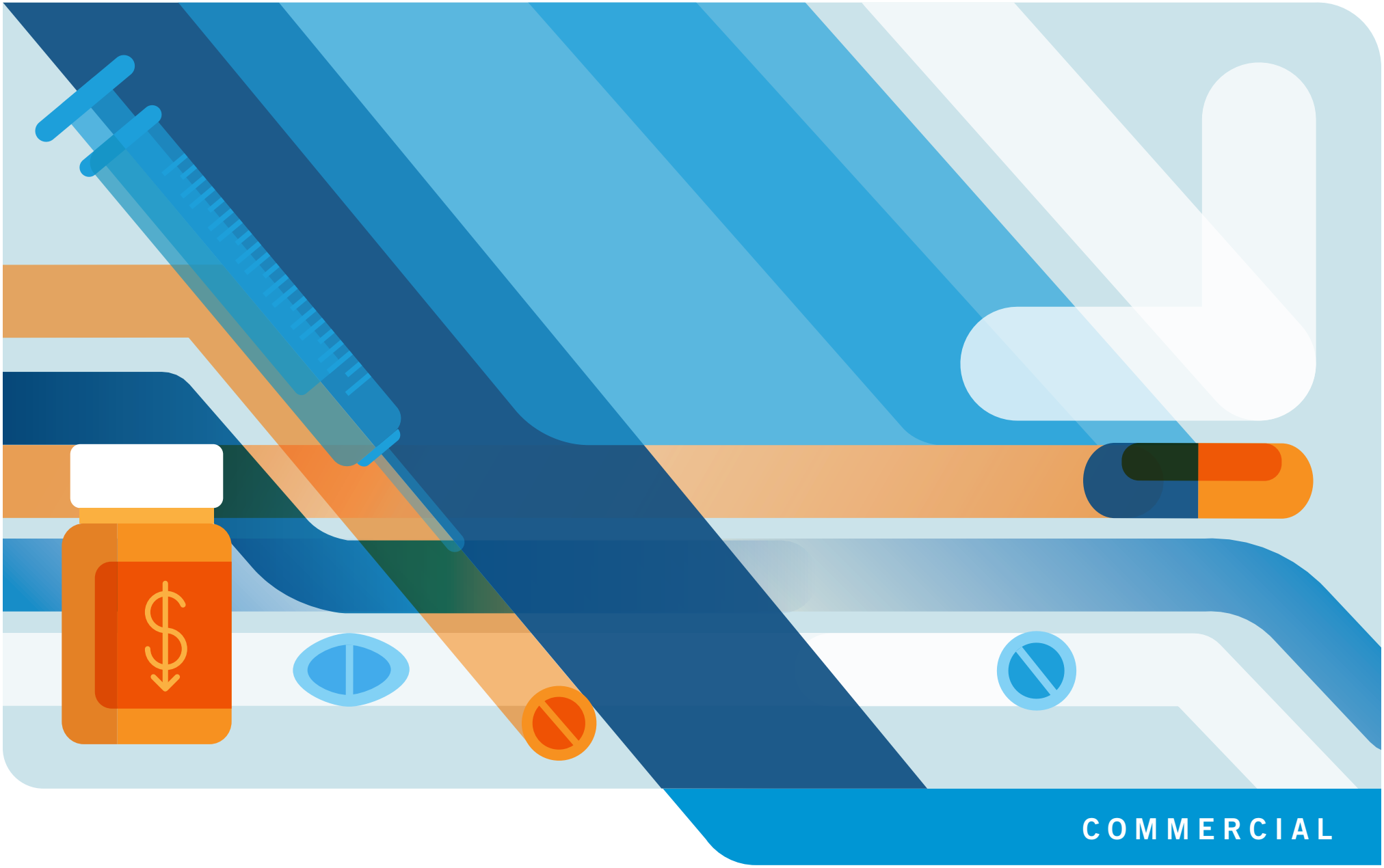


EXPRESS SCRIPTS®

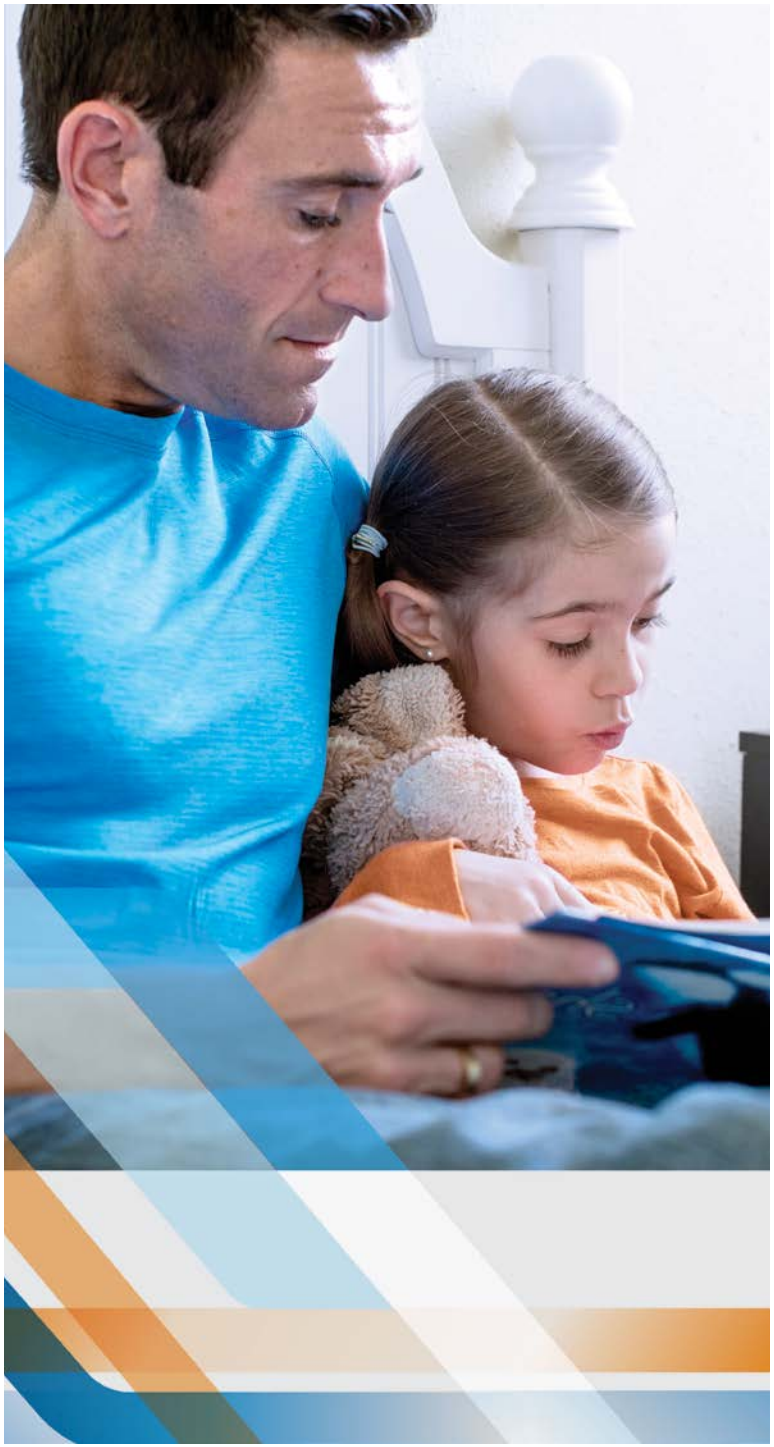
2016 Drug Trend Report

Table of contents

HOW TO USE THIS PDF

- Click on the titles across the top to jump to that section
- Click on to see expanded information, including tables
- Click on to exit expanded information
- Click on to tweet insights to your peers

Introduction



Driving undeniable value for plans and patients in 2016

The issue of rising drug prices dominated the news in 2016, amplified by highly publicized examples of egregious price hikes and patients in high-deductible plans who found themselves paying hundreds or even thousands of dollars for medication.

The increased attention has led to many discussions about high drug prices and what can be done to make medicine more affordable. Let's get past the rhetoric and get to the facts:

- Drug makers set the prices for their medications. They can lower those prices at any time.
- Express Scripts is effective in protecting employers from the effects of inflation by using our focused size and scale to secure significant rebates, which are returned to employers to reduce the overall cost of their pharmacy benefit.
- Our job is to put medicine within reach – to make it more accessible and affordable for the clients and members we serve. It is the reason we exist.

When we ask clients for feedback, most cite our ability to keep their benefit affordable. And along with that response is a consistent recognition of our innovation, solutions and service that leads to lower costs. It's not just that we keep costs down, it's the way we keep costs down that matters. With 98% of our clients electing to stay with us, we know we're doing something right and something very important.

That point is made crystal clear in the data on the following pages. In a year that saw drug prices, high deductibles and limited access dominate news headlines, our work enabled clients and members to have a different – and better – experience.

- On average, our clients – the plans that pay for prescription drugs for their employees and families – saw spending on prescription drugs in 2016 increase 3.8% per person. Not 10%. Not 30%. 3.8%.

- Nearly one-third of our clients saw per-person spending on prescription drugs decrease in 2016 because they leveraged the new and different approaches we created to address the new and different challenges to affordable medicine. These solutions lower costs, reduce waste and improve outcomes.
- The average member out-of-pocket cost for a 30-day prescription was $11.34, only a 9¢ increase from 2015. Members paid 14.6% of the total cost of prescription medication in 2016, compared to 14.8% in 2015, as management programs enabled many plans to hold the line on copayments and deductibles.
- Average list prices for brand drugs rose 10.7% in 2016. However, unit prices for medications purchased by our clients rose just 2.5%, 22% less than the rate of increase seen in 2015 and more than 60% lower than the increase in prices, net of rebates, recently reported by major drug makers.

Our consistent efforts to take bold action, leverage competition and work with manufacturers to obtain best price makes a difference. So, too, does ensuring that our members can access the medication they need and achieve optimal health outcomes:

- Our Hepatitis Cure Value Program® lowered the cost of hepatitis C treatment by 50% for more than 50,000 people, and delivered a cure rate greater than 95%.
- Our 2016 National Preferred Formulary delivered industry-leading savings of $1.3 billion with minimal member disruption, excluding just 80 medications out of more than 4,000 drugs on the market. 99.5% of members covered by the formulary were not affected by the changes.
- Express Scripts and Accredo helped connect qualifying specialty pharmacy patients who can't afford their therapy with $437 million in copay assistance in 2016.

There has never been a more important time to be doing what Express Scripts does. We've been delivering value-based care in pharmacy for more than 30 years. How we do it has always evolved based on the opportunities that exist and the challenges our clients face. Delivering value beyond just lowering costs has been the fundamental principle of what our company and our industry has done.

Glen Stettin, MD
Senior Vice President, Clinical, Research & New Solutions & Chief Innovation Officer

Therapy class review

Bending the curve on drug spending in 2016

- For plans covering employees and their families, per-person spending on prescription drugs increased just 3.8%, 26.9% less than the 5.2% increase in 2015.
- Express Scripts solutions helped to keep the increase in specialty drug spending to 13.3% in 2016 – the lowest trend since we first included specialty drugs in our 2003 analysis – and significantly less than the 17.8% trend in 2015. Specialty drugs accounted for more than a third of total spending in 2016.
- While utilization of traditional drugs increased modestly, spending decreased 1.0% in 2016, due to continued downward pressure on drug prices.
- Average unit costs rose only 2.5% in 2016, 21.9% less than in 2015.
- For the second consecutive year, members of commercially insured plans managed by Express Scripts saw their total share of pharmacy costs decrease, despite using more prescriptions. Members paid 14.6% of the total cost of prescription medication in 2016, compared to 14.8% in 2015. The average member out-of-pocket cost for a 30-day prescription was $11.34 in 2016, just a 9¢ increase from 2015.

COMPONENTS OF TREND

2016

	TREND		
	UTILIZATION	UNIT COST	TOTAL
Traditional	1.3%	-2.3%	**-1.0%**
Specialty	7.1%	6.2%	**13.3%**
TOTAL	**1.3%**	**2.5%**	**3.8%**

January-December 2016 compared to same period in 2015 for commercially insured plans managed by Express Scripts. Reflects total cost for both payers and patients, net of rebates.

U.S. drug spending increased just **3.8%** in 2016, **27% less** than in 2015.

Top 15 therapy classes and insights

New for this year's report, we're evaluating the most expensive 15 traditional and specialty therapy classes, ranked by per-member-per-year (PMPY) spend. Contraceptives and depression now appear in the top 15 therapy classes, replacing mental/neurological disorders and compounded drugs. Despite negative overall and unit cost trends, contraceptives and depression medications had moderate increases in utilization.

Compounded drugs fell out of the top therapy classes list after new strategies were implemented against unnecessary compounded therapies that had excessive costs; this resulted in a 76.4% decline in PMPY spend. Mental/neurological disorder drugs also dropped from the top therapy classes, largely attributable to a 32.0% decrease in unit cost. One of the top drugs in this class, the generic alternative to Abilify® (aripiprazole), was on the market for the full year of 2016, greatly contributing to negative trend.

One of every five dollars spent on prescription drugs was for a diabetes or specialty inflammatory conditions drug.

COMPONENTS OF TREND FOR TOP 15 THERAPY CLASSES

RANKED BY 2016 PMPY* SPEND

				TREND		
RANK	TYPE	THERAPY CLASS	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL
1	S	Inflammatory conditions	$118.21	11.3%	15.1%	**26.4%**
2	T	Diabetes	$108.80	5.3%	14.1%	**19.4%**
3	S	Oncology	$60.70	11.9%	9.6%	**21.5%**
4	S	Multiple sclerosis	$58.63	-1.3%	7.4%	**6.1%**
5	T	Pain/inflammation	$51.64	0.6%	0.9%	**1.5%**
6	S	HIV	$39.92	5.5%	16.2%	**21.7%**
7	T	High blood cholesterol	$38.45	-0.9%	-6.5%	**-7.4%**
8	T	Attention disorders	$36.30	5.6%	-5.5%	**0.1%**
9	T	High blood pressure/heart disease	$34.52	1.5%	-10.6%	**-9.1%**
10	T	Asthma	$30.42	3.3%	-2.6%	**0.7%**
11	S	Hepatitis C	$25.26	-27.3%	-6.7%	**-34.0%**
12	T	Depression	$23.46	4.8%	-6.4%	**-1.6%**
13	T	Contraceptives	$20.97	3.0%	-2.8%	**0.2%**
14	T	Heartburn/ulcer disease	$20.93	-1.3%	-22.7%	**-24.0%**
15	T	Skin conditions	$20.76	1.2%	0.4%	**1.6%**
		Other therapy classes	$389.07	0.0%	0.3%	**0.3%**
		TOTAL	**$1,078.04**	**1.3%**	**2.5%**	**3.8%**

S = Specialty, T = Traditional *Per member per year

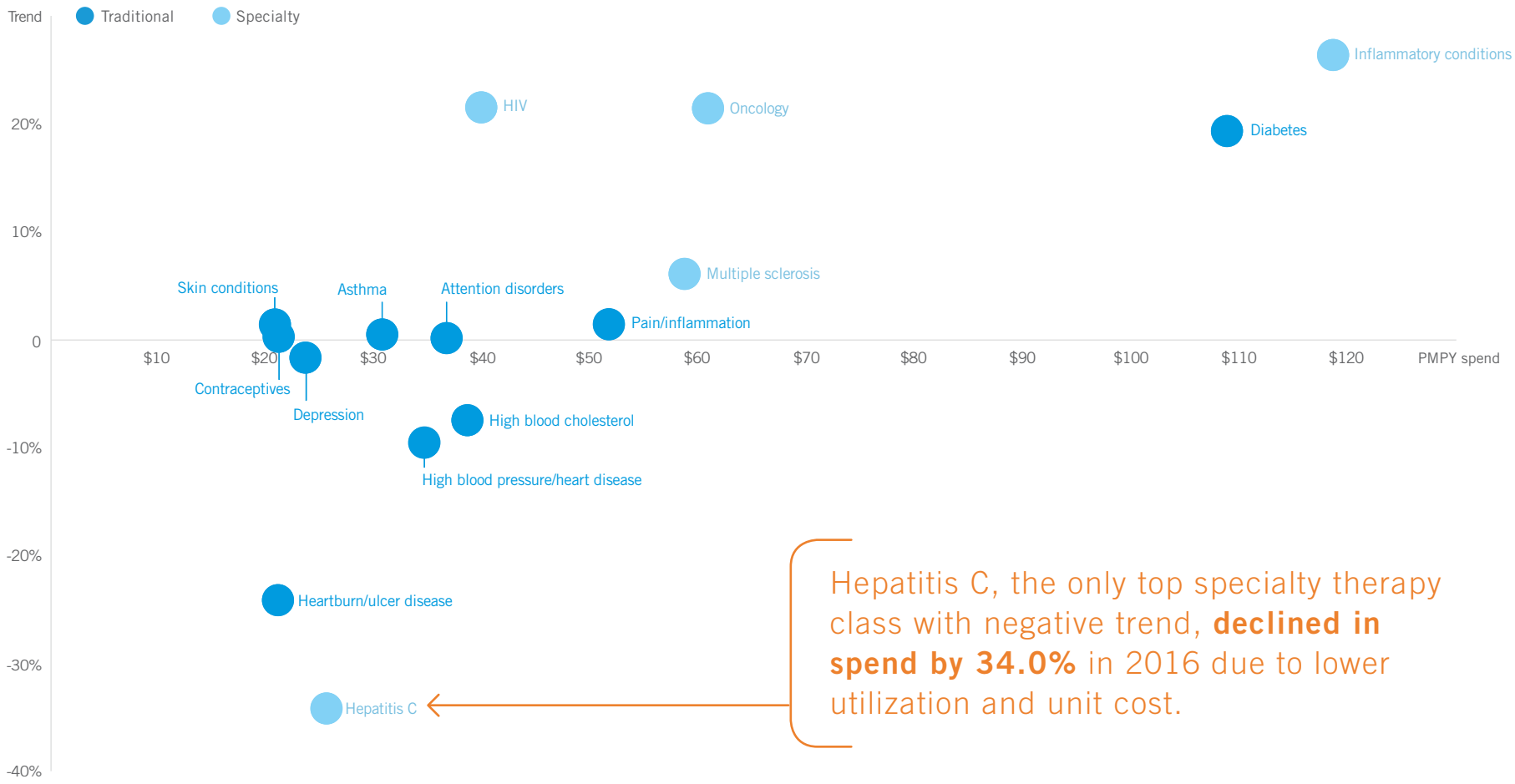
Medications to treat inflammatory conditions and diabetes remained the two most expensive therapy classes when ranked by PMPY spend. Specialty drugs to treat inflammatory conditions (such as rheumatoid arthritis and psoriasis) remained the most expensive drug class, with a 26.4% trend. Diabetes was ranked second by spend. Together, these two classes contributed 21.1% of total drug spend for 2016.

Five specialty therapy classes ranked in the top 15 this year, due to their high PMPY spend. Hepatitis C, the only top specialty therapy class with negative trend, declined in spend by 34.0% in 2016, due to lower utilization and unit cost. Three other specialty therapy classes – inflammatory conditions, oncology and HIV – all had large increases in both utilization and unit cost; this resulted in positive trends greater than 20% for each class in 2016.

COMPONENTS OF TREND FOR TOP 15 THERAPY CLASSES

Click on the blue circles to view specific data for each therapy class

RANKED BY 2016 PMPY* SPEND



Hepatitis C, the only top specialty therapy class with negative trend, **declined in spend by 34.0%** in 2016 due to lower utilization and unit cost.

*Per member per year

SPEND RANK **1**

SPECIALTY

Inflammatory conditions

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$118.21	11.3%	15.1%	26.4%

BY THE NUMBERS

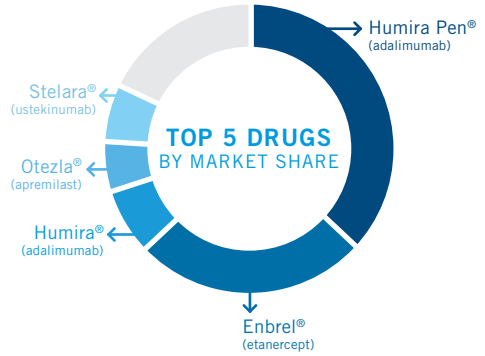
41.5%
Patients who are nonadherent

0.03
Number of prescriptions PMPY

0.4%
Prevalence of use

$3,587.83
Average cost per prescription

- Inflammatory condition drugs are used to treat a variety of diseases, including rheumatoid arthritis, psoriatic arthritis, ankylosing spondylitis, psoriasis and Crohn's disease. Medications in this class had the highest PMPY spend in 2016 with a total trend of 26.4%, resulting from increases in both utilization and unit cost. The average cost per prescription for drugs in this class was $3,587.83.
- Despite more than 15 available therapies to treat inflammatory conditions, Humira® (adalimumab) and Enbrel® (etanercept) accounted for approximately 70% of market share. In 2016, they continued to be major trend drivers, as unit costs for each increased 11%-18%. A biosimilar for Remicade® (infliximab) became available in November 2016, called Inflectra® (infliximab-dyyb). Remicade captured only 1.7% of inflammatory conditions market share in 2016. Biosimilars offer limited cost savings, and in this case, low market share results in smaller available savings margin.
- Overall utilization trend was influenced by positive utilization of Humira and newer products like Otezla® (apremilast), approved in 2014, which had a 79.2% utilization trend.



Click here for details

FORECAST

2017	2018	2019
29.7%	32.1%	31.7%

Trend will remain around 30% year over year through 2019, reflecting increases in cost and utilization. Although biosimilars for Humira and Enbrel have been approved by the U.S. Food and Drug Administration (FDA), several biosimilar-related patent disputes have prevented their launch.

SPEND RANK **2**

TRADITIONAL

Diabetes

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$108.80	5.3%	14.1%	19.4%

BY THE NUMBERS

36.6%
Patients who are nonadherent

0.86
Number of prescriptions PMPY

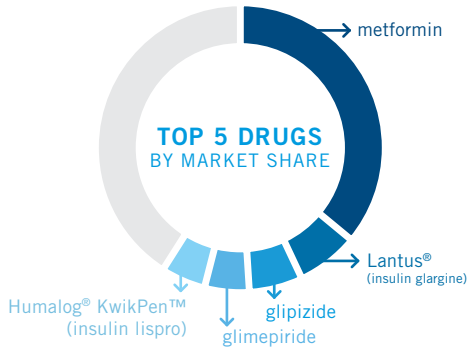
5.3%
Prevalence of use

$125.82
Average cost per prescription

52.3%
Generic fill rate

$36.69
Average patient copay per adjusted prescription – just $1.63 more than 2015

- Diabetes was the second-most expensive therapy class with an overall trend of 19.4%, influenced by a 14.1% unit cost increase. The top three drugs in spend across all traditional therapy classes were for diabetes: Lantus® (insulin glargine), Humalog® KwikPen® (insulin lispro) and metformin.
- Overall diabetes drug utilization increased 5.3% last year, influenced by upward usage ranging from 2-11% for the top five most costly medications – Lantus, Humalog KwikPen, metformin, Januvia® (sitagliptin), and Invokana® (canagliflozin). Generic metformin, an oral drug, was the most utilized diabetes medication in 2016, capturing 35.7% of market share for this class.
- **The top diabetes drugs by spend continue to be insulins, capturing 40.2% of spend in the diabetes therapy class. Overall trend for insulins alone was 9.9%.** Basaglar® (insulin glargine), the first "follow-on" insulin to Lantus, launched in December 2016. The pre-filled insulin pens and more expensive medications like Trulicity® (dulaglutide), an injectable anti-diabetic drug that launched in 2015, continued to increase market share, contributing to the overall 19.4% trend.



Click here for details

FORECAST

2017	2018	2019
20.5%	19.3%	18.2%

Diabetes trend will continue to be near 20% for each of the next three years, reflecting increasing drug prices and utilization. The forecasted trend is expected to reflect a continued increase in the utilization of DPP-4 and SGLT2 inhibitors, which are prescribed as additive therapy for controlling blood sugar. **Although unit cost increases are likely to continue due to steady inflation for branded drugs, especially insulins, Express Scripts SafeguardRx℠ strategies are designed to assist clients in mitigating upward trend.**

SPEND RANK **3**

SPECIALTY

Oncology

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$60.70	11.9%	9.6%	21.5%

BY THE NUMBERS

35.2%
Patients who are nonadherent

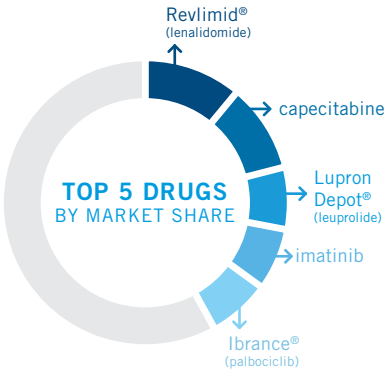
0.008
Number of prescriptions PMPY

0.1%
Prevalence of use

$7,890.81
Average cost per prescription

25.3%
Generic fill rate

- For 2016, trend for the oncology therapy class increased by 21.5%, due to growth in both utilization (11.9%) and unit cost (9.6%). **Three oncology drugs that captured the most market share – Revlimid® (lenalidomide), capecitabine, and brand and generic forms of Gleevec® (imantinib) – accounted for nearly a third of class market share.** Although there were generic savings in 2016, they did not outweigh the spend increases due to utilization and unit cost trends.
- Oncology medications that are not considered specialty drugs, such as tamoxifen, are classified as traditional oncology drugs. In 2016, these traditional medications accounted for only $3.10 of PMPY spend, a 6.5% decrease from 2015. If traditional and specialty oncology medication trend is calculated together, trend is 19.7%.
- Overall oral oncology medication unit cost trend was 17.3% in 2016.



Click here for details

FORECAST

2017	2018	2019
22.1%	22.0%	20.5%

Trend in this class will continue to increase more than 20% in each of the next three years. The use of oncology medications by patients as maintenance therapy will result in increased utilization of expensive medications. Additionally, the increasing prevalence of self-administered medications will result in higher utilization and cost through the pharmacy benefit. The first generic to Gleevec launched in February 2016 and resulted in limited savings; however, the availability of generics will not offset the high prices of branded oncology drugs.

SPEND RANK **4**

SPECIALTY

Multiple sclerosis

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$58.63	-1.3%	7.4%	6.1%

BY THE NUMBERS

23.9% Patients who are nonadherent

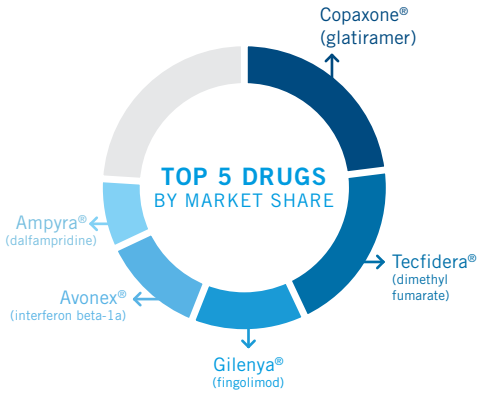
0.01 Number of prescriptions PMPY

0.1% Prevalence of use

$5,055.80 Average cost per prescription

3.6% Generic fill rate

- PMPY spend for medications to treat multiple sclerosis (MS) increased 6.1% in 2016, driven by a 7.4% increase in unit cost. Utilization trend was relatively flat, showing a decline of 1.3%. This therapy class is currently dominated by branded medications Copaxone® (glatiramer), Tecfidera® (dimethyl fumarate), Gilenya® (fingolimod), Avonex® (interferon beta-1a) and Ampyra® (dalfampridine), which account for more than 75% of drugs prescribed in this class. With the exception of Copaxone, which has a generic available for its short-acting version (glatiramer 20mg/mL), these top five drugs increased in unit cost nearly 10%.
- Interferon beta-1 drugs, such as Avonex, Rebif® (interferon beta-1a) and Betaseron® (interferon beta-1b), continue to decline in utilization as market share shifts to oral medications such as Gilenya, which had a 5.6% increase in utilization in 2016. Oral therapies for MS have been available for several years and have shown sustained efficacy, leading to increased utilization.



Click here for details

FORECAST

2017	2018	2019
10.3%	10.0%	10.0%

Brand inflation and a few expected new therapies are the main contributing factors in the three-year forecast. **Generic launches for major drugs, including Gilenya and long-acting Copaxone (glatiramer 40mg/mL) are expected by the end of 2019, but their arrival to market is uncertain.**

SPEND RANK **5**

TRADITIONAL

Pain/inflammation

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$51.64	0.6%	0.9%	1.5%

BY THE NUMBERS

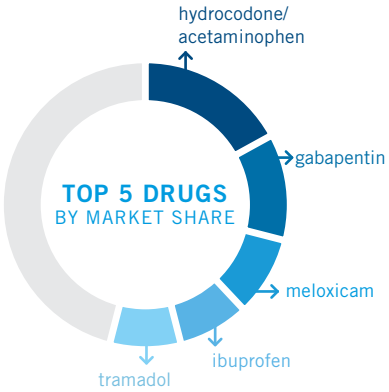
1.06
Number of prescriptions PMPY

22.0%
Prevalence of use

$48.85
Average cost per prescription

95.1%
Generic fill rate

- Medications used to treat pain and inflammation include opioids, nonsteroidal anti-inflammatory drugs (NSAIDs) and gamma-aminobutyric acid (GABA) analogs. Trend in this class was 1.5%, influenced by modest increases in both utilization (0.6%) and unit cost (0.9%). **Drugs for pain and inflammation are used widely, with an average of more than one prescription PMPY.**
- Despite some price increases resulting in a small unit cost trend of 0.9%, many generic drugs to treat pain and inflammation decreased in unit cost, including gabapentin, celecoxib and opioid combination therapies. In 2016, hydrocodone/acetaminophen, a generic combination and the top drug by market share, decreased in unit cost by 12.6%, a reversal from a large cost increase in 2015.
- In 2016, the modest utilization trend reflects two factors – decreased use of hydrocodone/acetaminophen (a generic combination) which was reclassified as a Schedule II controlled substance in October 2014, and an increase in utilization for gabapentin and meloxicam.
- By market share, the top 10 pain and inflammation drugs are all generic medications, comprising 95.1% of drugs dispensed in this class. **However, among the top 10 by spend, half are branded drugs. The top two drugs by spend are Lyrica® (pregabalin) and OxyContin® (oxycodone), which together captured 3% of class market share.**



Click here for details

FORECAST

2017	2018	2019
3.6%	3.0%	2.5%

PMPY spend for pain and inflammation drugs is expected to increase over the next few years, reflecting moderate trends as these drugs are primarily generics. High-cost abuse-deterrent formulations (ADF) of opioids may influence trend in future years as they are all branded products.

SPEND RANK **6**

SPECIALTY

HIV

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$39.92	5.5%	16.2%	21.7%

BY THE NUMBERS

23.7%
Patients who are nonadherent

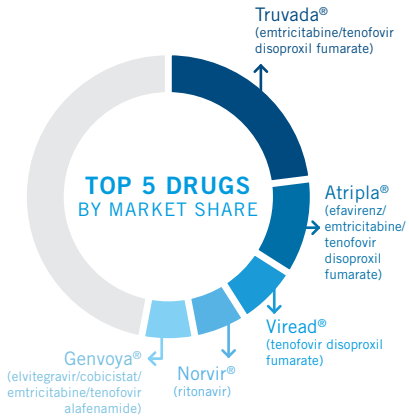
0.026
Number of prescriptions PMPY

0.2%
Prevalence of use

$1,555.56
Average cost per prescription

5.3%
Generic fill rate

- PMPY spend for HIV medications increased 21.7% from 2015 to 2016, primarily due to a 16.2% increase in unit cost. **The average cost per month was $1,555.56 for all drugs in the class**, and the top 10 most-utilized medications all increased in unit cost in 2016.
- Utilization trend declined for many of the older HIV medications, such as Isentress® (raltegravir) and Epzicom® (abacavir/lamivudine), which decreased by double digits. At 27.1% and 98.7% utilization trends, respectively, newer combination therapies, such as Truvada® (emtricitabine/tenofovir disoproxil fumarate) and Triumeq® (abacavir/dolutegravir/lamivudine), were responsible for most of the trend in this class.
- All of the top 15 drugs by both spend and market share in this class are branded therapies, driving unit cost trend. It is likely that new drugs with tenofovir alafenamide (TAF) will replace current therapies with tenofovir disoproxil fumarate (TDF) in the next few years, as they have fewer side effects and equivalent effectiveness. Currently available therapies with TDF include Truvada, Viread® (tenofovir disoproxil fumarate) and Atripla® (efavirenz/emtricitabine/tenofovir disoproxil fumarate), which are three of the top five drugs by market share.



Click here for details

FORECAST

2017	2018	2019
19.4%	19.4%	20.7%

HIV medications are predicted to continue trending approximately 20%. Some increased patient volume will be due to higher rates of screening and longer lives for HIV patients, as well as pre-exposure prophylaxis (PrEP) use. The convenience and improvement of newer therapies that combine several drugs in a once-daily dose will continue to increase utilization in the class. New, more expensive and branded TAF drugs will replace existing TDF-brand formulations, and unit cost is expected to increase. **Patent protection for brands in the market will also lengthen.**

SPEND RANK **7**

TRADITIONAL

High blood cholesterol

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$38.45	-0.9%	-6.5%	-7.4%

BY THE NUMBERS

26.4%
Patients who are nonadherent

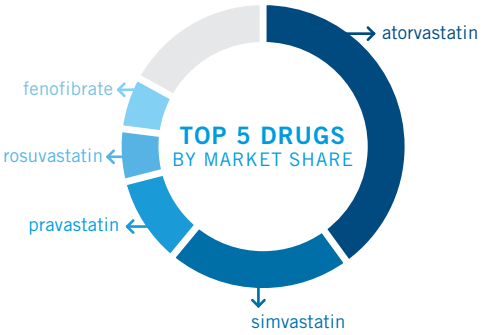
1.08
Number of prescriptions PMPY

10.5%
Prevalence of use

$35.70
Average cost per prescription

90.8%
Generic fill rate

- In 2016, negative trend continued for traditional medications used to treat high blood cholesterol. Decreases in both utilization (-0.9%) and unit cost (-6.5%) contributed to the 7.4% decline in PMPY spend for this class. Trend was influenced by the availability of generic medications, which represented 90.8% of market share.
- Six of the top 10 cholesterol-lowering drugs by spend contain statins; most are available as generics and had negative unit cost trends. The largest generic launch of 2016 was for Crestor® (rosuvastatin), with multiple manufacturers releasing generics in May. **These generics captured 6.2% of the market share for the class, and replaced Crestor as the top drug in class spend.**
- Specialty drugs for high blood cholesterol, including PCSK9 inhibitors, are in a separate class and therefore are not included in these figures. They decreased in both unit cost and utilization in 2016. One of the two most-commonly prescribed PCSK9 inhibitors is undergoing patent disputes currently and could be removed from the market. Reduced competition could increase unit cost for specialty high blood cholesterol drugs in the future. PMPY spend for all high blood cholesterol medications, including both specialty and traditional drugs, decreased 6.9% in 2016.



Click here for details

FORECAST

2017	2018	2019
-9.6%	-6.2%	-4.0%

PMPY spend is expected to continue declining over the next three years. Generic therapies will be introduced for some of the few remaining branded medications, driving down unit cost. Utilization trend will remain flat. Any potential increases in utilization will be more than offset by overall generic cost savings and savings from the uptake of the Express Scripts Cholesterol Care Value Program℠, part of SafeGuardRx.

SPEND RANK 8

TRADITIONAL

Attention disorders

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$36.30	5.6%	-5.5%	0.1%

BY THE NUMBERS

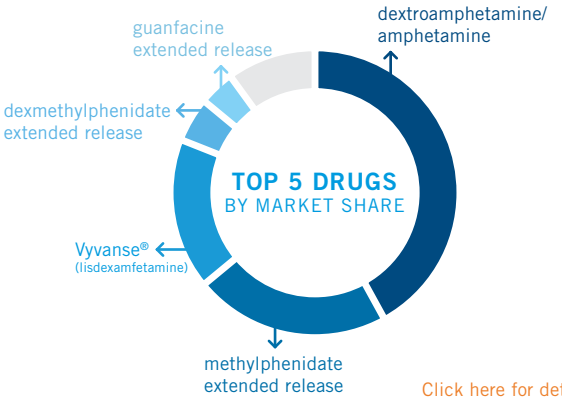
0.25
Number of prescriptions PMPY

2.9%
Prevalence of use

$145.45
Average cost per prescription

74.1%
Generic fill rate

- Medications used to treat attention disorders had relatively stable PMPY spend in 2016 driven by a 5.6% increase in utilization and a 5.5% decrease in unit cost.
- Two drugs heavily influenced trend for the class. An increase in unit price of Vyvanse® (lisdexamfetamine) was offset by a decrease in unit cost of dextroamphetamine/amphetamine, the generic for Adderall®, resulting in flat overall trend. This class is dominated by generics, with a generic fill rate (GFR) of 74.1%, contributing to negative unit cost trend. Increase in utilization of drugs to treat attention disorders was heavily influenced by positive utilization trend in both Vyvanse and dextroamphetamine/amphetamine.



Click here for details

FORECAST

2017	2018	2019
3.5%	3.4%	3.2%

Low, positive trend is predicted for medications to treat attention disorders over the next three years, as continued pressure from generic medications influences unit cost. Conversely, growing utilization trend reflects increased use among adults as this patient population ages. The positive utilization trend will outweigh the negative unit cost trend. New attention disorder drugs in the pipeline are expected to compete for market share with current therapies, and thus will not drive trend. Strattera® (atomoxetine) and a new generic to Concerta® (methylphenidate extended release) were two of the top five drugs by PMPY spend in 2016. A generic to Concerta was approved in 2016, and multiple generics are expected for Strattera in 2017. **As the share of generic medications rises compared to the use of branded therapies, unit cost will continue to decline.**

SPEND RANK 9

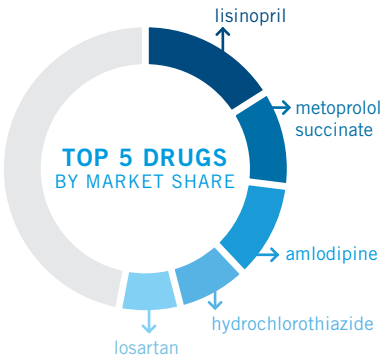
TRADITIONAL

High blood pressure/heart disease

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$34.52	1.5%	-10.6%	-9.1%

- Drugs to treat high blood pressure and heart disease captured 17.9% of overall market share, and have the highest number of prescriptions PMPY (2.48). A 10.6% unit cost decline, paired with a small increase in utilization (1.5%), led to decreased spend by 9.1% for medications in this class.
- Generic medications comprised 96.7% of total 2016 market share, influencing the negative unit cost trend in this class. **Valsartan, the generic that launched in 2014 for angiotensin-receptor blocker (ARB) Diovan®, decreased in PMPY spend entirely because of reduced unit cost.** In 2016, there was a small increase in utilization of high blood pressure and heart disease medications (1.5%), reflecting an increase in usage of the top three drugs by market share.



BY THE NUMBERS

27.8% Patients who are nonadherent

2.48 Number of prescriptions PMPY

16.8% Prevalence of use

$13.89 Average cost per prescription

96.7% Generic fill rate

Click here for details

FORECAST

2017	2018	2019
-12.1%	-6.1%	-4.1%

Negative trend is expected to continue over the next three years. Market saturation and dominance of generic medications will result in flat utilization and falling unit prices. Generic shifts for drugs containing Benicar® (olmesartan) in October 2016 will continue to influence the downward pressure on unit cost. The decline should level off in 2018 and 2019, as no new generics are expected.

SPEND RANK 10

TRADITIONAL

Asthma

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$30.42	3.3%	-2.6%	0.7%

BY THE NUMBERS

72.5%
Patients who are nonadherent

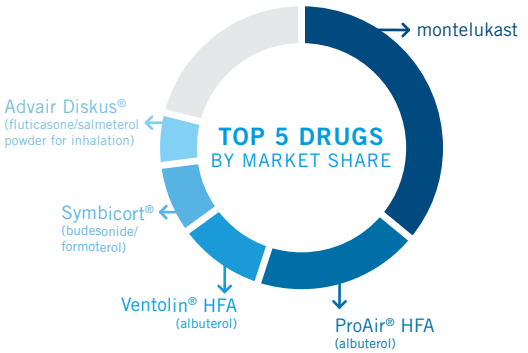
0.44
Number of prescriptions PMPY

8.9%
Prevalence of use

$68.86
Average cost per prescription

43.2%
Generic fill rate

- PMPY spend for asthma medications increased by 0.7% in 2016. Unit cost continues to decline in this class, this year by 2.6%. Montelukast, the generic formulation of Singulair®, with more than 35% of the market share, decreased 14.4% in unit cost last year but increased in utilization. Overall utilization in this class increased by 3.3%.
- **Advair Diskus® (fluticasone/salmeterol powder for inhalation) increased in both utilization and unit cost, capturing 19.3% of PMPY spend for this therapy class.**



Click here for details

FORECAST

2017	2018	2019
4.0%	-2.6%	-4.7%

Overall trend will increase slightly in 2017. However, it is projected to decline after the FDA's possible approval for Advair Diskus generics in the next two years. Other new drugs pending approval in 2017 may increase competition within the asthma therapy class, potentially decreasing costs moderately in 2018 and 2019.

SPEND RANK 11

SPECIALTY

Hepatitis C

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$25.26	-27.3%	-6.7%	-34.0%

BY THE NUMBERS

8.0%
Patients who are nonadherent

0.002
Number of prescriptions PMPY

0.03%
Prevalence of use

$15,708.27
Average cost per prescription

27.2%
Generic fill rate

- Medications for hepatitis C decreased in spend by 34.0% in 2016 due to declines in utilization and unit cost. Harvoni® (ledipasvir/sofosbuvir) and Viekira Pak® (ombitasvir/paritaprevir/ritonavir with dasabuvir) remained the two most utilized hepatitis C medications, together capturing 42.9% of market share and 59.8% of PMPY spend in this class. Both were approved in 2014 and they are among the curative therapies that propelled this class into the top 10 specialty classes for the past three years. The previous high utilization trend has now reversed since those with advanced hepatitis C, those most likely to seek curative therapy, have completed treatment. **While the initial surge of patients on curative therapy has ended, current and future hepatitis C patients benefit from increased access to these therapies and unit cost decline.**
- New drugs such as Zepatier™ (elbasvir/grazoprevir), Epclusa® (sofosbuvir/velpatasvir), and Viekera XR™ (ombitasvir/paritaprevir/ritonavir with dasabuvir), all approved in 2016, captured 11.0% of market share and introduced additional options to the class. As a result of increased competition, unit cost declined 6.7%.

Click here for details

FORECAST

2017	2018	2019
-21.8%	-30.0%	-34.7%

Spend for hepatitis C will continue to decline, though not as sharply as in 2016. New FDA drug approvals and new indications for existing hepatitis C medications are expected in 2017.

SPEND RANK 12

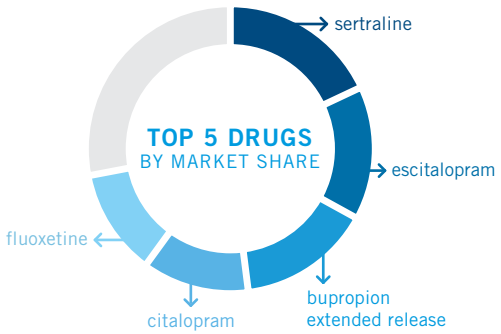
TRADITIONAL

Depression

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$23.46	4.8%	-6.4%	-1.6%

- Utilization for medications to treat depression increased by 4.8% in 2016; coupled with a unit cost decline of 6.4%, overall trend was -1.6%.
- In 2016, the GFR for the depression therapy class was 96.7%, contributing to the $24.07 average cost per prescription. The most significant unit cost decline is for duloxetine, the generic for Cymbalta®, which became available in 2013. The top five drugs by market share, all generics, captured 72.0% of prescription volume but only 33.4% of spend for the class.



BY THE NUMBERS

34.1% Patients who are nonadherent

0.98 Number of prescriptions PMPY

10.6% Prevalence of use

$24.07 Average cost per prescription

96.7% Generic fill rate

Click here for details

FORECAST

2017	2018	2019
-3.9%	-0.3%	-0.1%

Over the next three years, trend is expected to flatten. In 2017, generics are expected for Pristiq® (desvenlafaxine), the second-costliest brand drug in the class. There are no new drugs for depression in the pipeline. Unit cost decline will lessen, due to generic saturation, and utilization will continue to align with the annual incidence of new depression cases, which is around 5%.

SPEND RANK 13

TRADITIONAL

Contraceptives

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$20.97	3.0%	-2.8%	0.2%

BY THE NUMBERS

0.61
Number of prescriptions PMPY

6.4%
Prevalence of use

$34.50
Average cost per prescription

85.1%
Generic fill rate

- Contraceptives increased slightly in PMPY spend (0.2%) in 2016. Broader coverage and widespread availability of generic contraceptives led to a 2.8% decrease in unit cost for this class. Utilization increased 3.0%.
- Negative unit cost trend in this class reflects the high GFR of 85.1%. When ranked by spend, seven of the top 10 medications in this class are generics. The top three by market share have an average monthly cost of less than $30. The four most costly contraceptives, when ranked by PMPY spend, had unit cost trends between 10% and 22%.
- Specialty contraceptives, including IUDs and implants, increased drastically in utilization (137.6%) in 2016, most likely due to mandated coverage. However, the average cost per prescription for these medications declined significantly (-91.9%), resulting in specialty contraceptive overall trend of 18.6%. When specialty and traditional contraceptives are combined, overall trend was 0.6%.

Click here for details

FORECAST

2017	2018	2019
-2.4%	-0.7%	0.5%

Declining unit cost of this highly genericized class is expected to continue. One of the top brands, Minastrin® 24 Fe (norethindrone/ethinyl estradiol/ferrous fumarate), likely will be available as a generic in 2017. It is expected that utilization trends for nonspecialty contraceptives will be approximately 1% through 2019.

SPEND RANK 14

TRADITIONAL

Heartburn/ulcer disease

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$20.93	-1.3%	-22.7%	-24.0%

BY THE NUMBERS

0.55
Number of prescriptions PMPY

7.7%
Prevalence of use

$38.18
Average cost per prescription

95.1%
Generic fill rate

- PMPY spend for medications used to treat heartburn and ulcer diseases, such as gastroesophageal reflux disease (GERD), decreased 24.0% to $20.93. The decline is entirely attributable to unit cost decreases, fueled by a 38.5% drop in unit cost for esomeprazole magnesium; this generic for Nexium® became available in February 2015. Utilization trend for this therapy class decreased by 1.3% in 2016, possibly due to some shift to over-the-counter medications.
- Esomeprazole magnesium was the leading drug by spend, comprising 40.9% of 2016 PMPY spend for this therapy class. Omeprazole and pantoprazole, two generics that are the top two drugs in the class by market share, both also declined in unit costs. **Together, these three generic drugs accounted for 75.9% of 2016 market share for drugs to treat heartburn and ulcer disease; all three declined in unit cost, driving trend for the class.**

Click here for details

FORECAST

2017	2018	2019
-13.0%	-10.9%	-9.2%

No new therapies are in the pipeline for this class, and increased utilization of generic therapies and over-the-counter medications will continue to drive down unit cost. Continuing negative overall trend will decrease in magnitude as the GFR saturation point is reached.

SPEND RANK 15

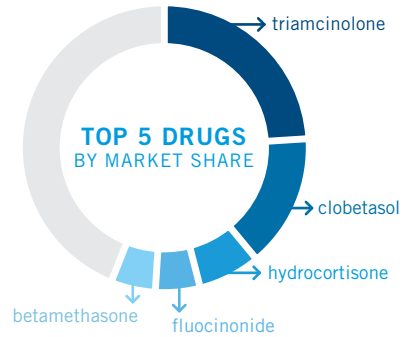
TRADITIONAL

Skin conditions

Click here for details

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$20.76	1.2%	0.4%	1.6%

- In 2016, utilization of medications that treat skin conditions increased 1.2%, while unit cost remained relatively stable, at 0.4%. The resulting overall trend was 1.6%.
- The top five products by market share were consistent in both 2015 and 2016, accounting for more than half of PMPY spend for skin condition therapies. The remaining 43% of class market share was divided among more than 160 other products. **Though generics dominate the market, there are a limited number of manufacturers for drugs that treat skin conditions, resulting in higher unit costs in recent years.**



BY THE NUMBERS

0.14
Number of prescriptions PMPY

7.0%
Prevalence of use

$145.21
Average cost per prescription

87.8%
Generic fill rate

Click here for details

FORECAST

2017	2018	2019
7.0%	7.1%	7.6%

Predicted year-over-year trend for this class is approximately 7% through 2019 due to unit cost increases for both brand and generic medications. Despite high GFR, consolidations among drug manufacturers have resulted in a less-competitive market, allowing some companies to increase prices.

Top 10 traditional drugs

When ranked by PMPY spend, six of the top 10 traditional drugs in 2016 were brand medications, but only four – Lantus, Vyvanse, Lialda® (mesalamine) and Januvia – were also on the list in 2015. Four of these top 10 drugs treat diabetes, which had the largest PMPY spend for traditional medications. The highest individual drug trend in this list, 160.1%, was for metformin, a generic, oral diabetes medication. Its significant unit cost increase in 2016 resulted chiefly from the February 2016 launch of a very high-priced generic to Glumetza® (metformin extended-release tablets), that's not interchangeable with any other extended-release metformin.

Three drugs to treat attention disorders are on the list: Vyvanse and two generics, methylphenidate extended release and dextroamphetamine/amphetamine.

TOP 10 TRADITIONAL THERAPY DRUGS

RANKED BY 2016 PMPY* SPEND

					TREND		
RANK	DRUG NAME	THERAPY CLASS	PMPY SPEND	% OF TOTAL TRADITIONAL SPEND	UTILIZATION	UNIT COST	TOTAL
1	Lantus® (insulin glargine)	Diabetes	$16.55	2.4%	2.3%	-2.4%	**-0.1%**
2	Humalog® (insulin lispro injection)	Diabetes	$11.68	1.7%	5.7%	14.0%	**19.7%**
3	metformin	Diabetes	$10.67	1.6%	7.7%	152.4%	**160.1%**
4	Vyvanse® (lisdexamfetamine)	Attention disorders	$10.20	1.5%	7.7%	8.6%	**16.3%**
5	Lialda® (mesalamine)	Inflammatory conditions	$8.88	1.3%	-5.3%	3.4%	**-1.9%**
6	Januvia® (sitagliptin)	Diabetes	$8.66	1.3%	8.0%	-8.3%	**-0.3%**
7	esomeprazole magnesium	Heartburn/ulcer disease	$8.56	1.3%	1.8%	-38.5%	**-36.7%**
8	methylphenidate extended release	Attention disorders	$8.33	1.2%	-1.0%	1.5%	**0.5%**
9	dextroamphetamine/amphetamine	Attention disorders	$8.24	1.2%	8.8%	-20.5%	**-11.7%**
10	Lyrica® (pregabalin)	Pain/inflammation	$7.80	1.1%	-2.7%	13.5%	**10.8%**

*Per member per year

Top 10 specialty drugs

In 2016, all but two of the top 10 specialty drugs increased in PMPY spend. Nine drugs increased in unit cost; six in utilization. At $45.11 in PMPY spend, Humira Pen remained the most expensive drug overall, accounting for 11.3% of total specialty drug spend. Harvoni, which treats hepatitis C, had the largest decline in spend of the top specialty drugs. Three drugs for MS and one each for HIV and oncology make up the rest of the top 10 specialty drug list.

The HIV drug Truvada appears among the top 10 specialty drugs for the first time. At 37.8%, it had the largest trend among the top-ranked specialty drugs, due to increases in both utilization and unit cost. However, other HIV combination products with a new active ingredient (TAF), similar to existing TDF, were released in 2016. They're expected to capture significant market share in coming years. Truvada is currently the only drug approved for PrEP.

TOP 10 SPECIALTY THERAPY DRUGS

RANKED BY 2016 PMPY* SPEND

					TREND		
RANK	DRUG NAME	THERAPY CLASS	PMPY SPEND	% OF TOTAL SPECIALTY SPEND	UTILIZATION	UNIT COST	TOTAL
1	Humira Pen® (adalimumab)	Inflammatory conditions	$45.11	11.3%	10.5%	17.9%	**28.4%**
2	Enbrel® (etanercept)	Inflammatory conditions	$26.82	6.7%	-4.3%	10.9%	**6.6%**
3	Tecfidera® (dimethyl fumarate)	Multiple sclerosis	$13.49	3.4%	-2.1%	10.5%	**8.4%**
4	Copaxone® (glatiramer)	Multiple sclerosis	$12.42	3.1%	-12.3%	1.6%	**-10.7%**
5	Harvoni® (ledipasvir/sofosbuvir)	Hepatitis C	$9.86	2.5%	-49.5%	-4.3%	**-53.8%**
6	Revlimid® (lenalidomide)	Oncology	$9.78	2.5%	13.7%	10.6%	**24.3%**
7	Gilenya® (fingolimod)	Multiple sclerosis	$8.48	2.1%	5.6%	9.0%	**14.6%**
8	Truvada® (emtricitabine/tenofovir disoproxil fumarate)	HIV	$8.44	2.1%	27.1%	10.7%	**37.8%**
9	Humira® (adalimumab)	Inflammatory conditions	$8.15	2.1%	2.8%	16.0%	**18.8%**
10	Stelara® (ustekinumab)	Inflammatory conditions	$8.13	2.0%	18.2%	3.7%	**21.9%**

*Per member per year

Forecasting trend: 2017-2019

- We expect overall annual drug spending to increase 10% to 13% over the next three years, net of rebates.
- Trend will remain around 30% year over year through 2019 for inflammatory conditions, reflecting expected increases in both cost and utilization.
- The forecasted diabetes trend of 20% reflects continued cost and utilization trend for insulins, as well as increased utilization of DPP-4 and SGLT2 inhibitors, which are prescribed as additive therapy for controlling blood sugar.
- The use of oncology medications by patients as maintenance therapy will result in increased utilization of expensive medications, and a forecast of 20% trend through 2019. Additionally, the increasing prevalence of self-administered oncology medications will lead to higher utilization and cost through the pharmacy benefit.
- Spend for hepatitis C will continue to decline, though not as sharply as in 2016. Current and future hepatitis C patients will benefit from increased access to these therapies and unit cost decline.
- While diabetes, inflammatory conditions and oncology will continue to drive trend, we anticipate trend totals for all three classes could be managed by the ongoing effect of our SafeGuardRx solutions.

TREND FORECAST FOR KEY THERAPY CLASSES

2017-2019

			TREND		
2016 RANK	TYPE	THERAPY CLASS	2017	2018	2019
1	S	Inflammatory conditions	29.7%	32.1%	31.7%
2	T	Diabetes	20.5%	19.3%	18.2%
3	S	Oncology	22.1%	22.0%	20.5%
4	S	Multiple sclerosis	10.3%	10.0%	10.0%
5	T	Pain/inflammation	3.6%	3.0%	2.5%
6	S	HIV	19.4%	19.4%	20.7%
7	T	High blood cholesterol	-9.6%	-6.2%	-4.0%
8	T	Attention disorders	3.5%	3.4%	3.2%
9	T	High blood pressure/heart disease	-12.1%	-6.1%	-4.1%
10	T	Asthma	4.0%	-2.6%	-4.7%
11	S	Hepatitis C	-21.8%	-30.0%	-34.7%
12	T	Depression	-3.9%	-0.3%	-0.1%
13	T	Contraceptives	-2.4%	-0.7%	0.5%
14	T	Heartburn/ulcer disease	-13.0%	-10.9%	-9.2%
15	T	Skin conditions	7.0%	7.1%	7.6%
		Other therapy classes	8.7%	8.1%	8.0%
		TOTAL	**10.3%**	**11.6%**	**12.7%**

S = Specialty, T = Traditional

Market factors

Express Scripts Prescription Price Index

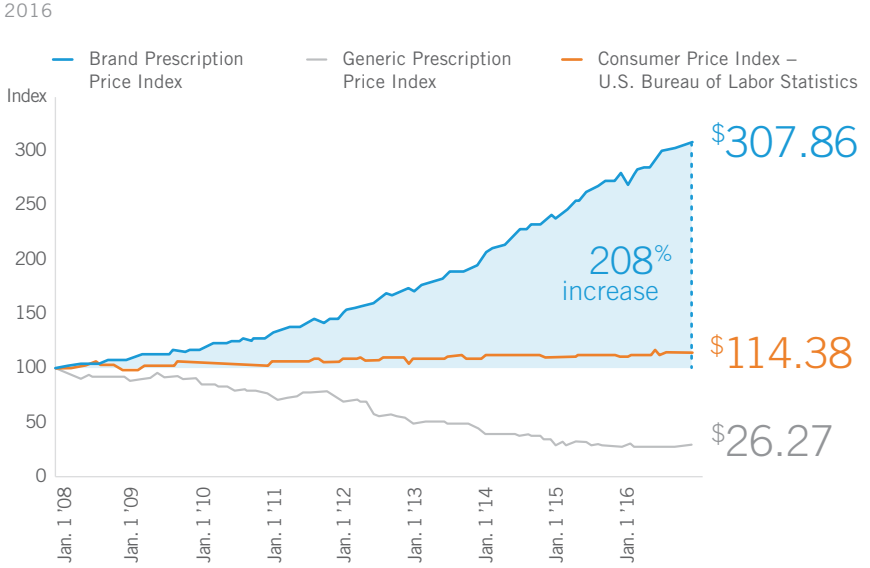
Roughly half of Americans take prescription medications, and 85.4% of filled prescriptions are for generic products. There is still opportunity for payers and members to ensure cost savings by achieving higher generic fill rates. According to the Express Scripts Prescription Price Index, the average price for the most commonly used brand-name drugs has increased since 2008, whereas generic drug prices have declined.

Express Scripts mitigates the risk of drug price inflation for our clients and members by utilizing our task force of clinical experts who assess and recommend any additional potential savings measures as they arise.

While news reports focus on a few outliers, payers should remain confident that, on the whole, generic medications continue to deliver significant cost savings. Encouraging use of generics over more-expensive brand alternatives, when clinically appropriate, keeps costs down and helps patients adhere to their prescribed therapy.

From the base price of $100.00 set in January 2008, in December 2016, prices for the most commonly used generic medications decreased to $26.27 (in 2008 dollars), and prices for the most commonly used brand medications increased to $307.86 (in 2008 dollars). In contrast, a market basket of commonly used household goods that cost $100.00 in 2008, as measured by the Bureau of Labor Statistics Consumer Price Index, rose to only $114.38 (in 2008 dollars) by December 2016.

EXPRESS SCRIPTS PRESCRIPTION PRICE INDEX



2016 generic introductions

THERAPY CLASS	TYPE	BRAND NAME (GENERIC NOW AVAILABLE)	EST. ANNUAL US SALES (MILLIONS)	DATE
Allergies	T	**Nasonex®** (mometasone furoate monohydrate) On March 22, 2016, Apotex announced the approval by the U.S. Food and Drug Administration (FDA) of its A-rated generic to Merck's billion-dollar-selling Nasonex nasal spray, a corticosteroid primarily used to treat nasal symptoms associated with allergic rhinitis. Several nasal corticosteroids, including Flonase® (fluticasone propionate – GlaxoSmithKline) and Nasacort® AQ (triamcinolone acetonide – Chattem), have changed from prescription-only to over-the-counter (Rx-to-OTC) products in the last few years. Nasonex and its generic remain prescription only.	$956	March 22
Contraceptives	T	**Ortho Tri-Cyclen® Lo** (norgestimate/ethinyl estradiol)	$488	Jan. 5
Contraceptives	T	**Beyaz®** (Rajani™ [drospirenone/ethinyl estradiol/levomefolate])	$133	Oct. 11
Cosmetic use	T	**Latisse®** (bimatoprost ophthalmic solution) 0.03%	$75	Dec. 7
Diabetes	T	**Glumetza®** (metformin extended-release tablets) An AB-rated generic to Glumetza was released by Lupin Pharmaceuticals on Feb. 2, 2016. The company was granted 180 days of generic exclusivity. The drug is approved as an adjunct to diet and exercise to improve glycemic control in adults with type-2 diabetes. Brand sales amounted to $450 million in the United States for the 12 months ending on Sept. 30, 2015, according to IMS Health.	$23	Feb. 2
Heart disease	T	**Nitrostat®** (nitroglycerin sublingual tablets)	$108	Aug. 26
Heartburn/ulcer disease	T	**Zegerid®** (omeprazole/sodium bicarbonate - prescription only)	$306	July 15
High blood cholesterol	T	**Crestor®** (rosuvastatin) The first AB-rated generic to AstraZeneca's Crestor launched on May 2, 2016. Under a settlement, Allergan was allowed to introduce its generic before Crestor's patent expired and other generics were introduced in July. Along with dietary restrictions, rosuvastatin is indicated for treating adults who have high triglycerides (hypertriglyceridemia) or who have homozygous familial hypercholesterolemia (HoFH). It also has an approval for primary dysbetalipoproteinemia. IMS Health estimates that Crestor had sales of $6.5 billion in the U.S. during the 12-month period that ended on March 31, 2016. Crestor was the last major statin drug to go generic.	$6,500	May 2

S = Specialty, T = Traditional

THERAPY CLASS	TYPE	BRAND NAME (GENERIC NOW AVAILABLE)	EST. ANNUAL US SALES (MILLIONS)	DATE
High blood cholesterol	T	**Fenoglide®** (fenofibrate)	$28	July 7
High blood cholesterol	T	**Zetia®** (ezetimibe) On Dec. 12, 2016, the first AB-rated generic to Merck's $2.6 billion-selling Zetia was introduced by Par Pharmaceuticals. Ezetimibe was approved to reduce elevated LDL cholesterol (LDL-C) in patients with high blood cholesterol. Par was granted 180 days of generic exclusivity, preventing the FDA from approving additional generics until June 2017.	$2,600	Dec. 12
High blood pressure/ heart disease	T	**Benicar®** (olmesartan)	$1,000	Oct. 26
High blood pressure/ heart disease	T	**Benicar HCT®** (olmesartan/hydrochlorothiazide)	$805	Oct. 26
High blood pressure/ heart disease	T	**Tribenzor®** (amlodipine/olmesartan/hydrochlorothiazide)	$240	Oct. 26
High blood pressure/ heart disease	T	**Azor®** (amlodipine/olmesartan)	$340	Nov. 2
		Daiichi Sankyo's Benicar franchise, some of the last branded angiotensin receptor blockers, lost patent protection in late October 2016. The line is indicated for the treatment of high blood pressure. First, Mylan began shipping its AB-rated generics to Benicar and Benicar HCT. A few days later, Ajanta Pharma released an AB-rated generic to Azor tablets. And in November, at least three generic companies received FDA approval for AB-rated generics to Tribenzor, a fixed-dose combination of olmesartan, amlodipine and hydrochlorothiazide. Collectively, annual U.S. sales for the four drugs topped $2.3 billion.		
HIV	S	**Epzicom®** (abacavir/lamivudine)	$449	Sept. 26
Infections	T	**Doryx®** (doxycycline hyclate delayed-release tablets) 50mg	$22	May 20
Infections	T	**Doryx®** (doxycycline hyclate delayed-release tablets) 200mg	$182	May 23
Irregular heart beat	T	**Tikosyn®** (dofetilide)	$200	June 6

S = Specialty, T = Traditional

THERAPY CLASS	TYPE	BRAND NAME (GENERIC NOW AVAILABLE)	EST. ANNUAL US SALES (MILLIONS)	DATE
Mental/ neurological disorders	T	**Seroquel XR®** (quetiapine extended release) Par Pharmaceutical, an operating company of Endo Pharmaceuticals, began shipping four strengths of quetiapine extended-release tablets on Nov. 1, 2016. Par's generics are AB-rated to AstraZeneca's Seroquel XR, a once-daily atypical antipsychotic indicated for adjunctive treatment of bipolar disorders, depression, mania and schizophrenia. As the result of a settlement agreement, Par marketed its generics one year before the Seroquel XR patent expiration. Par has 180 days of exclusivity for the 50mg, 150mg, 200mg and 300mg tablet strengths. A separate agreement allowed Accord Healthcare, Inc. to introduce the 400mg strength on the same day. For all strengths of Seroquel XR, IMS Health estimates annual U.S. sales at $1.4 billion. Seroquel XR is the first extended-release atypical antipsychotic to face generic competition in the U.S. Other extended-release atypical antipsychotics are all brand-name and all injectable.	$911	Nov. 1
Migraine headaches	T	**Frova®** (frovatriptan)	$88	March 11
Miscellaneous conditions	T	**Azilect®** (rasagiline)	$514	March 15
Miscellaneous conditions	T	**Vagifem®** (Yuvafem® [estradiol vaginal inserts])	$423	Oct. 17
Oncology	S	**Gleevec®** (imatinib) Sun Pharmaceutical Industries received final approval for its AB-rated generic to Novartis' Gleevec in December 2015, but a settlement – with 180 days of generic exclusivity – delayed generic launch until Feb. 1, 2016. Gleevec was first approved in 2001 for treating Philadelphia chromosome-positive (Ph+) chronic myeloid leukemia. It also is indicated to treat several other cancers. U.S. sales for Gleevec were $2.5 billion for the 12 months ending in August 2015, according to IMS Health.	$2,500	Feb. 1
Oncology	T	**Nilandron®** (nilutamide)	$23	July 15
Pain/inflammation	T	**Voltaren® Gel (diclofenac sodium topical gel, 1%)** After FDA approval on March 18, 2016, Amneal Pharmaceuticals released diclofenac gel 1%, the first generic for Endo Pharmaceuticals' Voltaren Gel. A topical nonsteroidal anti-inflammatory drug (NSAID), diclofenac gel is applied to the skin to treat osteoarthritis in affected joints. For the 12-month period that ended on Jan. 31, 2016, IMS Health estimated that Voltaren Gel had sales of $413 million in the United States.	$413	March 18
Skin infections	T	**Oxistat®** (oxiconazole cream)	$38	March 7
Sleep disorders	T	**Nuvigil®** (armodafinil) 200mg	$30	June 1
Sleep disorders	T	**Nuvigil®** (armodafinil) 50mg, 150mg, 250mg	$490	June 1
Viral infections	T	**Tamiflu®** (oseltamivir)	$403	Dec. 12

S = Specialty, T = Traditional

2016 brand approvals

THERAPY CLASS	TYPE	DRUG NAME (GENERIC)	PRODUCT DISTINCTION	DATE
Anticoagulants	T	**Defitelio®** (defibrotide)	New molecular entity	March 30
Asthma	S	**Cinqair®** (reslizumab)	New molecular entity	March 23
Attention disorders	T	**Adzenys XR-ODT™** (amphetamine)	New formulation	Jan. 27
Blood modifying	T	**Yosprala™** (aspirin/omeprazole)	New combination	Sept. 14
Constipation	T	**Relistor®** (methylnaltrexone)	New dose form	July 19
Contraceptives	S	**Kyleena™** (levonorgestrel-releasing intrauterine system)	New formulation	Sept. 16
COPD	T	**Bevespi Aerosphere®** (glycopyrrolate 9mcg/formoterol fumarate 4.8mcg)	New combination	April. 25
Diabetes	S	**Jentadueto® XR** (linagliptin/metformin extended release)	New combination	May 27
Diabetes	T	**Adlyxin®** (lixisenatide)	New molecular entity	July 27
Diabetes	T	**Invokamet® XR** (canagliflozin/metformin extended release)	New combination	Sept. 20
Diabetes	T	**Soliqua™** (insulin glargine/lixisenatide)	New combination	Nov. 21
Diabetes	T	**Xultophy®** (insulin degludec/liraglutide)	New combination	Nov. 21
Diabetes	T	**Synjardy® XR** (empagliflozin/metformin extended release)	New dose form	Dec. 9

The FDA approved two fixed-dose, long-acting insulin and glucagon-like peptide 1 (GLP-1) agonist combinations to treat adult type-2 diabetes. From Sanofi, Soliqua includes Lantus® (insulin glargine) and Adlyxin. Adlyxin was FDA approved on July 27, 2016. Novo Nordisk's Xultophy combines Tresiba® (insulin degludec) and Victoza® (liraglutide). Both are dosed once daily by subcutaneous injection. Although each was approved on Nov. 21, 2016, Soliqua was not launched until Jan. 4, 2017. Xultophy's launch is planned for the first half of 2017.

S = Specialty, T = Traditional

THERAPY CLASS	TYPE	DRUG NAME (GENERIC)	PRODUCT DISTINCTION	DATE
GI disorders	S	**Ocaliva®** (obeticholic acid) Intercept Pharmaceuticals received FDA approval for Ocaliva on May 27, 2016. It is indicated to treat primary biliary cholangitis (PBC), an inflammatory autoimmune condition that destroys bile ducts. Ocaliva stimulates farnesoid X receptors (FXR), which helps to limit the production of bile acids and also increases bile flow out of the liver. Ocaliva treats adult patients whose PBC has not improved adequately after at least one year of treatment with ursodeoxycholic acid (UDCA). Obeticholic acid is also a breakthrough therapy for the treatment of nonalcoholic steatohepatitis (NASH) in patients with liver fibrosis. Approval for this expanded indication is expected in 2018.	New molecular entity	May 2
Heart disease	T	**GoNitro™** (nitroglycerin)	New dose form	June 8
Heartburn/ulcer disease	T	**Dexilant SoluTab** (dexlansoprazole)	New dose form	Jan. 26
Hemophilia	S	**Idelvion®** [coagulation factor IX (recombinant), albumin fusion protein]	New formulation	March 4
Hemophilia	S	**Kovaltry®** (antihemophilic factor [recombinant]	New formulation	March 16
Hemophilia	S	**Afstyla®** (antihemophilic factor [recombinant], single chain)	New formulation	May 25
		In 2016, the FDA approved three new drugs for hemophilia. Afstyla (CSL Behring) and Kovaltry (Bayer) are infused as needed to stop bleeding as well as two or three times a week to prevent bleeding episodes for patients with hemophilia A. CSL Behring's Idelvion is bonded with albumin, so its activity lasts over periods as long as two weeks when it is used to prevent bleeding episodes in patients with hemophilia B. All three are specialty products.		
Hepatitis C	S	**Zepatier™** (elbasvir/grazoprevir)	New combination	Jan. 28
Hepatitis C	S	**Epclusa®** (sofosbuvir/velpatasvir)	New molecular entity /New combination	June 28
Hepatitis C	S	**Viekira XR™** (dasabuvir/ombitasvir/paritaprevir/ritonavir) Viekira XR, an extended-release formulation of dasabuvir/ombitasvir/paritaprevir/ritonavir tablets, was FDA approved on July 22, 2016. It is indicated to treat adults who have chronic genotype 1 hepatitis C virus (HCV) infection. For patients who have genotype 1a HCV infection, Viekira XR will be used along with ribavirin. Recommended length of therapy for genotype 1a patients with compensated cirrhosis (Child-Pugh A) is 24 weeks; for genotype 1a patients without cirrhosis, treatment duration is 12 weeks. Patients with genotype 1b HCV infection without cirrhosis or compensated cirrhosis will take Viekira XR for 12 weeks and will not need to use ribavirin. Patients with decompensated cirrhosis or severe liver conditions (Child-Pugh B or C) should not take it.	New dose form	July 22

S = Specialty, T = Traditional

THERAPY CLASS	TYPE	DRUG NAME (GENERIC)	PRODUCT DISTINCTION	DATE
High blood pressure/ heart disease	T	**Byvalson™** (nebivolol/valsartan)	New combination	June 3
High blood pressure/ heart disease	T	**Qbrelis™** (lisinopril)	New dose form	July 29
HIV	S	**Odefsey®** (emtricitabine/rilpivirine/tenofovir alafenamide)	New combination	March 1
HIV	S	**Descovy®** (emtricitabine/tenofovir alafenamide)	New combination	April 4
		On March 1, 2016, Gilead received FDA approval for Odefsey to treat HIV-1 infection for patients 12 years of age and older. Just a month later Descovy, a second Gilead combination, was also approved for treating adult HIV patients. Odefsey contains the same components as Complera®, and Descovy is identical to Truvada®, except that tenofovir disoproxil in the older drugs is replaced with tenofovir alafenamide (TAF). While TAF is similar to Viread® (tenofovir disoproxil – Gilead), TAF is effective in smaller doses, so it has less risk of causing kidney damage and bone-mineral density problems than tenofovir disoproxil. Because the patent on Viread is set to expire in 2018, approval of the new formulations will allow Gilead to convert market share to the new TAF-containing products in advance of generic competition.		
HIV	S	**Selzentry®** (maraviroc)	New dose form	Nov. 4
Immune deficiency	S	**Cuvitru** [immune globulin subcutaneous (human)] 20%	New formulation	Sept. 13
Infections	T	**Zinplava™** (bezlotoxumab)	New molecular entity	Oct. 21
Inflammatory conditions	S	**Xeljanx® XR** (tofacitinib extended-release)	New dose form	Feb. 23
Inflammatory conditions	S	**Inflectra®** (infliximab-dyyb)	Biosimilar	April 5
Inflammatory conditions	S	**Erelzi™** (etanercept-szzs)	Biosimilar	Aug. 30
Inflammatory conditions	S	**Amjevita™** (adalimumab-atto)	Biosimilar	Sept. 23
		Three biosimilars – all tumor-necrosis factor alpha (TNF α) inhibitors used to manage inflammatory conditions – were approved by the FDA in 2016. On April 5, 2016, Pfizer and Celltrion's Inflectra, a biosimilar to Janssen's Remicade®, was first. Inflectra was approved for all Remicade-approved indications, except pediatric ulcerative colitis. Inflectra launched at risk in November 2016. The FDA then approved Sandoz's Erelzi, a biosimilar to Enbrel® (etanercept – Amgen) on Aug. 30, 2016. Erelzi is indicated for all Enbrel-approved indications, including rheumatoid arthritis, plaque psoriasis, psoriatic arthritis, ankylosing spondylitis and polyarticular juvenile idiopathic arthritis. On Sept. 23, 2016, Amgen's Amjevita™ (adalimumab – atto), a biosimilar to AbbVie's Humira®, was also approved for treating adults with rheumatoid arthritis, plaque psoriasis, psoriatic arthritis, ankylosing spondylitis, Crohn's disease and ulcerative colitis. It is also approved for treating children four years of age and older who have polyarticular juvenile idiopathic arthritis.		

S = Specialty, T = Traditional

THERAPY CLASS	TYPE	DRUG NAME (GENERIC)	PRODUCT DISTINCTION	DATE
Low blood pressure	T	**Akovaz™** (ephedrine)	New formulation	April 29
Mental/neurological disorders	S	**Nuplazid™** (pimavanserin) On April 29, 2016, the FDA approved Acadia Pharmaceuticals' Nuplazid for the treatment of hallucinations and delusions associated with Parkinson's disease psychosis. Nuplazid is an atypical antipsychotic in the class known as selective serotonin inverse agonists (SSIA), which target 5-HT2A receptors. Of the approximately one million Americans who have Parkinson's disease, an estimated 40% have Parkinson's disease psychosis.	New molecular entity	April 29
Migraine headaches	T	**Onzetra® Xsail®** (sumatriptan nasal powder)	New dose form	Jan. 27
Migraine headaches	T	**Zembrace™ SymTouch™** (sumatriptan injection)	New formulation	Jan. 28
Miscellaneous conditions	S	**Exondys 51™** (eteplirsen) Under its accelerated approval process, the FDA approved Exondys 51 injection on Sept. 19, 2016. Exondys 51 treats Duchenne muscular dystrophy (DMD), a rare genetic disease that affects around 20,000 boys and young men in the United States. In DMD, a mutation in the gene for dystrophin, a muscle protein, causes progressive muscle wasting. Exondys 51 works by "skipping" over exon-51 to result in shorter, but partly functioning, dystrophin protein. For the approximately 13% of DMD patients with confirmed mutations of dystrophin genes amenable to exon 51 skipping, Exondys 51 is given once every week as an intravenous (IV) infusion at 30mg/kg of body weight.	New molecular entity	Sept. 19
Multiple sclerosis	S	**Zinbryta™** (daclizumab) Biogen and AbbVie's Zinbryta was FDA approved on May 27, 2016. Indicated for treating adults who have relapsing forms of multiple sclerosis (MS), it generally should be reserved for patients who have had an inadequate response to two or more other MS drugs. Zinbryta is an interleukin-2 (IL-2) receptor-blocking antibody that helps to reduce T-cell overactivity. It is given by subcutaneous injection once every four weeks. An intravenous (IV) form of daclizumab, under the brand name of Zenapax®, had previously been approved for preventing the rejection of kidney transplants. However, it was withdrawn from the U.S. market in 2009 because of low sales. Zinbryta was approved with a Risk Evaluation and Mitigation Strategy (REMS), which includes required monthly liver function tests and a restricted distribution program.	New formulation	May 27

S = Specialty, T = Traditional

THERAPY CLASS	TYPE	DRUG NAME (GENERIC)	PRODUCT DISTINCTION	DATE
Muscle relaxant	S	**Spinraza™** (nusinersen) Spinraza was approved by the FDA on Dec. 23, 2016. It is the first drug indicated to treat spinal muscular atrophy (SMA), a rare genetic condition that causes increasing weakness in muscles. Spinraza is given intrathecally (directly into the fluid around the spinal cord) by a healthcare provider trained to perform spinal procedures. Ionis Pharmaceuticals developed Spinraza, which is marketed by Biogen, Inc.	New molecular entity	Dec. 23
Nausea/vomiting	T	**Syndros™** (dronabinol)	New dose form	July 1
Nausea/vomiting	T	**Sustol®** (granisetron)	New dose form	Aug. 9
Nausea/vomiting	T	**Bonjesta** (doxylamine/pyridoxine)	New formulation	Nov. 7
Oncology	S	**Evomela™** (melphalan for injection) On March 10, 2016, Spectrum Pharmaceuticals' Evomela was FDA approved to provide palliative care for multiple myeloma patients unable to take oral medication. It is also indicated, in high doses, as the first drug for pre-conditioning before a stem-cell transplant for multiple myeloma patients. Melphalan, an alkylator which interrupts cell division, was first approved in the United States in 1964 as GlaxoSmithKline's Alkeran®. Evomela is not interchangeable with other injectable melphalan products.	New formulation	March 10
Oncology	S	**Venclexta™** (venetoclax) On April 11, 2016, AbbVie and Genentech received approval for Venclexta, an oral drug for the second-line treatment of patients with chronic lymphocytic leukemia (CLL) that has a 17p deletion, as detected by an FDA-approved test. It is the first B-cell lymphoma 2 (BCL-2) inhibitor to gain FDA approval.	New molecular entity	April 11
Oncology	S	**Cabometyx™** (cabozantinib) Exelixis was FDA approved on April 25, 2016, for Cabometyx. It treats patients with advanced renal-cell carcinoma (RCC) who have received prior anti-angiogenic therapy. Cabometyx interferes with the activity of several receptor tyrosine kinases, proteins which promote the growth and spread of tumors. With the brand name Cometriq®, cabozantinib was initially FDA approved in November 2012 for treating metastatic medullary thyroid cancer (MTC). Although both are oral medications, Cabometyx tablets and Cometriq capsules are not interchangeable.	New dose form	April 25

S = Specialty, T = Traditional

THERAPY CLASS	TYPE	DRUG NAME (GENERIC)	PRODUCT DISTINCTION	DATE
Oncology	S	**Tecentriq®** (atezolizumab) On May 18, 2016, Genentech was granted approval for Tecentriq to treat patients with locally advanced or metastatic urothelial carcinoma (mUC) that has progressed during or following platinum-based chemotherapy. It is also indicated for mUC patients whose disease has worsened within 12 months of receiving platinum-based chemotherapy, either before surgery (neoadjuvant) or after surgery (adjuvant). A programmed death receptor-ligand 1 (PD-L1)-blocking antibody, it is an immunotherapy agent that helps the body's immune system attack cancer cells. Tecentriq gained two additional indications in 2016 – on May 18 for bladder cancer and on Oct. 18 for NSCLC.	New molecular entity	May 18
Oncology	S	**Lartruvo™** (olaratumab) Lartruvo (injection, 10mg/mL from Eli Lilly and Company) was approved on Oct. 19, 2016. It is the first monoclonal antibody to be indicated for treating adults with soft tissue sarcomas (STS) that have histologic subtypes appropriate for an anthracycline-containing regimen but that are not amenable to curative treatment with radiation or surgery.	New molecular entity	Oct. 19
Oncology	S	**Rubraca™** (rucaparib) On Dec. 19, 2016, the FDA granted accelerated approval for Rubraca (Clovis Oncology, Inc.). It is indicated for ovarian cancer that has progressed despite at least two chemotherapy treatments and that has a deleterious BRAC genetic mutation as confirmed by an FDA-approved diagnostic test.	New molecular entity	Dec. 19
Ophthalmic conditions	T	**BromSite™** (bromfenac ophthalmic solution)	New formulation	April 8
Ophthalmic conditions	T	**Xiidra®** (lifitegrast ophthalmic solution)	New molecular entity	July 11
Other hepatitis	T	**Vemlidy®** (tenofovir alafenamide)	New formulation	Nov. 10
Pain/inflammation	T	**Xtampza® ER** (oxycodone)	New formulation	April 26
Pain/inflammation	T	**Probuphine®** (buprenorphine)	New dose form	May 26
Pain/inflammation	T	**Troxyca® ER** (oxycodone/naltrexone)	New dose form/ New combination	Aug. 19
		Two abuse-deterrent opioids gained FDA approval in 2016. The first was Collegium Pharmaceutical's Xtampza ER extended-release capsules on April 26, 2016. In a new method, oxycodone is mixed with wax and fatty acids to form microspheres that each contain active drug. The wax keeps the opioid from being dissolved and injected; it also prevents rapid release of the oxycodone if the capsules are mashed. On Aug. 19, 2016, Troxyca ER (Pfizer) was approved. In it, oxycodone releases slowly over several hours. If the capsules are crushed, encased naltrexone mixes with oxycodone, essentially cancelling any euphoric effects. Both are for treatment of chronic, severe pain that needs constant opioid therapy and that has not been controlled by other treatment.		

S = Specialty, T = Traditional

THERAPY CLASS	TYPE	DRUG NAME (GENERIC)	PRODUCT DISTINCTION	DATE
Seizures	T	**Briviact®** (brivaracetam)	New molecular entity	Feb. 18
Seizures	T	**Carnexiv™** (carbamazepine)	New dose Form	Oct. 7
Skin conditions	T	**Sernivo™** (betamethasone dipropionate)	New dose form	Feb. 5
Skin conditions	S	**Taltz®** (ixekizumab) On March 22, 2016, Eli Lilly and Company announced the U.S. approval of Taltz for the treatment of adult patients who have moderate-to-severe plaque psoriasis and who are candidates for systemic therapy or phototherapy. Taltz, given by subcutaneous (SC) injection, is a biologic drug that binds to interleukin (IL)-17A and inhibits interaction with the IL-17 receptor, thereby decreasing inflammation.	New molecular entity	March 22
Skin conditions	T	**Eucrisa™** (crisaborole) Eucrisa ointment, 2%, was FDA approved on Dec. 14, 2016. It is the first topical phosphodiesterase 4 (PDE-4) inhibitor indicated to treat eczema (chronic inflammatory skin conditions). For patients two years of age and older, Eucrisa is applied twice daily to decrease inflammation. Eucrisa will compete with current topical drug treatments for eczema, including topical steroids such as betamethasone and fluocinolone, and calcineurin inhibitors such as Elidel® (pimecrolimus).	New molecular entity	Dec. 14
Vaccinations	T	**Flucelvax Quadrivalent®** (influenza vaccine)	New formulation	May 24
Vaccinations	T	**Vaxchora®** (cholera vaccine)	New molecular entity	June 10
Vaccinations	T	**Afluria® Quadrivalent** (influenza vaccine)	New formulation	Aug. 29
Vaccinations	T	**Flublok® Quadrivalent** (influenza vaccine)	New formulation	Oct. 11
Vaginal disorders	T	**Intrarosa®** (prasterone)	New active ingredient	Nov. 16
Vitamins and minerals	T	**Rayaldee®** (calcifediol)	New formulation	June 17
Weight loss	T	**Belviq XR®** (lorcaserin)	New formulation	July 15

S = Specialty, T = Traditional

New indications and line extensions

HIGHLIGHTS

- On Jan. 15, 2016, Novartis' Cosentyx® (secukinumab) received new FDA approvals for treating adults who have ankylosing spondylitis and psoriatic arthritis. Cosentyx is an interleukin-17A (IL-17A) inhibitor launched in early 2015 after being FDA approved to treat psoriasis.

- Bristol-Myers Squibb (BMS) received new indications for its programmed death receptor-1 (PD-1) checkpoint inhibitor, Opdivo® (nivolumab) injection for intravenous use. As an immunotherapy agent, it enhances the ability of the immune system to attack and destroy cancer cells. **Originally, the FDA approved Opdivo in December 2014 as a breakthrough therapy for advanced unresectable or metastatic melanoma and disease progression following previous therapy.** It also has additional indications, both alone and in combination with other drugs, to treat non-small-cell lung cancer (NSCLC) and renal cell carcinoma (RCC). On Jan. 23, 2016, it was approved to be used by itself for patients with any type of melanoma. At the same time, BMS also received FDA approval for wider use of Opdivo in combination with Yervoy® (ipilimumab) for advanced melanoma. In mid-May, it gained another indication for treating relapsed or progressed classical Hodgkin lymphoma (cHL). Then, on Nov. 10, 2016, Opdivo was approved to treat patients who have squamous cell carcinoma of the head and neck (SCCHN) that has spread or come back despite prior or concurrent treatment with a platinum-based chemotherapy drug.

- In April, Eli Lilly and Company released a KwikPen® version of its Humulin® R (insulin human injection) U-500 that had been FDA approved on Jan. 20, 2016. It controls blood sugar levels for patients with diabetes needing high doses of insulin (more than 200 units per day). Although it has been available in 20mL vials, U-500 insulin had not previously been packaged in a pen device.

- Takeda Pharmaceuticals and Lundbeck Pharmaceuticals were given FDA approval in May to change the brand name of their antidepressant, Brintellix® (vortioxetine), to Trintellix. **More than 50 prescribing and dispensing errors involving Brintellix and an antiplatelet drug, Brilinta® (ticagrelor), had been reported since Brintellix was introduced in September 2013.** To end confusion, Brintellix was re-named. It looks the same and directions for use have not changed. However, beginning in June 2016, bottles of newly manufactured tablets were labeled with the new brand name and a new National Drug Code (NDC) number assigned by the FDA.

- On July 11, 2016, Amgen announced FDA approval of its Repatha® (evolocumab) Pushtronex™ system to deliver a monthly single dose of Repatha (a PCSK9 inhibitor). **The Pushtronex system is a hands-free, on-body infuser device that administers 420mg of Repatha as a single subcutaneous dose over nine minutes.** Repatha is also available as 140mg single-use prefilled syringes and SureClick® autoinjectors. Prior to the Pushtronex system, the single monthly dose required injection with three 140mg syringes.

The PD-1 checkpoint inhibitor, Opdivo received important new oncology indications in 2016.

- On Jul. 29, 2016, the FDA approved Silvergate Pharmaceuticals' Qbrelis™ (lisinopril oral solution), to treat high blood pressure in adults and children at least six years of age. It is also approved for use as an adjunct therapy for heart failure and treatment of acute myocardial infarctions. **Qbrelis is the first oral liquid formulation of the angiotensin-converting enzyme (ACE) inhibitor, lisinopril.**

- In 2016, the FDA granted two new indications for Merck's Keytruda® (pembrolizumab). A humanized monoclonal antibody, Keytruda blocks a protein (PD-L1) to enhance immune response. Keytruda previously was indicated for treating unresectable or metastatic melanoma and metastatic non-small-cell lung cancer (NSCLC) that expresses PD-L1 and that has progressed during or after platinum-containing chemotherapy. On Aug. 5, Keytruda received approval for patients who have recurring or metastatic head or neck squamous cell carcinoma (HNSCC). On Oct. 24, it was also approved as initial therapy for metastatic NSCLC without epidermal growth factor receptor (EGFR) or anaplastic lymphoma kinase (ALK) genomic tumor aberrations, but expressing 50% or more of programmed death ligand 1 (PD-L1). For both new indications, the presence of PD-L1 must be verified by an FDA-approved diagnostic test.

- The FDA authorized an additional indication for Janssen Biotech's Stelara® (ustekinumab) on Sep. 23, 2016. Stelara, a monoclonal antibody that targets interleukins 12 and 23 (IL-12 and IL-23), is already FDA approved for treating psoriasis and psoriatic arthritis. Its new indication treats adults who have moderate-to-severe active Crohn's disease that has not responded to corticosteroids, immunomodulators or TNFα inhibitors.

- On Nov. 4, 2016, Amgen announced that a new indication had been FDA approved for its Enbrel® (etanercept) injection. Enbrel is a TNFα inhibitor first approved in 1998 for treating adults with rheumatoid arthritis (RA). Six years later, it received an indication to treat adults with moderate-to-severe plaque psoriasis. **Now, it is the first biological anti-inflammatory drug indicated to treat moderate-to-severe chronic plaque psoriasis among teens and children as young as four years of age.**

- On Dec. 2, 2016, Eli Lilly and Company and Boehringer Ingelheim announced that their jointly marketed diabetes drug, Jardiance® (empagliflozin), was indicated as the first diabetes drug approved to decrease the risk of cardiovascular (CV)-related deaths for adults who have type 2 diabetes and CV disease. In the EMPA-REG OUTCOME® study, fewer patients who took Jardiance with their usual diabetes and CV drugs died from heart attacks or strokes than patients who took standard drugs with a placebo. Jardiance is a sodium-glucose co-transporter 2 (SGLT2) inhibitor, a class of drugs that lowers blood sugar by blocking its absorption in the kidneys.

- Throughout the year, about a dozen already-approved oncology drugs earned new indications from the FDA. Among them were Ibrance® (palbociclib–Pfizer), approved (in combination with fulvestrant) for breast cancer; Imbruvica® (ibrutinib – Pharmacyclics and Janssen Biotech), as first-line treatment for chronic lymphocytic leukemia; and Afinitor® (everolimus – Novartis) for neuroendocrine tumors.

- In December 2016, Mylan announced the launch of an authorized generic (AG) to its EpiPen® (epinephrine) auto-injector for the emergency treatment of severe allergic reactions, including anaphylaxis. **According to Mylan, the wholesale acquisition cost (WAC) for the AG is $300 for a two-pack of epinephrine auto-injectors.** In 2015, U.S. annual sales for EpiPen (retailing at about $600/twin pack) were approximately $1.7 billion.

Jardiance is the first diabetes drug approved to decrease the risk of cardiovascular (CV)-related deaths for adults who have type 2 diabetes and CV disease.

Methodology

2016 Drug Trend Report methodology

Prescription drug use data for members with drug coverage provided by Express Scripts plan sponsors[1] was analyzed for the 2016 Drug Trend Report. The plan sponsors providing the pharmacy benefit paid at least some portion of the cost for the prescriptions dispensed to their members, providing what's known as a funded benefit.

Both traditional and specialty drugs are included. Specialty medications include injectable and noninjectable drugs typically used to treat chronic, complex conditions and may have one or more of the following qualities: frequent dosing adjustments or intensive clinical monitoring; intensive patient training and compliance assistance; limited distribution; and specialized handling or administration. Nonprescription medications (with the exception of diabetic supplies billed under the pharmacy benefit) and prescriptions that were dispensed in hospitals, long-term care facilities and other institutional settings, or billed under the medical benefit, are not included.

Trend and other measures are calculated separately for those members with commercial insurance coverage. Members used Express Scripts for retail and home delivery pharmacy services; they used Accredo, the Express Scripts specialty pharmacy, for specialty drug prescriptions.

Total trend measures the rate of change in gross costs, which include ingredient costs, taxes, dispensing fees and administrative fees. Gross cost does not exclude member cost share, and is net of rebates. Total trend comprises utilization trend and unit cost trend. Utilization trend is defined as the rate of change in total days' supply of medication per member, across prescriptions. Unit cost trend is defined as the rate of change in costs due to inflation, discounts, drug mix and member cost share. Utilization and cost are determined on a per-member-per-year (PMPY) basis. Metrics are calculated by dividing totals by the total number of member-months (which is determined by adding the number of months of eligibility for all members in the sample) multiplied by the number of months per period.

The Express Scripts Prescription Price Index measures inflation in prescription drug prices by monitoring changes in consumer prices for a fixed market basket of commonly used prescription drugs. Separate market baskets are defined for brand drugs and for generic drugs, and are based on the top 80% of utilized drugs.

Please note: Although up to nine decimal places were allowed in making all calculations, in most cases the results were rounded down to one or two decimals for easier reading. Therefore, dollar and percentage calculations may vary slightly due to rounding.

[1] Plan sponsors were excluded if they were not Express Scripts clients in both 2015 and 2016, if they had less than 12 months of claims data in either year, if they had retail-only benefits, if they had 100% or 0% copayment benefits, if they had eligibility shifts exceeding 20% for commercial plans (eligibility shifts exceeding 50% for Medicare and Medicaid plans), or if they were contractually prohibited from inclusion. Individual members might be covered, and thus included, for only a portion of the time periods of interest.

2016 Drug Trend Report

Get the insights: **express-scripts.com/corporate**

Click to share:

EXPRESS SCRIPTS®

16EME38524 FEB. 2017