contributor to long-term growth in health care costs.

In some cases, the use of particular drugs might lead to reduced expenditures in other areas such as hospital care if, for example, fewer acute health events occur as a result of medication use. However, evidence suggests that a rise in prescription drug therapy tends to raise aggregate expenditures rather than lower them even if there are some offsetting cost reductions in some particular areas.<sup>6</sup>

#### *Estimates from IMS Health National Prescription Audit*

Another source of information on prescription drug expenditures comes from IMS Health's National Prescription Audit (NPA). The IMS NPA Retail channel tracks the volume of pharmaceutical prescriptions dispensed through chain store pharmacies, independent store

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<sup>4</sup> Cynthia Smith, Cathy Cowan, Stephen Heffler, and Aaron Catlin, "National Health Spending In 2004: Recent Slowdown Led By Prescription Drug Spending", *Health Affairs*, 25, no.1 (2006):186-196.

<sup>5</sup> Estimates of total drug spending (retail plus non-retail) in this paper are based on retail drug spending from the NHEA and calculated under the assumption that non-retail drugs comprise a fixed 28 percent of all spending on all prescription drugs.

<sup>6</sup> For a discussion of prescription drug spending and offsets in other forms of spending, see Martin Gaynor, Jian Li, and William B Vogt, "Substitution, Spending Offsets, and Prescription Drug Benefit Design", *Forum for Health Economics & Policy*, Volume 10, Issue 2, July 2007.

pharmacies, and food store pharmacies. The IMS NPA data on the number of prescriptions and expenditures represent nationally projected estimates based on a sample of 46,400 pharmacies.<sup>7</sup>

Table 2 shows the estimates of retail expenditures and number of prescriptions by year between 2009 and 2015.<sup>8</sup> The IMS NPA estimates suggest somewhat higher levels of spending and rates of growth than those suggested by corresponding estimates from the NHEA. (See Figure 1) For 2014, the most recent year for which full-year data are available, IMS estimates suggest that retail prescription expenditures were \$330 billion, or about \$25 billion higher than the NHEA projection. In the IMS estimates, the average annual rate of growth from 2010—the earliest available full-year of IMS data—to 2014 was 6.0 percent, compared to 4.5 percent for retail drugs in the NHEA projections.

The disparity between the two sources appears to be growing over time (see Figure 1). The majority of this disparity is likely because the IMS spending data are based on the gross price before rebates while the NHEA spending data is based on the net price after an adjustment for rebates is applied.<sup>9</sup> (As a conceptual matter, net-of-rebate estimates like those provided by NHEA are generally preferable to the gross-of-rebate estimates provided by IMS. However, tracking rebates is relatively challenging in practice.)

Forecasts based on a recent analysis by IMS Health predict continued growth in spending on both retail and non-retail prescription drugs in the coming years.<sup>10</sup> Under these projections, annual growth in real (inflation-adjusted) expenditures on prescription drugs ranges from 5 percent to 8 percent per year during 2014 to 2015—rates of growth that are greater than those projected in the NHEA for retail drugs. Note that because the NHEA projected figures are in nominal dollars (not adjusted for inflation), the underlying difference between the two sets of projections is even greater.

### **Decomposing the Changes in Retail Drug Spending**

A rise in spending on prescription drugs can occur when a greater quantity of prescriptions is dispensed or when the average price per prescription rises. For purposes of discussing the rising cost of prescription drugs—especially the burden of high-priced drugs—it is useful to try to decompose the recent rise in spending into its component parts: prices and quantities.

The IMS data show that both estimated expenditures and number of prescriptions increased substantially during the last five years (see Table 2). The total number of prescriptions rose from about 3.54 billion in 2010 to 3.92 billion in 2014, an increase of approximately 11 percent.

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<sup>7</sup> The NPA also includes number of prescriptions by mail service, but no expenditure data for that channel.

<sup>8</sup> The IMS NPA data are available for the previous six years, on a rolling monthly basis (or 72 months beginning in October 2009, ending in September 2015.), so only partial-year data are available for 2009 and 2015. To make these estimates comparable with the calendar year estimates from the NHEA, the 2009 and 2015 IMS estimates are re-weighted to reflect annual figures.

<sup>9</sup> CMS, National Health Expenditure Accounts: Methodology Paper, 2014, Definitions, Sources, and Methods, December 2015, <https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/DSM-14.pdf>.

<sup>10</sup> IMS Institute for Healthcare Informatics, *Global Outlook for Medicines through 2018*, November 2014.

Nearly three-quarters of that rise resulted from growth in the number of prescriptions per capita, with the remaining portion attributable to the growing U.S. population. Expenditures grew more quickly, rising about 26 percent during that same period. Figure 2A shows the difference in relative growth of expenditures versus number of prescriptions during this period, illustrating the much more rapid growth in expenditures. The fact that total expenditures rose more quickly than the number of prescriptions suggests that prices are growing faster than quantities. Therefore price changes are contributing more to the growth in spending than is growth in volume of prescriptions. By itself, the change in prices for the total set of prescribed drugs increased retail drug spending by an estimated 15 percent during the last five years.<sup>11</sup> Economy-wide inflation rose by only about 7 percent from 2010 to 2014, so roughly half of the rise in average drug prices during that period represents growth in excess of overall inflation.<sup>12</sup>

Put differently, factors underlying the rise in prescription drug spending from 2010 to 2014 can be roughly allocated as follows: 10 percent of that rise was due to population growth; 30 percent to an increase in prescriptions per person; 30 percent to overall, economy-wide inflation; and 30 percent to either changes in the composition of drugs prescribed toward higher price products or price increases for drugs that together drove average price increases in excess of general inflation.

### *Brand-Name Drugs and Generics*

Brand-name drugs have fallen as a share of all retail drug expenditures and drug prescriptions during the past six years based on IMS NPA data (Figure 3). In October 2009, brand-name drugs (plus branded generic drugs) comprised 68 percent of all expenditures on retail drug products. That proportion fell steadily over the next few years until levelling off at about 53 percent from 2013 through September 2015.

Not surprisingly, prescriptions for generic drugs have increased while those for brand-name drugs have declined. The shift toward more generic drug use confers substantial savings to the health care system. A recent report prepared by the IMS Institute for Healthcare Informatics for the Generic Pharmaceutical Association found that savings from generic drug prescribing reached an all-time high of \$254 billion in 2014, with savings during the last ten years amounting to \$1.68 trillion.<sup>13</sup>

The pattern of change in expenditures and prescriptions differed greatly between brand-name drugs versus generic drugs. Figure 2B shows the difference in relative growth of expenditures versus number of prescriptions during the same period separately for brand-name and generic drugs. The number of brand-name drug prescriptions actually fell from 2009 to 2015, by a

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<sup>11</sup> The 15 percent estimate should be interpreted with caution because the set of drugs prescribed to patients has changed during the time period examined. This analysis does not examine price changes for particular drugs. The Consumer Price Index for prescription drugs, which attempts to make an “apples to apples” comparison based on a fixed set of consumer goods, offers a useful comparison. It rose by a cumulative 12.4 percent during 2010 to 2014, which generally suggests that price increases among individual drugs can account for more of the rise in average price per prescription than the change in the composition of prescriptions.

<sup>12</sup> U.S. Bureau of Economic Analysis, *Gross Domestic Product: Implicit Price Deflator*.

<sup>13</sup> Generic Pharmaceutical Association, *Generic Drug Savings in the U.S.: Seventh Annual Edition, 2015*.

cumulative 42 percent. Revenues for brand-name drugs, however, were relatively flat during most of that period, and ended about 13 percent higher; that implies a combination of rising prices for brand-name drugs and a shift toward more expensive products among the declining number of brand-name prescriptions. The pattern for generic drugs was notably different. The number of prescriptions rose substantially, by a cumulative 36 percent, and expenditures nearly doubled. During this period the majority of blockbuster drugs lost patent protection, often referred to as the “patent cliff”.<sup>14</sup> This phenomenon contributed to both increased availability of new generic drugs and increased generic drug spending.<sup>15</sup> For a more detailed discussion of generic drug pricing trends, see the ASPE Issue Brief: Understanding Recent Trends in Generic Drug Prices.<sup>16</sup>

### **Specialty Drugs and Total Retail Drug Expenditures**

“Specialty drugs” are of particular interest in current discussions of prescription drug spending because patients and payers often face high prices for these drugs. There is no universal definition for specialty drugs although many different observers with different purposes all use the term.<sup>17</sup> Generally, payers, health care stakeholders, analysts, and others regard products with some or all of the following characteristics as being specialty drugs: expensive; manufactured in living systems (biologics); difficult to administer; prescribed by specialist physicians; used to treat serious conditions for which few or no alternative therapies are available; administered through specialized pharmacies; require temperature control or other special handling. Examining specialty drug prescription and expenditure trends can help to place this category of drugs in the broader context of total prescription drug trends.

#### *CVS/Caremark Specialty Formulary Drugs*

Recognizing that there are alternative definitions, this analysis examines spending on specialty drugs based on the published specialty pharmacy formulary for CVS/Caremark for October 2015. The CVS/Caremark formulary was chosen for this analysis due largely to the fact that CVS/Caremark is one of the largest chain pharmacies in the United States. CVS/Caremark manages the pharmacy benefits of more than 70 million Americans nationwide, making them one of the largest payers for prescription drugs. The CVS/Caremark Specialty Formulary includes 376 unique products. CVS/Caremark most likely chose their particular list of such products based on some or all of the factors described above.

Specialty drug products by this definition are a significant contributor to the growth in prescription drug spending. Table 3 shows ASPE’s estimates of spending on all retail drugs and on specialty drugs using IMS data. Spending on these specialty drugs rose from \$14.5 billion in

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<sup>14</sup> Giambrone, A. Jumping off the Patent Cliff...and Surviving. Optum Rx. Available at <https://www.optumrx.com/.../Assets/PDF/Jumpingoffthepatentcliff.pdf>. Accessed on 2/4/2016.

<sup>15</sup> AARP Public Policy Institute. Trends in Retail Prices of Generic Prescription Drugs Widely Used by Older Americans, 2006-2013. May 2015.

<sup>16</sup> Available at <https://aspe.hhs.gov/pdf-report/understanding-recent-trends-generic-drug-prices>

<sup>17</sup> The IMS NPA data currently available to ASPE do not include an indicator specific for specialty drugs, and it is not easy to identify them precisely using these data; expenditures per unit can be estimated for retail drugs, but it is not always clear how many units comprise a course of therapy.



2009 to \$27.1 billion in 2015 – an average annual rate of growth of 11.0 percent. Using the estimates for which full-year data are available in IMS, spending rose from \$15 billion in 2010 to \$23 billion in 2014, for an average annual rate of growth of 11.2 percent. As a share of spending on all retail prescription drugs, specialty drugs rose from 5.7 percent in 2009 to 7.6 percent, an increase of 1.9 percentage points or a relative percent increase of 33.3 percent. Specialty drugs are estimated to account for about 12 percent of all the growth observed in retail drug spending during this time. Figure 4 shows the rise in the share of drug spending comprised by specialty drugs. The general upward trend appears clear, though specialty drugs do not exceed 8 percent of all retail drug spending during this period.

### *Cost as a Proxy for Specialty Designation*

Other definitions of specialty drugs lead to different estimates when examining the share of drug spending attributable to specialty products. “High cost” is a common theme in almost all definitions of specialty drugs. In Part D, plan sponsors may include in the specialty tier only those Part D drugs with sponsor-negotiated prices that exceed the dollar-per-month threshold established by the Centers for Medicare & Medicaid Services (CMS). The current specialty tier threshold of \$600 per month was established in 2008 and has remained at that level since. We generated a list of drugs with a monthly cost in excess of \$600 based on Medicare Part D data.<sup>18</sup>

Figure 5 uses IMS NPA data to show the shares of total retail drug expenditures accounted for by drugs meeting this definition. High-cost drugs constituted an average of 22 percent of all retail drug spending from October 2009 to September 2015. That figure fluctuated, however, from a high of 23.7 to a low of 20.2 percent, suggesting that the contribution of high-cost drugs to overall health care cost growth varies greatly over time. Since 2013, the share comprised by high-cost drugs appears to be rising, suggesting that these drugs are a growing cost driver, and could potentially place greater upward pressure on total health care costs.

### **Concluding Observations**

Expenditures on prescription drugs are rising and are projected to continue to rise in the coming years as a share of total health care spending. The number of prescriptions is rising, but the majority of the growth in retail drug spending appears to be related to rising prices and changes in the composition of drugs prescribed—e.g., a general shift toward more expensive prescriptions—rather than changes in the total quantity of prescriptions. Expenditures on specialty drugs appear to be rising more rapidly than expenditures on other drug products, though estimates of the level of spending on specialty drugs and the net contribution to overall spending growth are highly sensitive to which drugs are considered to be “specialty drug” products.

Non-retail drugs comprise a large part of overall drug expenditures and are often neglected in discussion of prescription drug costs. ASPE estimates that retail plus non-retail prescription drug spending in the United States will be about \$457 billion in 2015, or 16.7 percent of the estimated

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<sup>18</sup> The set of drug products identified this way might not correspond precisely to one based on a broader population.

\$2.729 trillion that will be spent on all on overall personal health care services. Of that \$457 billion, \$328 billion is for retail drugs and \$119 billion is for non-retail drugs.

Table 1

Expenditures on Personal Health Care Services and Prescription Drugs, 2009 to 2018, in Billions of Nominal Dollars							
	Personal Health Care (PHC)	Retail Prescription Drugs	Percent of all PHC %	Non-Retail Prescription Drugs <sup>1</sup>	Percent of all PHC %	Total Prescription Drugs	Percent of all PHC %
2009	2,118	255	12.0	99	4.7	354	16.7
2010	2,196	256	11.7	100	4.5	356	16.2
2011	2,282	263	11.5	103	4.5	366	16.0
2012	2,379	264	11.1	103	4.3	367	15.4
2013	2,469	271	11.0	106	4.3	377	15.3
2014*	2,596	305	11.8	119	4.6	424	16.3
2015*	2,729	328	12.0	128	4.7	457	16.7
2016*	2,862	343	12.0	134	4.7	477	16.7
2017*	3,016	364	12.1	142	4.7	506	16.8
2018*	3,184	385	12.1	150	4.7	535	16.8
Projected Growth 2013- 2018	5.2%					7.3%	

\* Projected.

Source: CMS, National Health Expenditure (NHE) Amounts by Type of Expenditure and Source of Funds: Calendar Years 1960-2024. The projections are based on the 2013 version of the NHE released in December 2014.

<sup>1</sup> Estimated based on the assumption that non-retail drugs are 28 percent of all drug expenditures.



Table 2

## Retail Expenditures and Prescriptions, 2009 to 2015

	Expenditures Billions \$	Prescriptions Billions
2009*	255.3	3.54
2010	261.2	3.54
2011	276.6	3.57
2012	280.9	3.71
2013	297.1	3.81
2014	329.9	3.92
2015*	356.7	3.95

\* Estimates for 2009 and 2015 are re-weighted to reflect annual figure.

Source: ASPE analysis of IMS Health NPA data from October 2009 to September 2015. Expenditure data are not available for Mail Service of Specialty Mail Service channels.

Table 3

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 Retail Expenditures and Specialty Drug Expenditures, 2009 to 2015
 

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	All Retail Drugs	CVS/Caremark Specialty Drugs	Share of Retail
	Billions \$	Billions \$	
2009*	255.3	14.52	5.7%
2010	261.2	15.01	5.7%
2011	276.6	16.72	6.0%
2012	280.9	17.30	6.2%
2013	297.1	18.67	6.3%
2014	329.9	22.95	7.0%
2015*	356.7	27.13	7.6%
			Contribution to Retail Growth
\$ Growth 2010-2014	68.7	7.9	11.6%
\$ Growth 2009-2015	101.4	12.6	12.4%

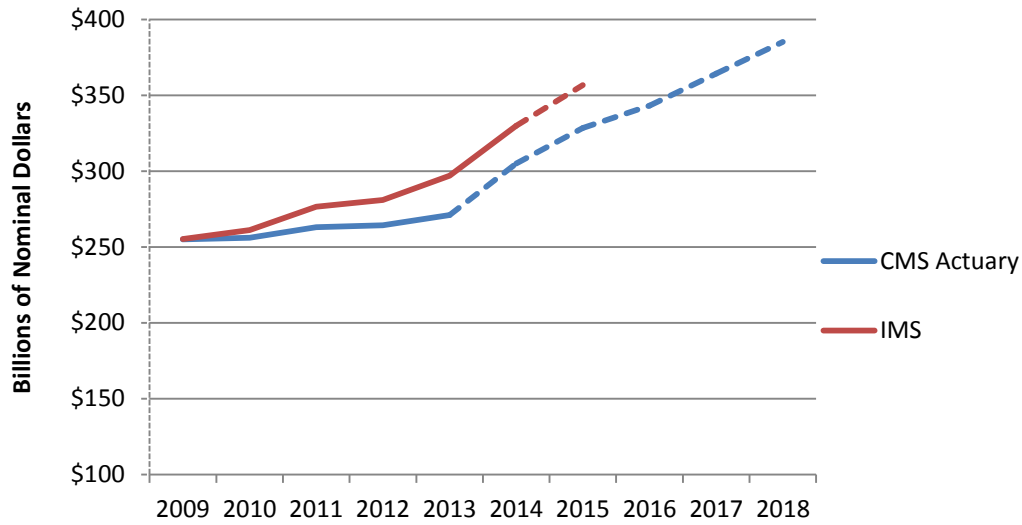
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\* Estimates for 2009 and 2015 are re-weighted to reflect annual figure.

Source: ASPE analysis of IMS Health NPA data from October 2009 to September 2015.

Figure 1

Historical and Projected Spending on Retail Prescription Drugs in Billions of Nominal Dollars, 2009 to 2018

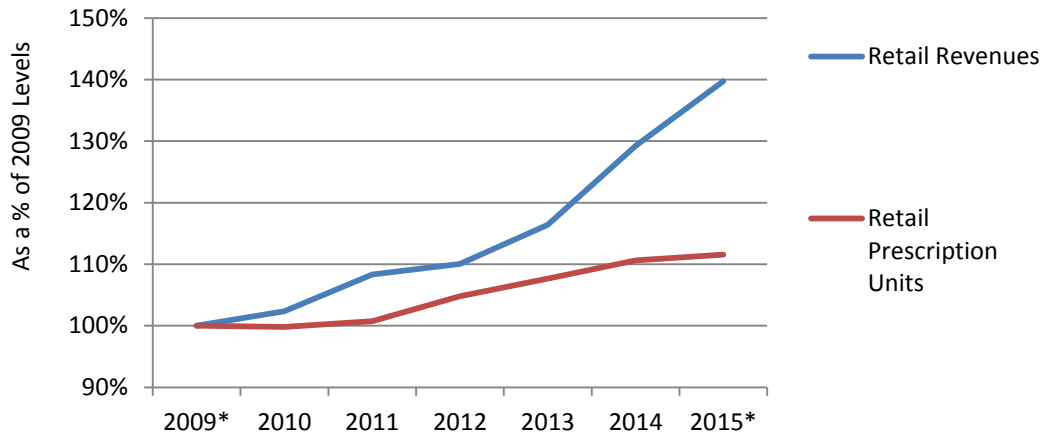


Sources: CMS Office of the Actuary (figures for 2014-2018 are projected), ASPE analysis of IMS Health NPA data (figures for 2009 and 2015 are based on partial-year estimates and are re-weighted to reflect a full year).

Figure 2A

### Relative Cumulative Growth in Retail Expenditures and Retail Prescription Units, 2009 to 2015

#### All Prescription Drugs



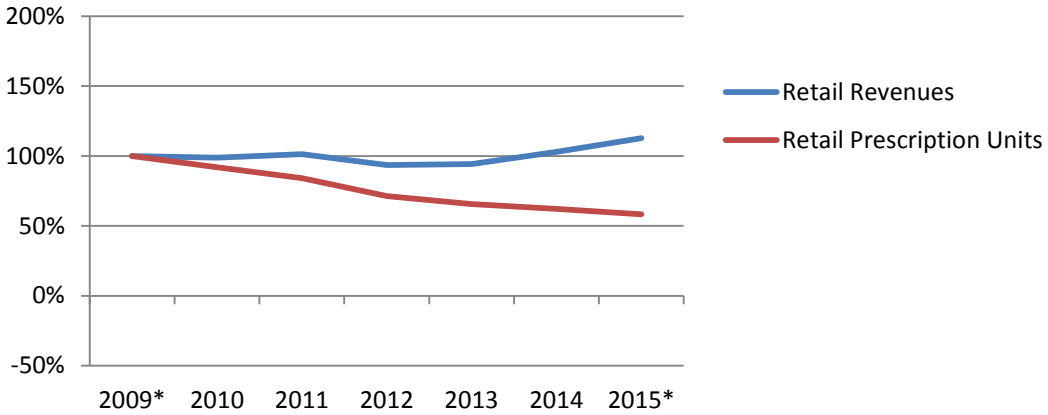
Source: ASPE analysis of IMS Health NPA data from October 2009 to September 2015.

\* Figures are weighted to reflect calendar year value based on partial-year data.

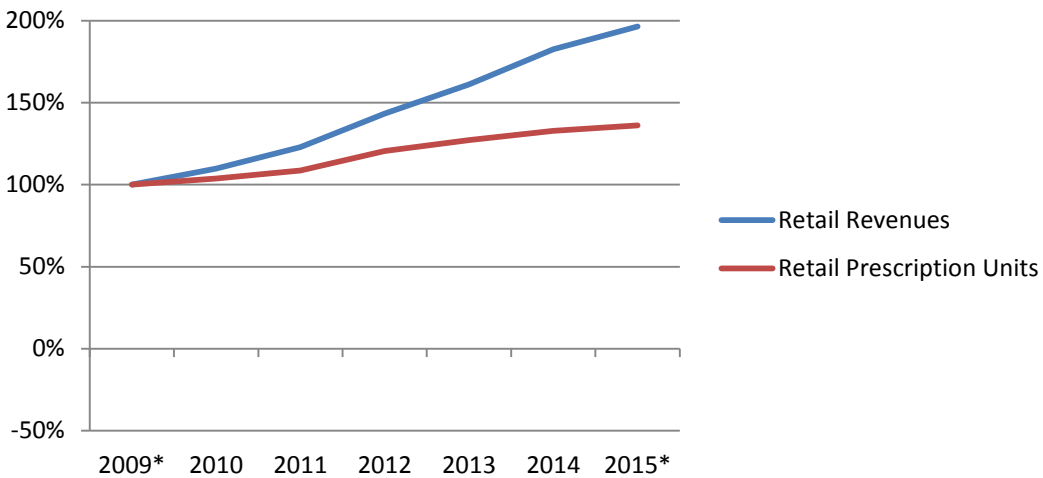
Figure 2B

### Relative Cumulative Growth in Retail Expenditures and Retail Prescription Units, 2009 to 2015

#### Brand-Name Drugs



#### Generic Drugs

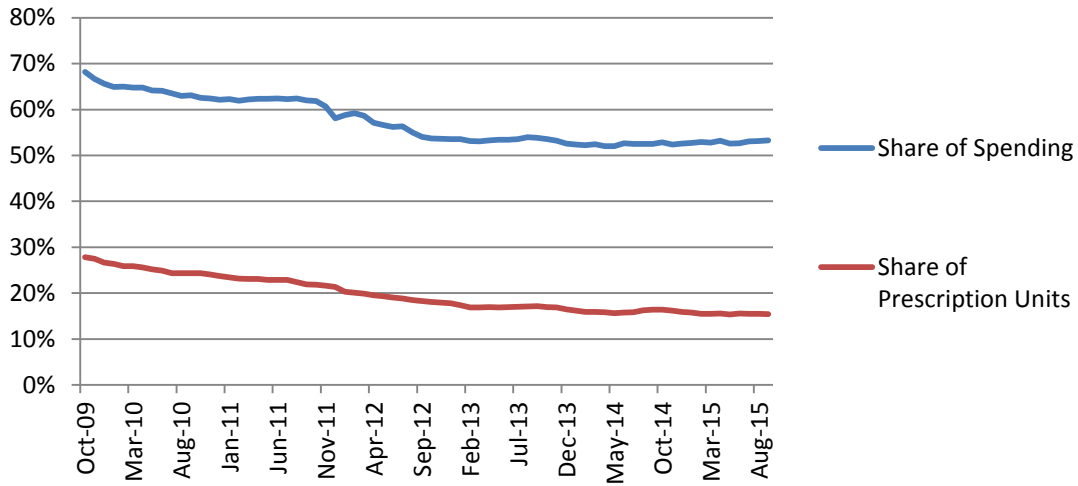


Source: ASPE analysis of IMS Health NPA data from October 2009 to September 2015.

\* Figures are weighted to reflect calendar year value based on partial-year data.

Figure 3

### Brand-Name Drugs as a Share of All Retail Prescription Drug Spending And Prescriptions, 2009-2015

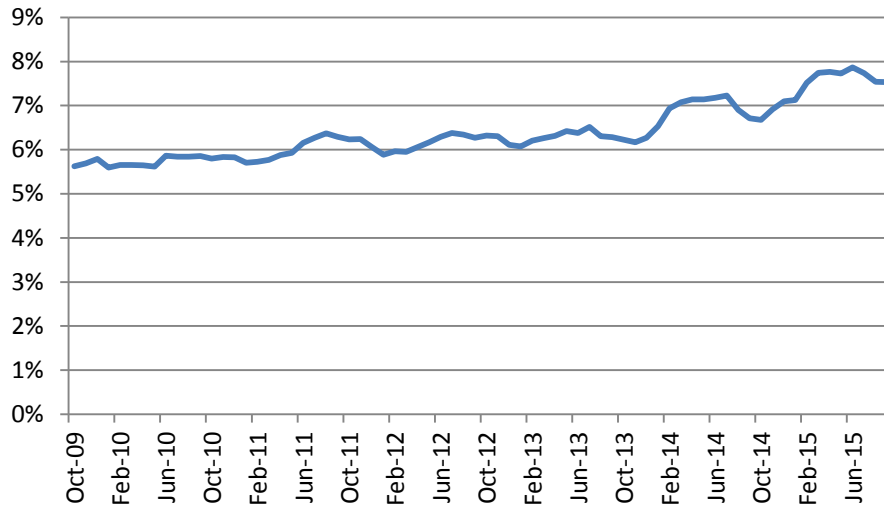


Source: ASPE analysis of IMS Health NPA data from October 2009 to September 2015.



Figure 4

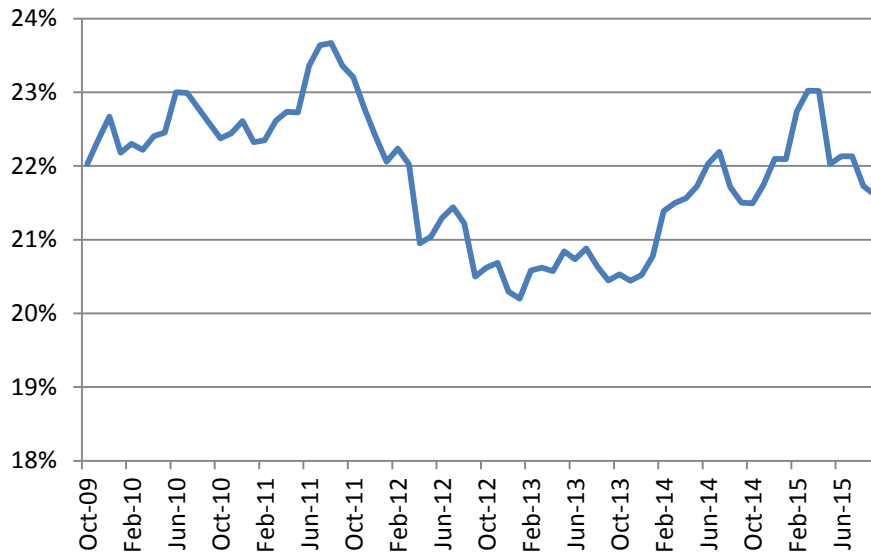
### CVS Specialty Formulary Drugs as a Share of all Retail Drug Spending



Source: ASPE analysis of IMS Health NPA data from October 2009 to September 2015.

Figure 5

"High Cost" Drugs as a Fraction of All Retail Expenditures on Prescription Drugs, 2009 to 2015



Source: ASPE analysis of IMS Health NPA data from October 2009 to September 2015.