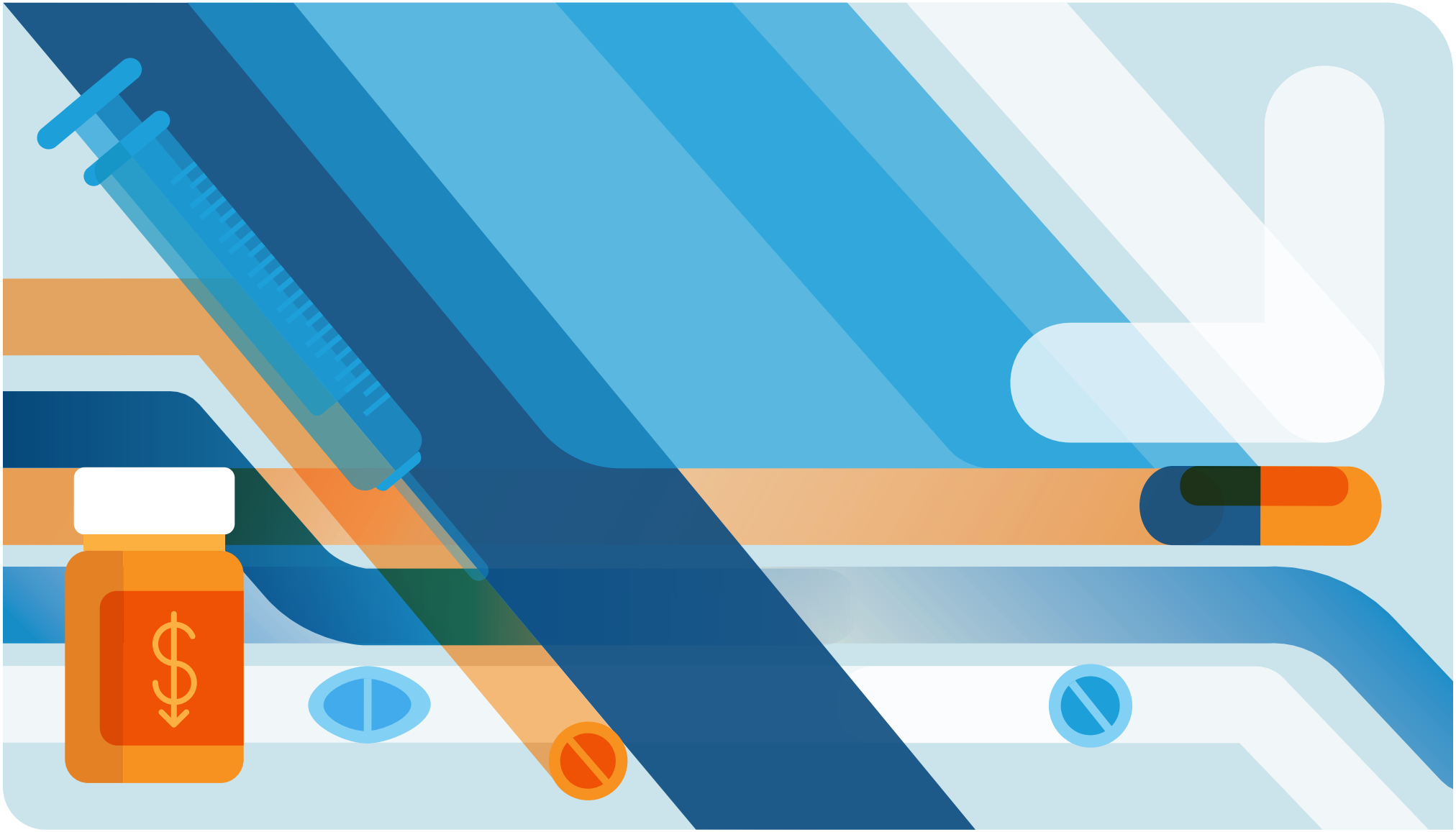

EXPRESS SCRIPTS®

2016 Drug Trend Report

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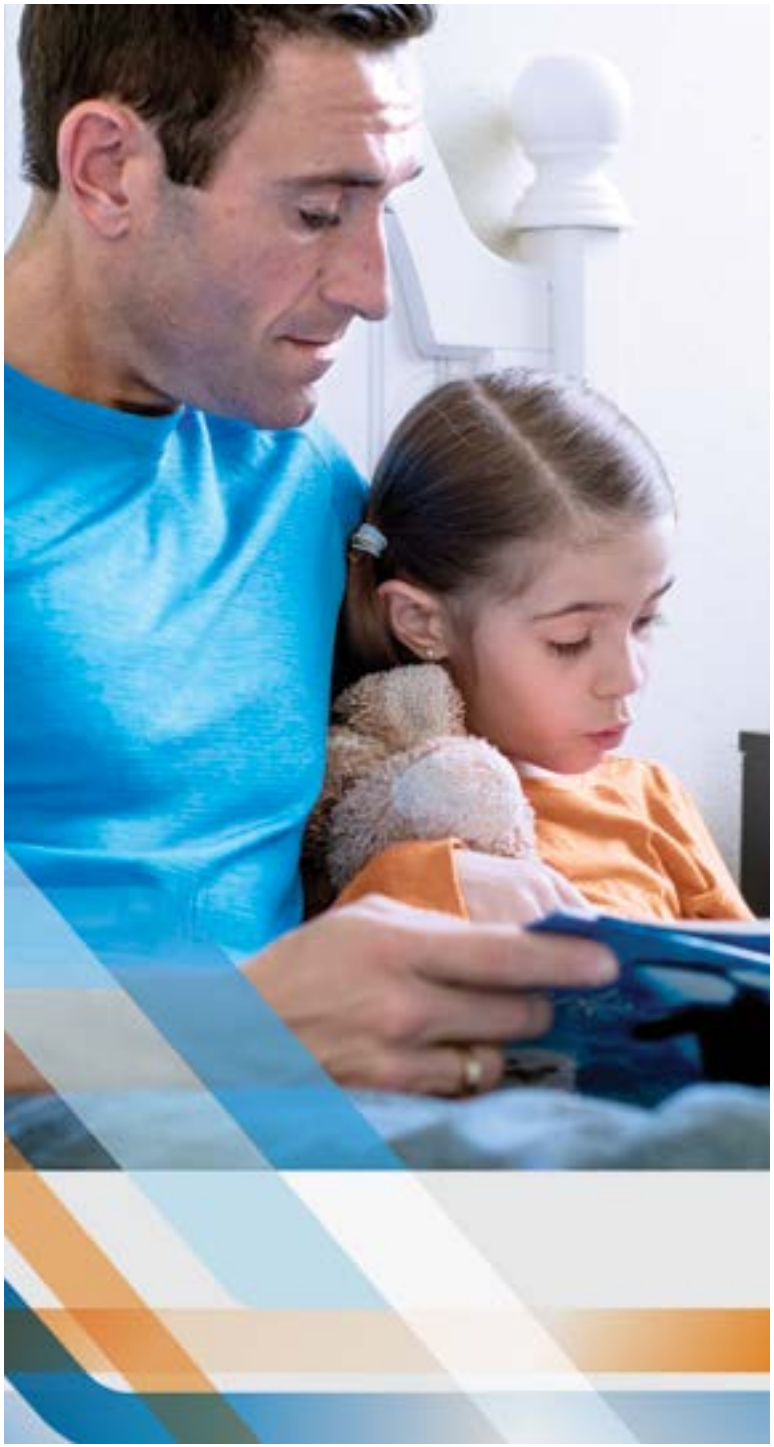
Commercial

COMMERCIAL

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 $463 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
Express Scripts

COMMERCIAL

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

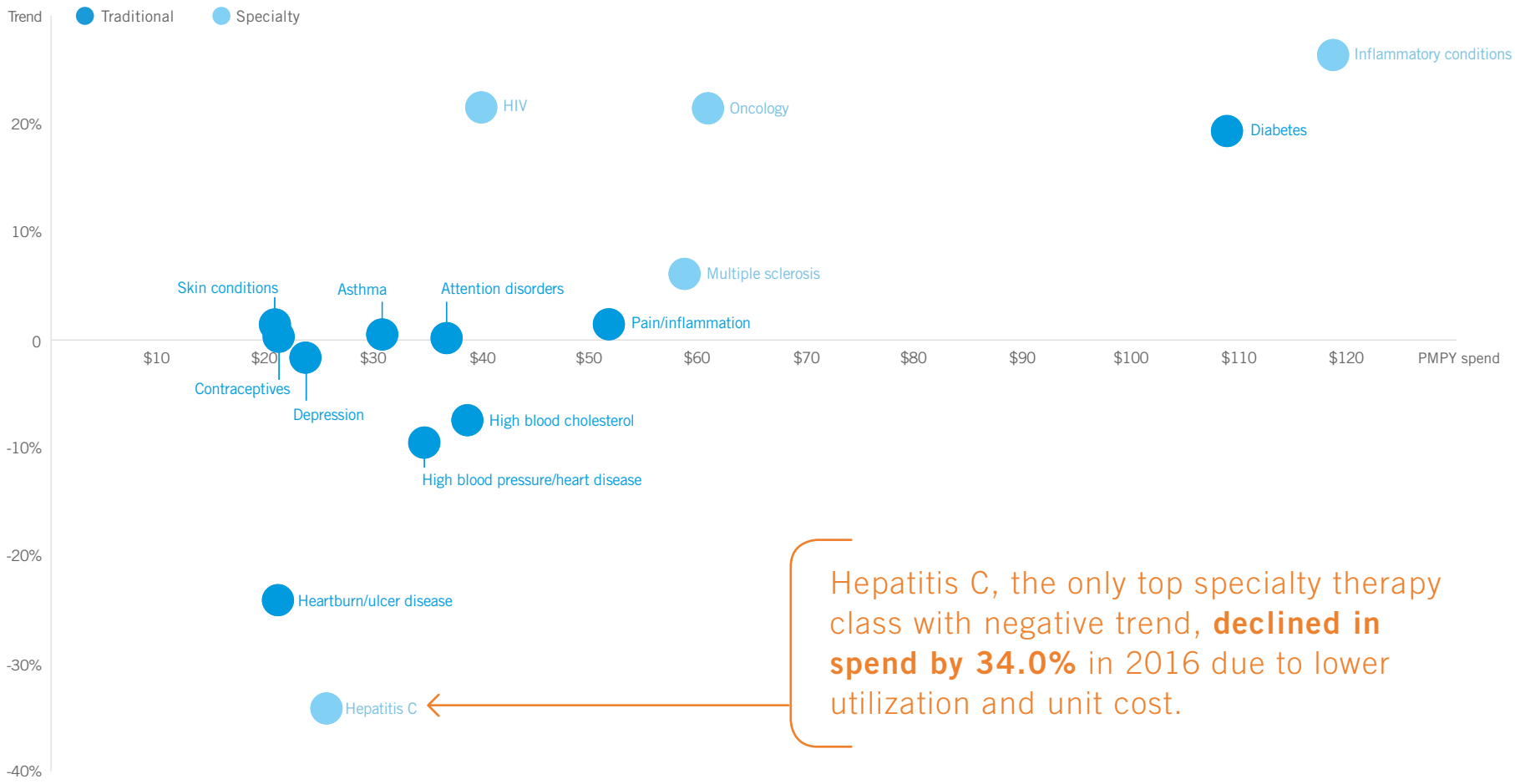
Medications to treat inflammatory conditions and diabetes remained the two most expensive therapy classes when ranked by PMPY spend. Specialty drugs to treat inflammatory conditions (such as rheumatoid arthritis and psoriasis) remained the most expensive drug class, with a 26.4% trend. Diabetes was ranked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

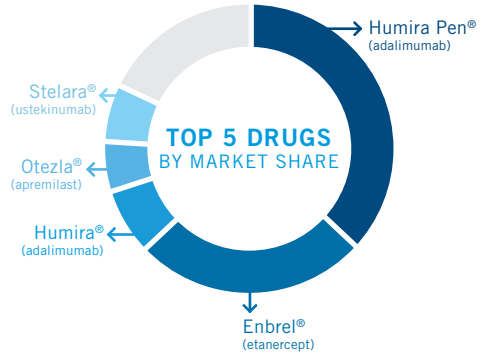
41.5%
Patients who are nonadherent

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

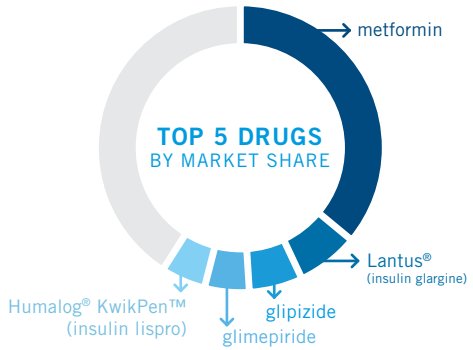
0.86
Number of prescriptions PMPY

5.3%
Prevalence of use

$125.82
Average cost per prescription

52.3%
Generic fill rate

- 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.



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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

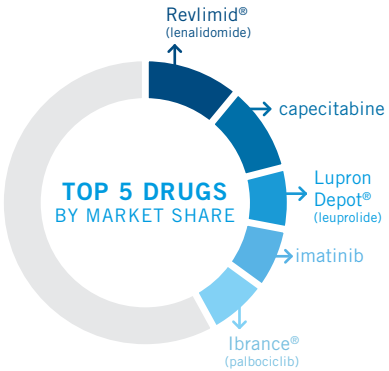
0.008
Number of prescriptions PMPY

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.



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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

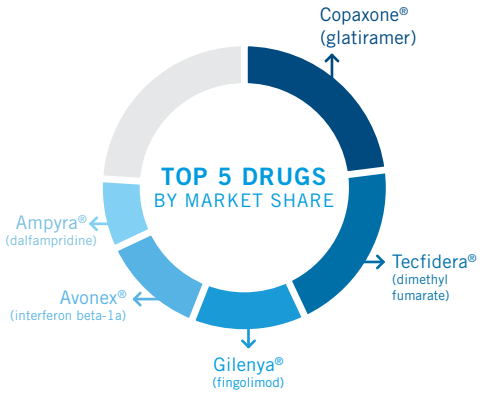
SPECIALTY

Multiple sclerosis

Click here for details

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

- 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.



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

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

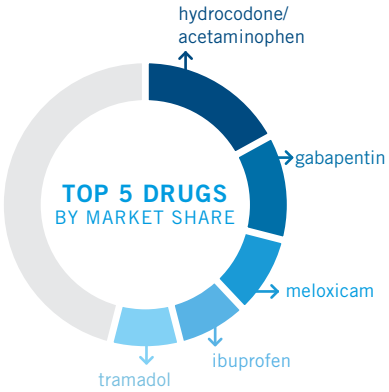
1.06
Number of prescriptions PMPY

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.**



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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

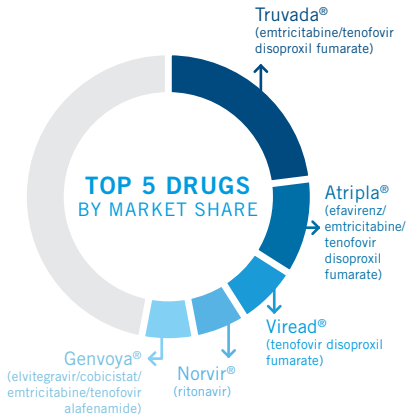
0.026
Number of prescriptions PMPY

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.



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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

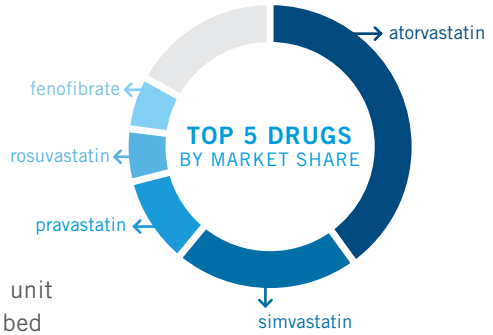
1.08
Number of prescriptions PMPY

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 unit cost and increased in 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.



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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

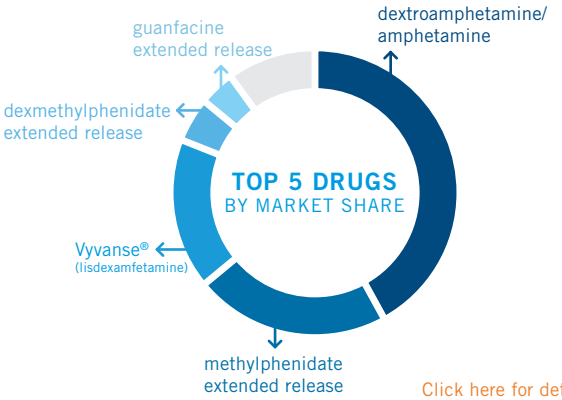
0.25
Number of prescriptions PMPY

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.



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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%

BY THE NUMBERS

27.8%
Patients who are nonadherent

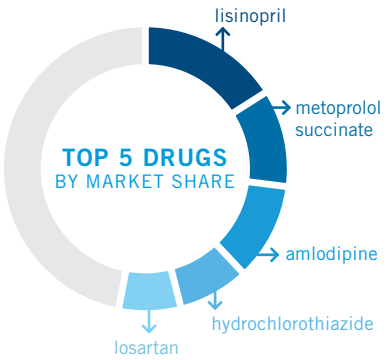
2.48
Number of prescriptions PMPY

16.8%
Prevalence of use

$13.89
Average cost per prescription

96.7%
Generic fill rate

- 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.



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

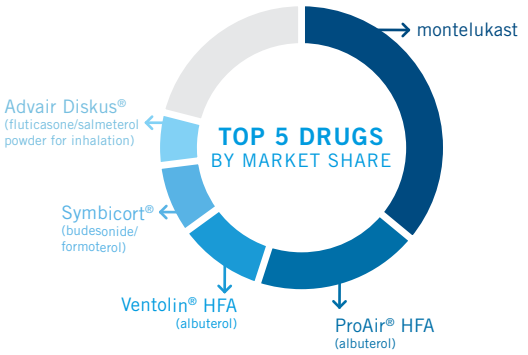
TRADITIONAL

Asthma

Click here for details

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

- 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.**



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

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

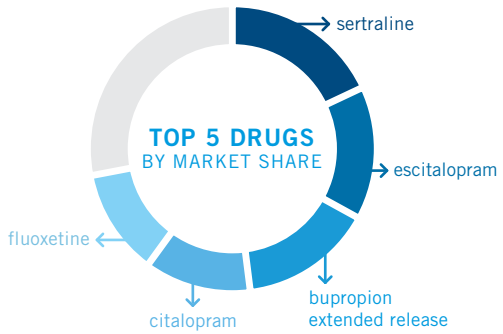
TRADITIONAL

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

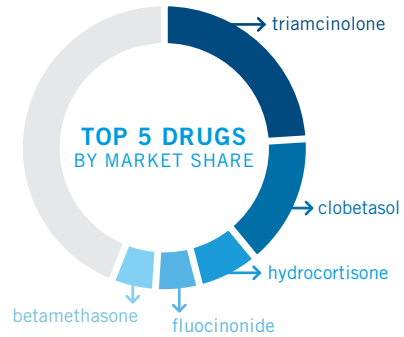
TRADITIONAL

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

COMMERCIAL

Market factors

Express Scripts Prescription Price Index

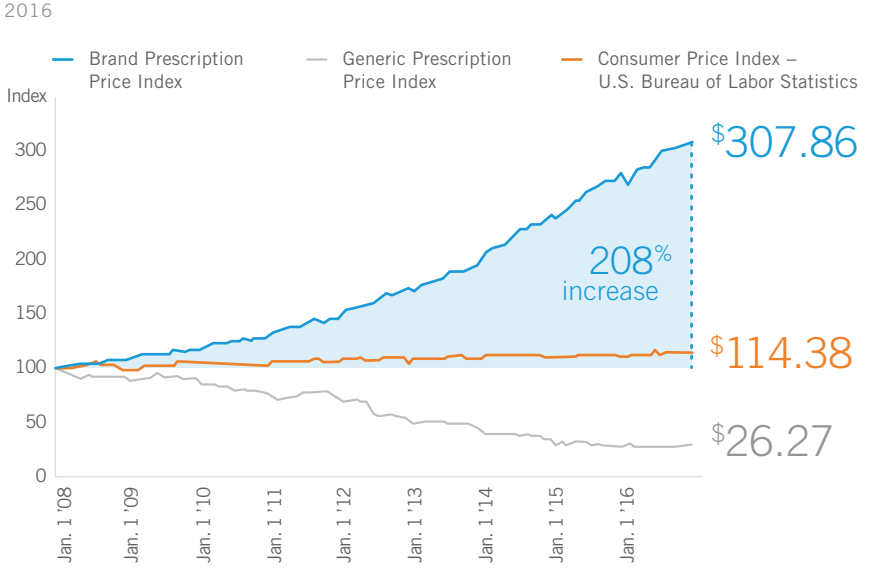
Roughly half of Americans take prescription medications, and 85.4% of filled prescriptions are for generic products. There is still opportunity for payers and members to ensure cost savings by achieving higher generic fill rates. According to the Express Scripts Prescription Price Index, the average 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.		

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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

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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.		

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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

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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.

COMMERCIAL

Methodology

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.

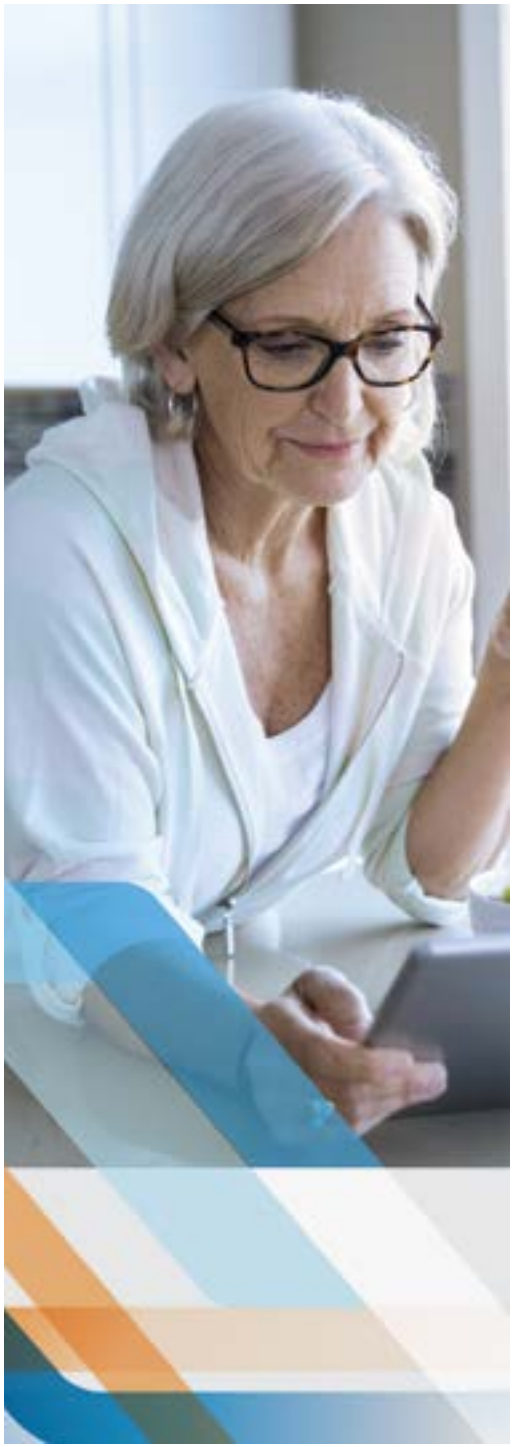
Please note: Although up to nine decimal places were allowed in making all calculations, in most cases the results were rounded down to one or two decimals for easier reading. Therefore, dollar and percentage calculations may vary slightly due to rounding.

[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.

Medicare

MEDICARE

Introduction



Affordable pharmacy care for America's seniors

For more than a decade, the Medicare Part D benefit has provided America's seniors with affordable access to prescription medications at a sustainable rate. Since its beginnings as a discount card program, Part D has cost the government less than originally predicted.[1]

Part D plans have effectively kept drug spending increases in check for this population – a trend that continued in 2016 with just a 4.1% increase in year-over-year prescription drug spending. Interestingly, a third of plans had negative trend and more than half show trend below 4.1%.

However, Part D plans spent close to $3,700 per member per year (PMPY) on prescription drugs for Medicare beneficiaries in 2016 – more than three times the PMPY spend seen in commercial, Medicaid and Exchange populations.

The high PMPY demonstrates the challenges of managing prescription costs for an older and sicker population. While competitive forces do drive down costs, there are requirements that limit the tools Part D plans can use to even more effectively drive down costs. For example:

- **Protected classes of drugs (PCDs) –** The Centers for Medicare & Medicaid Services (CMS) requires plan sponsors to cover all, or substantially all, PCD medications, which include drugs for cancer, HIV, and mental and neurological disorders, among others. This means plans are unable to put benefit strategies in place to drive down cost and promote effective utilization.[2] Recently, CMS suggested that manufacturers are keeping the cost of certain drugs high because of current PCD coverage requirements. A 2015 Express Scripts study found that oncology prescriptions for Medicare beneficiaries cost an average of $875 more per prescription than those for commercial members, despite both groups exhibiting similar adherence rates.[3]

- **Formulary requirements –** Due to strict CMS formulary and medication coverage requirements, Medicare plan sponsors may have limited ability to impact spending when new therapies hit the market, or when drugs experience significant price increases. For example, a number of convenience co-packaged kits (packages that contain multiple products with both Part D and non-Part D covered components) were marked up significantly during 2016. Our data showed that covering those products for just one six-month period resulted in $1.2 million in unnecessary costs[4] to plans and taxpayers.

[1] Medicare Part D Spending Trends: Understanding Key Drivers and the Role of Competition https://kaiserfamilyfoundation.files.wordpress.com/2013/01/8308.pdf
[2] Medicare Program; Contract Year 2015 Policy and Technical Changes to the Medicare Advantage and the Medicare Prescription Drug Benefit Programs; Proposed Rule. Federal Register 79 (6 Jan. 10, 2016) 88, pp 1918-2073.
[3] Express Scripts Internal Research Report.
[4] Express Scripts Internal Medicare Analysis.

- **Low-Income Cost Sharing Subsidy (LICS) population –** Medicare's LICS members generally have a lower medication utilization rate than their non-LICS counterparts. As the industry proposes better ways to help these members stay adherent to their medications, recommendations have been made to Congress to consider altering LICS benefits to reduce or eliminate cost sharing for certain types of drugs.[5] The Congressional Budget Office (CBO) projects that simply increasing generic utilization among LICS members could save the Medicare program $18 billion over 10 years.[6,7]

- **Opioid management –** The opioid epidemic continues to remain a key national focus. Although overall Medicare trend for drugs that treat pain and inflammation has decreased, utilization rates for Medicare remain higher than in any other line of business. Utilization rates for short-term opiates (17.3%) were higher for Medicare compared to commercial (12.0%) and Medicaid (7.6%). Long-term opiate use was also much higher (17.3%) than for commercial (3.3%) and Medicaid (3.6%).[8] Note that our analysis includes individuals who received opioids for pain associated with cancer.

- **Quality Star Ratings –** Star Ratings that focus on adherence to medications commonly used for treating diabetes, hypertension and high blood cholesterol play a key role in driving trend. In 2016, all three classes saw average adherence rates increase for MAPD plans and PDPs, with an average adherence rate of 80.2% for MAPDs and 79.9% for PDPs in 2017 Star Ratings.[9] Express Scripts-supported plans, MAPD and PDP, proved to have higher Star Ratings than the industry average. As adherence expectations increase and potentially expand to more expensive classes of drugs, we expect these classes to remain top Medicare trend drivers.

The percentage of Americans older than age 65 is expected to grow. With Medicare spending representing 15% of the U.S. federal budget, lawmakers are understandably looking to reduce prescription drug spending, and make changes to keep this benefit affordable and sustainable for taxpayers.

We believe plans with greater flexibility for the use of PBM tools can help position Part D plans further manage drug trend in this population. With a few modifications that will allow Part D providers to fully leverage programs and solutions proven to lower drug spending, Medicare Part D plan can continue on this successful path, providing seniors with high quality, affordable prescription drug coverage.

Rebecca M. Rabbitt
Vice President, Medicare
Express Scripts

[5] Medicare Payment Advisory Commission. Report to the Congress: Medicare and the health care delivery system. http://www.medpac.gov/docs/default-source/fact-sheets/fact-sheet-on-medpac-s-june-2016-report-to-the-congress-medicare-and-the-health-care-delivery-system.pdf?sfvrsn=0. June 2016. Accessed Jan. 20, 2016.
[6] The Medicare Payment Advisory Commission. Report to the Congress: Medicare and the Health Care Delivery System. http://www.medpac.gov/docs/default-source/reports/june-2016-report-to-the-congress-medicare-and-the-health-care-delivery-system.pdf?sfvrsn=0. p. 186. Jun. 15, 2016. Accessed Feb. 01, 2016.
[7] Congressional Budget Office. Proposals for Health Care Programs-CBO's Estimate of the President's Fiscal Year 2017 Budget. https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/dataandtechnicalinformation/51431-HealthPolicy.pdf. p. 3. Mar. 29, 2016. Accessed Feb. 01, 2016.
[8] Henderson R, Le Gette L, Swift C, Iyengar R. The painful reality of pain treatment. Express Scripts Internal Analysis.
[9] Express Scripts Internal Medicare Analysis.

"I know there is no other PBM better suited to support SCAN for the Medicare space we serve. Talent wins games but teamwork wins championships, and with Express Scripts over the past couple years we've won championships with the quality network pilot, preferred value network, strong 1/1 implementation and the CMS program audit."

Sharon K. Jhawar PharmD, MBA, CGP
CVP & Chief Pharmacy Officer
SCAN Health Plan

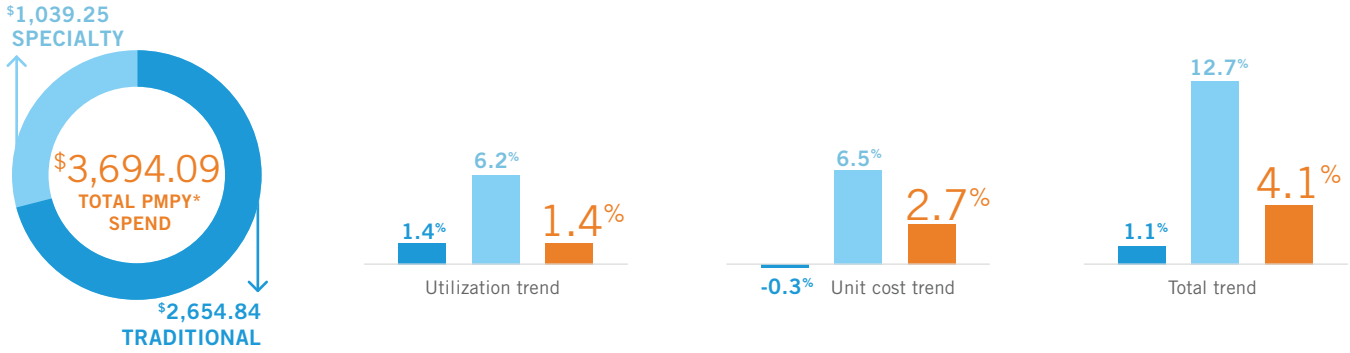
MEDICARE

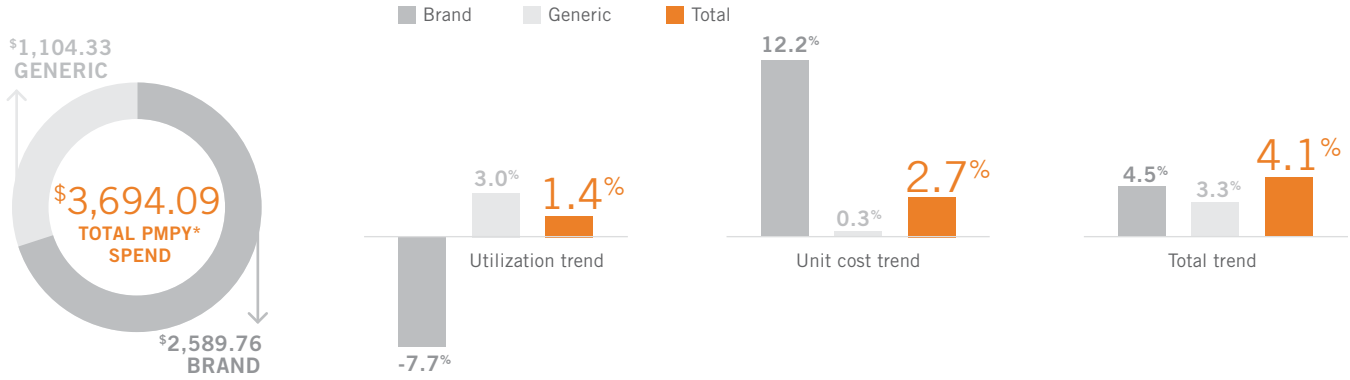
Trend analysis

Keeping spending increases in check for America's seniors

- From 2015 to 2016, per-member-per-year (PMPY) spending for Medicare plans rose just 4.1% to $3,694.09.
- This low trend increase was driven by a 2.7% rise in unit costs and 1.4% growth in utilization.
- Traditional therapeutic classes accounted for 71.9% of the total spend for Medicare beneficiaries; specialty classes accounted for the remaining 28.1%.
- Analysis of Medicare trend by brand and generic classification found that utilization of brand drugs decreased 7.7% but unit costs increased 12.2%, resulting in an overall trend of 4.5%. Spending for generic drugs increased 3.3%, mainly due to a 3.0% lift in utilization and 0.3% rise in unit cost.

Click here for details





January-December 2016 compared to same period in 2015 for Medicare members with drug coverage provided by Express Scripts plan sponsors. Reflects total cost for both payers and patients, net of rebates.
*Per member per year

MEDICARE ADVANTAGE PRESCRIPTION DRUG PLAN

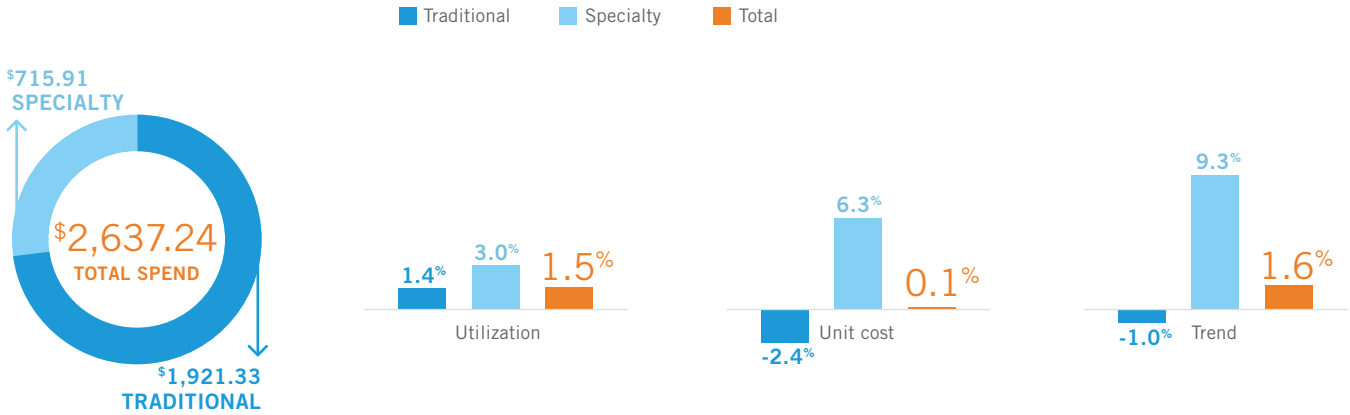
MAPD

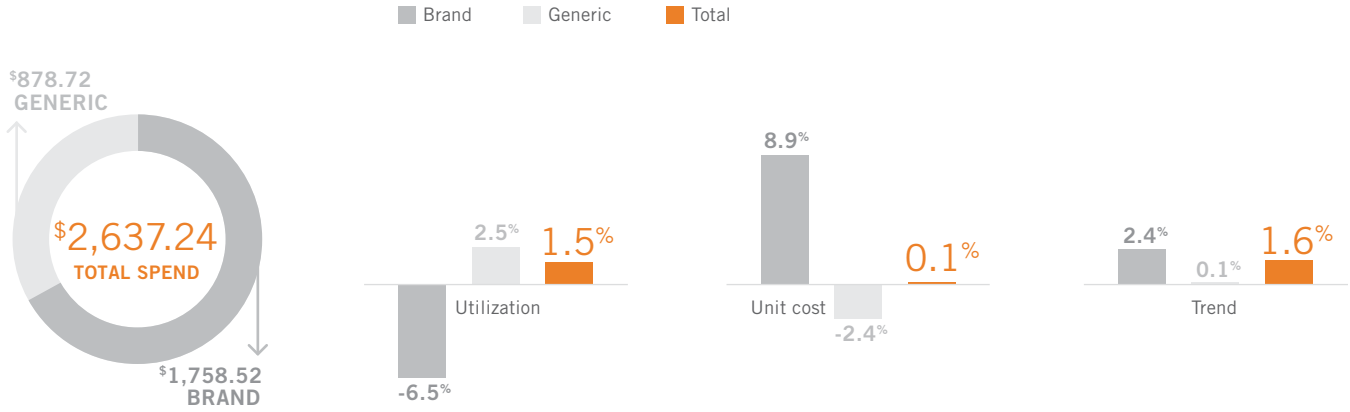
- PMPY spend of $1,921.33 stemmed from a 2.4% decline in unit cost that was countered partially by a 1.4% increase in PMPY utilization. Traditional drug spend decreased 1.0%.
- Specialty PMPY spend rose to $715.91, a 9.3% increase over 2015.
- The 8.9% increase in unit costs outweighed the 6.5% decrease in utilization for brand medications, leading to a total brand drug trend of 2.4%.
- Generic drug trend was minimal (0.1%), resulting from an increase in utilization (2.5%) and an offsetting decline in unit cost (-2.4%).

The generic fill rate for MAPD plans was highest compared to PDPs and EGWPs.

GENERIC FILL RATE	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
89.0%	$2,637.24	1.5%	0.1%	1.6%

Click here for details





January-December 2016 compared to same period in 2015 for Medicare members with drug coverage provided by Express Scripts plan sponsors. Reflects total cost for both payers and patients, net of rebates.
*Per member per year

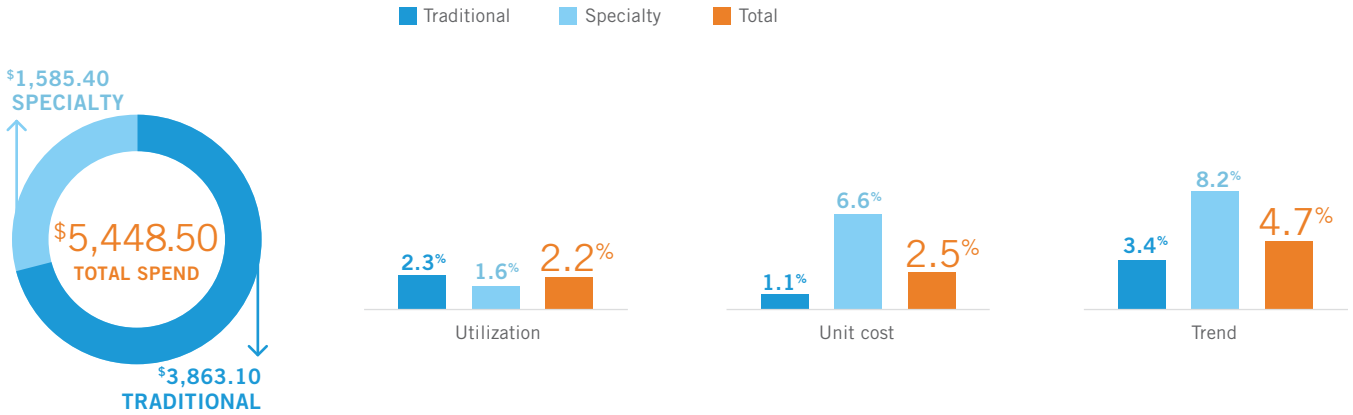
PRESCRIPTION DRUG PLAN
PDP

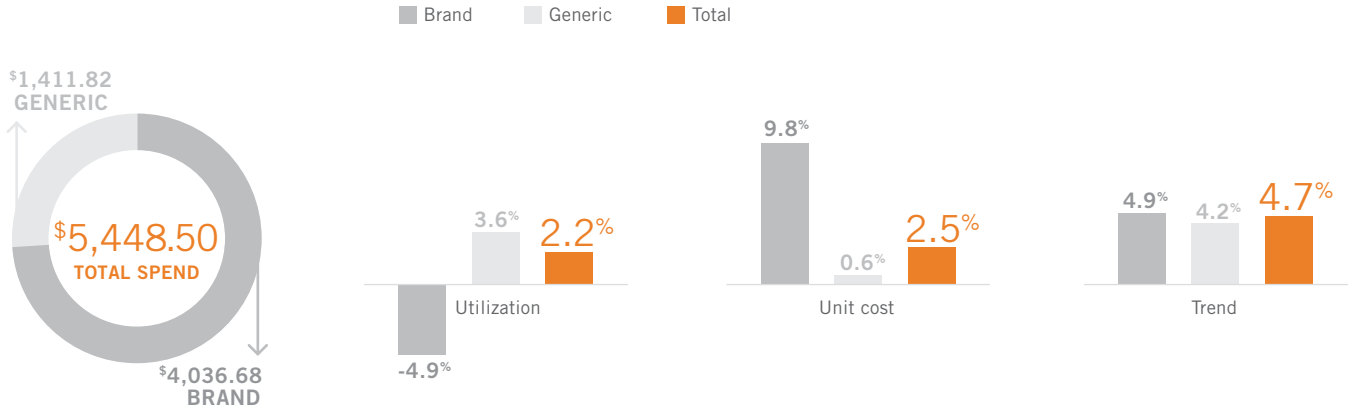
- Traditional drug spend increased 3.4%, to $3,863.10, driven primarily by a 2.3% utilization increase.
- Specialty spending increased 8.2%, largely due to a 6.6% unit cost increase.
- Brand and generic drug spend increased in almost equal measure, by 4.9% and 4.2%, respectively.
- While a 9.8% trend in unit cost was offset somewhat by a 4.9% decline in utilization for brands, the generic drug trend was boosted by a 3.6% increase in utilization and a 0.6% rise in unit cost.

PDPs had the highest generic utilization trend among the three Medicare plan types

GENERIC FILL RATE	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
85.8%	$5,448.50	2.2%	2.5%	4.7%

Click here for details





January-December 2016 compared to same period in 2015 for Medicare members with drug coverage provided by Express Scripts plan sponsors. Reflects total cost for both payers and patients, net of rebates.
*Per member per year

EMPLOYEE GROUP WAIVER PLAN

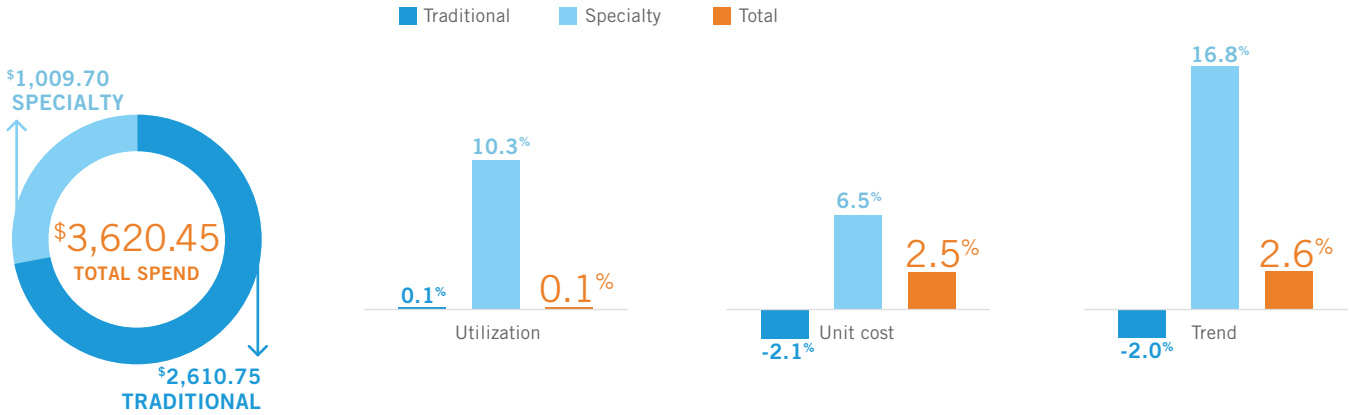
EGWP

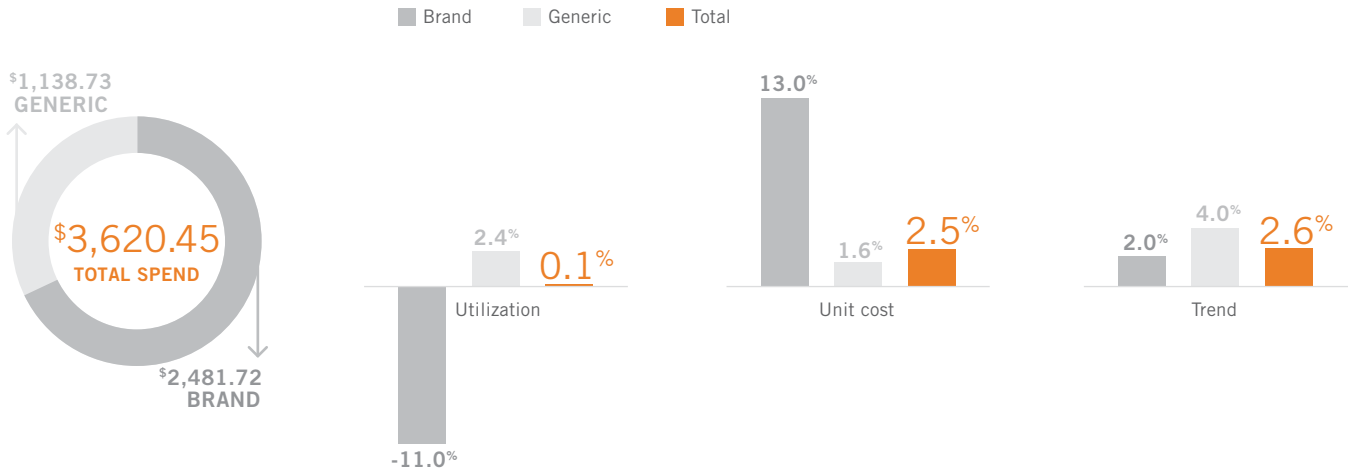
- For traditional drugs, EGWPs experienced a 2.0% decrease in PMPY spend to $2,610.75.
- The 16.8% increase in specialty spending was due largely to a 10.3% lift in specialty drug utilization, the highest among the three Medicare plan types.
- The 13.0% rise in unit cost for brand drugs was offset by an 11.0% decline in utilization. The 4.0% generic drug spending increase was driven by growth in both utilization and unit cost.
- Most of the overall utilization increase was due to generics, while most of the overall unit cost increase was contributed by brands.

EGWPs had the highest specialty drug trend among the three Medicare plan types.

GENERIC FILL RATE	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
85.4%	$3,620.45	0.1%	2.5%	2.6%

Click here for details





January-December 2016 compared to same period in 2015 for Medicare members with drug coverage provided by Express Scripts plan sponsors. Reflects total cost for both payers and patients, net of rebates.
*Per member per year

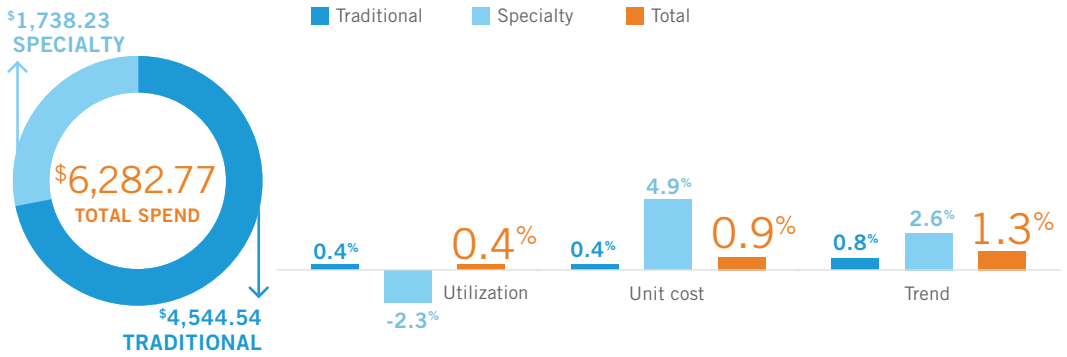
Trend for low-income cost sharing subsidy (LICS) and non-LICS beneficiaries

- In 2016, the number of Medicare Part D beneficiaries across the U.S. receiving a low-income cost sharing subsidy (LICS) increased from 11.7 to 12.0 million, or approximately three in 10 enrollees. Nearly two-thirds of LICS members were enrolled in stand-alone PDPs.[10]
- PMPY spend for LICS members was more than double that of non-LICS members in both traditional and specialty classes. Although utilization trend was lower in the LICS population, overall drug spend was significantly higher.
- Traditional drug spending decreased 1.4% for non-LICS members and remained relatively flat (0.8%) for LICS members. Utilization trend was lower for LICS members, while non-LICS members had a decrease in spending for traditional therapies (-2.4%).
- Both utilization and unit cost trends for specialty medications were lower for LICS members (-2.3% and 4.9%) compared to non-LICS members (7.3% and 7.4%). The increase in total specialty drug spending was considerably lower for LICS members (2.6%) than non-LICS members (14.7%).
- These trends reinforce recommendations by the industry that plan sponsors need the ability to offer LICS members low-to-no-cost options that could promote adherence and better contain drug costs in this population.

Click here for details

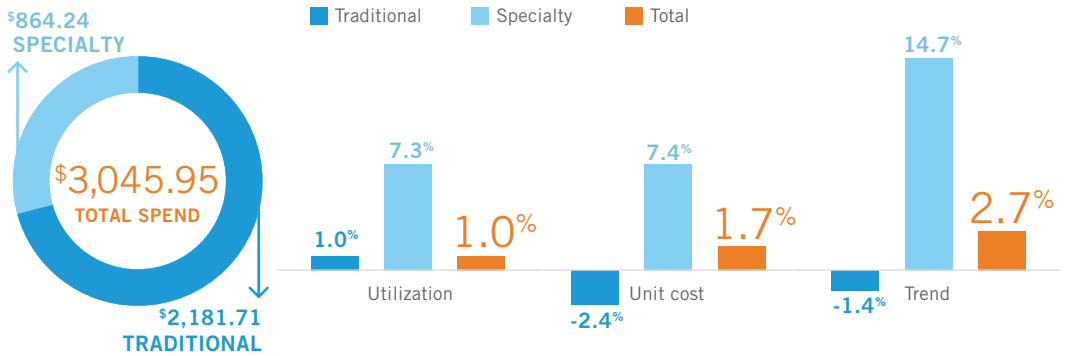
LICS BENEFICIARIES: COMPONENTS OF TREND

2016



NON-LICS BENEFICIARIES: COMPONENTS OF TREND

2016



[10] Hoadley J, Cubanski J, Neuman T. Medicare Part D in 2016 and trends over time. The Henry J. Kaiser Family Foundation. http://kff.org/medicare/report/medicare-part-d-in-2016-and-trends-over-time/. Sept. 16, 2016. Accessed Jan. 20, 2017.

January-December 2016 compared to same period in 2015 for Medicare members with drug coverage provided by Express Scripts plan sponsors. Reflects total cost for both payers and patients, net of rebates.
*Per member per year

MEDICARE

Therapy class review

Top 15 therapy classes and insights

Total spend for Medicare plans rose 4.1%, to $3,694.09 in 2016, as a result of small increases in both PMPY utilization (1.4%) and unit costs (2.7%). **Ten of the top 15 therapeutic classes ranked by overall Medicare PMPY spend in 2016 were traditional classes and five were specialty.**

Together, spend for the top three Medicare therapy classes – diabetes, oncology, and pain and inflammation – contributed 27.1% of the total for all medications used by Medicare beneficiaries in 2016. Total trend was negative for seven of the top 15 therapy classes, with the sharpest decline for hepatitis C medications (-27.2%).

Excluding the slight decrease in PMPY utilization trend (-0.2%) for high blood cholesterol, utilization trend increased for all traditional therapy classes for Medicare beneficiaries. However, seven of these traditional therapy classes decreased in unit cost trend from 2015 to 2016.

Diabetes, oncology and pain/inflammation accounted for 27.1% of the total spend.

MEDICARE: 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	T	Diabetes	$439.39	3.2%	8.4%	**11.6%**
2	S	Oncology	$341.81	14.0%	8.3%	**22.3%**
3	T	Pain/inflammation	$218.76	4.3%	-5.6%	**-1.3%**
4	T	High blood cholesterol	$209.26	-0.2%	-2.0%	**-2.2%**
5	T	High blood pressure/heart disease	$200.21	0.5%	-4.5%	**-4.0%**
6	T	Mental/neurological disorders	$161.08	3.7%	-16.6%	**-12.9%**
7	S	Inflammatory conditions	$146.83	8.2%	16.4%	**24.6%**
8	T	Asthma	$140.78	4.9%	-0.6%	**4.3%**
9	S	Multiple sclerosis	$130.74	-1.4%	7.9%	**6.5%**
10	T	Anticoagulants	$128.56	3.5%	27.4%	**30.9%**
11	T	Heartburn/ulcer disease	$105.72	0.5%	-10.5%	**-10.0%**
12	S	Hepatitis C	$99.99	-24.4%	-2.8%	**-27.2%**
13	T	Urinary disorders	$88.38	1.8%	-5.8%	**-4.0%**
14	T	Chronic obstructive pulmonary disease (COPD)	$82.82	3.2%	6.1%	**9.3%**
15	S	HIV	$78.43	0.9%	14.9%	**15.8%**
		TOTAL FOR ALL THERAPY CLASSES	**$3,694.09**	**1.4%**	**2.7%**	**4.1%**

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

The highest increase (27.4%) in unit cost trend was for anticoagulants, which also saw an uptick in utilization (3.5%), as prescribers became more comfortable prescribing newer, more expensive oral anticoagulants. The largest decline in unit cost (-16.6%) was for mental and neurological disorders, since most of the commonly prescribed medications for that class are available as generics.

Although specialty medications represented only a little more than one-quarter of total Medicare drug spend, their contribution to trend was significant. In 2016, specialty spend increased 12.7%, driven by nearly equal trends of 6.5% for unit cost and 6.2% for PMPY utilization.

Ranked by PMPY spend, the top five specialty therapy classes – oncology, inflammatory conditions, multiple sclerosis (MS), hepatitis C and HIV – together contributed more than 76% of total specialty spend.

Three of these therapy classes – oncology, inflammatory conditions and HIV – saw double-digit increases in 2016 PMPY spend, due to increases in both unit cost and PMPY utilization. Two of them – oncology and HIV – are among the PCDs mandated by CMS.

The double-digit decline in drug spend for hepatitis C was largely due to decreased utilization trend (-24.4%), as many patients who were prescribed newer therapies had completed treatment. A smaller decrease in unit costs (-2.8%) was also a contributor.

Oncology, inflammatory conditions and HIV saw double-digit increases in spend due to increases in both unit cost and utilization.

HIGHLIGHTS

- **Diabetes saw a much higher PMPY spend ($439.39) than any other therapy class among Medicare beneficiaries in 2016.** Trend for diabetes medications was 11.6%, driven by an increase in utilization (3.2%) and an even greater increase in unit costs (8.4%). Increases in utilization for the widely used oral drug metformin, along with glimepiride and Januvia® (sitagliptin), drove up overall utilization for this therapy class. Insulins, such as Lantus® (insulin glargine) and Humalog® KwikPen® (insulin lispro), also had large utilization increases.
- **Oncology treatments continued to have one of the highest trends among specialty therapy classes, with an increase in PMPY spend of 22.3% in 2016.** Trend resulted from an 8.3% increase in unit cost and a 14.0% increase in utilization. The utilization increase likely resulted from several factors, including expanded indications for several drugs; continued development of newer, more targeted therapies; increased survival rates of patients living with cancer; and the resulting continuing medication therapy and the PCD status of the class.
- Total PMPY spend for medications used to treat pain/inflammation decreased 1.3%, due to declining unit costs (-5.6%) that more than offset a moderate increase in utilization (4.3%). PMPY spend continued to decline because generic medications dominate the class. Together, the three most commonly used pain and inflammation drugs captured nearly half of market share for the therapy class.
- Overall trend in high blood cholesterol declined (-2.2%), influenced by a small decrease in utilization (-0.2%) and a larger drop in unit costs (-2.0%). Even so, the class was the fourth most-costly therapy class overall and third most-expensive traditional class in Medicare. Its trend was heavily influenced by wide availability of generic medications, which represent 90.6% of class market share.
- Trend for inflammatory conditions increased 24.6%. **PMPY utilization increased substantially (8.2%), but the main driving factor for the increased trend was the 16.4% increase in unit costs for this specialty class.** Spend for all of the leading inflammatory condition drugs increased in 2016, with an average cost per prescription of $3,799.55. Together,

the top two drugs, Enbrel® (etanercept) and Humira® Pen (adalimumab), captured more than 60% of market share for the class. They represented more than 7% of overall specialty market share as well. Additionally, unit costs for each increased by 17% or more in 2016. Biosimilars have been FDA approved for Humira and Enbrel and are expected to hit the market in the next few years. Overall utilization trend was influenced by increased utilization of several drugs, including Humira Pen, Otezla® (apremilast) and Stelara® (ustekinumab).

- Total trend for multiple sclerosis (MS) medications was 6.5%, overwhelmingly due to an increase in unit cost (7.9%). Overall trend was influenced by unit cost increases (ranging between 3.6% and 12.9%) for the top eight most-prescribed medications in the class, which accounted for approximately 93% of spend. Copaxone® (glatiramer), which is the most widely used, had the highest spend in the class. Since its launch in June 2015, Glatopa® (glatiramer), a generic alternative for Copaxone's 20mg/mL dosage form, captured 3.2% of the 2016 MS market share in Medicare.

Together, Enbrel and Humira Pen captured more than 60% of market share for inflammatory conditions.

MAPD

- Among all three Medicare plan types, MAPD plans had the lowest increases in PMPY spend (1.6%) and unit cost (0.1%) in 2016.
- Traditional classes occupied 11 of the top 15 classes ranked by PMPY spend. Trend for eight of the top 15 classes was negative, mostly due to decreased unit costs.
- Depression replaced HIV in the top 15 rankings compared to overall Medicare rankings. Except for the chronic obstructive pulmonary disease (COPD) and heartburn/ulcer disease utilization trends (-1.2% and -0.2%, respectively), all other traditional classes among the top 15 saw a slight to moderate increase in utilization. At 4.7%, anticoagulants had the highest utilization increase among traditional classes.
- Hepatitis C was the only specialty class among the top 15 classes to see a decrease in unit cost (-1.1%), which, when coupled with the large drop in utilization (-24.9%), resulted in a total trend of -26.0%. Except for oncology, all specialty classes in the top 15 saw utilization decreases. Oncology drugs had the largest bump in utilization among the top 15 therapy classes for MAPDs (12.7%).

MAPDs had the lowest increase in PMPY spend among Medicare plan types in 2016.

MAPD: 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	T	Diabetes	$352.53	3.0%	5.5%	**8.5%**
2	S	Oncology	$267.84	12.7%	8.7%	**21.4%**
3	T	High blood pressure/heart disease	$160.63	1.5%	-5.9%	**-4.4%**
4	T	Pain/inflammation	$158.99	1.8%	-6.0%	**-4.2%**
5	T	High blood cholesterol	$138.65	1.5%	-7.3%	**-5.8%**
6	T	Asthma	$111.16	1.5%	-3.7%	**-2.2%**
7	S	Multiple sclerosis	$109.93	-7.7%	8.9%	**1.2%**
8	T	Anticoagulants	$109.50	4.7%	28.1%	**32.8%**
9	T	Mental/neurological disorders	$89.09	2.7%	-21.6%	**-18.9%**
10	S	Inflammatory conditions	$76.78	-0.5%	16.4%	**15.9%**
11	S	Hepatitis C	$71.43	-24.9%	-1.1%	**-26.0%**
12	T	Urinary disorders	$70.60	3.6%	-7.4%	**-3.8%**
13	T	COPD	$69.45	-1.2%	5.2%	**4.0%**
14	T	Heartburn/ulcer disease	$52.70	-0.2%	-7.6%	**-7.8%**
15	T	Depression	$46.19	4.1%	-2.3%	**1.8%**
		TOTAL FOR ALL THERAPY CLASSES	**$2,637.24**	**1.5%**	**0.1%**	**1.6%**

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

PDP

- PDPs had the highest overall PMPY trend increase (4.7%), driven in nearly equal measure by increases in utilization (2.2%) and unit cost (2.5%).
- The top 15 therapy classes accounted for more than 70% of total PMPY spend for PDPs, even though 10 of the classes were traditional.
- Seven of the top 15 therapy classes saw double-digit increases in trend in 2016. PMPY spend for diabetes drugs was nearly double that of the next highest therapy class, oncology.
- Compared to overall Medicare, the seizures class replaced urinary disorder drugs in the top 15 among PDPs. PMPY spend for seizures increased 11.8%, driven by substantial increases in both unit costs (7.9%) and utilization (3.9%).

The top 15 therapy classes accounted for more than 70% of total PMPY spend for PDPs.

PDP: 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	T	Diabetes	$636.99	4.7%	11.5%	16.2%
2	S	Oncology	$365.37	13.3%	8.5%	21.8%
3	T	Mental/neurological disorders	$363.65	2.6%	-13.8%	-11.2%
4	T	Pain/inflammation	$360.00	6.4%	-6.8%	-0.4%
5	T	High blood cholesterol	$258.73	-1.8%	-2.5%	-4.3%
6	T	High blood pressure/heart disease	$236.97	0.4%	-0.8%	-0.4%
7	S	Hepatitis C	$230.49	-26.1%	-1.8%	-27.9%
8	T	Asthma	$226.34	8.6%	4.4%	13.0%
9	S	HIV	$225.42	-3.8%	13.0%	9.2%
10	S	Multiple sclerosis	$211.08	-1.4%	7.5%	6.1%
11	S	Inflammatory conditions	$189.65	20.2%	17.9%	38.1%
12	T	Heartburn/ulcer disease	$167.74	2.6%	-0.6%	2.0%
13	T	Anticoagulants	$134.21	1.2%	31.2%	32.4%
14	T	COPD	$127.16	11.4%	7.1%	18.5%
15	T	Seizures	$107.22	3.9%	7.9%	11.8%
		TOTAL FOR ALL THERAPY CLASSES	$5,448.50	2.2%	2.5%	4.7%

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

EGWP

- Traditional drugs dominated the top 15 therapy classes by spend for EGWPs; only three specialty classes were among the top 15.
- Two traditional classes – depression and ophthalmic conditions – replaced two specialty classes – hepatitis C and HIV – when compared to overall Medicare top 15 classes.
- Two of the top 15 classes – inflammatory conditions and anticoagulants – saw double-digit increases in trend due to increases in unit costs.
- Conversely, two of the top 15 classes – heartburn and ulcer disease, and mental and neurological disorders – had decreases of over 20% in trend, largely due to declining unit costs.

Traditional drugs dominated the top 15 therapy classes by spend for EGWPs.

EGWP: 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	Oncology	$410.84	16.0%	7.9%	**23.9%**
2	T	Diabetes	$393.41	2.0%	4.5%	**6.5%**
3	T	High blood cholesterol	$254.98	-0.2%	1.5%	**1.3%**
4	T	High blood pressure/heart disease	$219.09	0.0%	-6.5%	**-6.5%**
5	S	Inflammatory conditions	$196.87	6.4%	14.7%	**21.1%**
6	T	Pain/inflammation	$183.18	0.8%	-5.6%	**-4.8%**
7	T	Anticoagulants	$146.66	4.7%	24.3%	**29.0%**
8	T	Heartburn/ulcer disease	$121.44	-1.8%	-19.4%	**-21.2%**
9	T	Asthma	$111.49	2.1%	-6.2%	**-4.1%**
10	T	Urinary disorders	$108.09	2.0%	-3.8%	**-1.8%**
11	S	Multiple sclerosis	$95.06	0.9%	6.1%	**7.0%**
12	T	Mental/neurological disorders	$93.96	-0.6%	-22.6%	**-23.2%**
13	T	COPD	$65.34	-1.9%	2.0%	**0.1%**
14	T	Depression	$58.56	3.3%	-6.6%	**-3.3%**
15	T	Ophthalmic conditions	$49.14	0.8%	4.4%	**5.2%**
		TOTAL FOR ALL THERAPY CLASSES	**$3,620.45**	**0.1%**	**2.5%**	**2.6%**

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

Top 10 traditional drugs

All of the top 10 traditional drugs by PMPY spend for Medicare in 2016 were brand medications. Together, they accounted for 20.6% of PMPY spend for all of Medicare's traditional therapy drugs.

Three diabetes treatments – Lantus, Januvia and Humalog KwikPen – were among the 10 most costly traditional therapies for Medicare beneficiaries when ranked by PMPY spend. All three medications had increased trend, with Humalog KwikPen having the highest trend of 21.2%. Together, they captured 7.6% of PMPY spend for all traditional therapy drugs used by Medicare beneficiaries in 2016.

The only two brand drugs in the top 10 that decreased in unit cost trend were Lantus (-4.6%) and Humalog KwikPen (-8.6%). However, utilization increased for both – 7.8% for Lantus and 29.8% for Humalog KwikPen.

MEDICARE: TOP 10 TRADITIONAL 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	$104.68	3.9%	7.8%	-4.6%	**3.2%**
2	Spiriva® (tiotropium)	COPD	$56.42	2.1%	-3.2%	5.8%	**2.6%**
3	Advair Diskus® (fluticasone/salmeterol)	Asthma	$55.19	2.1%	-11.6%	4.0%	**-7.6%**
4	Januvia® (sitagliptin)	Diabetes	$54.61	2.1%	5.0%	1.9%	**6.9%**
5	Xarelto® (rivaroxaban)	Anticoagulants	$53.71	2.0%	10.9%	8.2%	**19.1%**
6	Eliquis® (apixaban)	Anticoagulants	$51.15	1.9%	72.6%	5.7%	**78.3%**
7	Lyrica® (pregabalin)	Pain/inflammation	$50.11	1.9%	3.9%	12.2%	**16.1%**
8	Zetia® (ezetimibe)	High blood cholesterol	$43.69	1.6%	-7.3%	19.1%	**11.8%**
9	Humalog® KwikPen® (insulin lispro)	Diabetes	$42.50	1.6%	29.8%	-8.6%	**21.2%**
10	Crestor® (rosuvastatin)	High blood cholesterol	$38.41	1.4%	-51.7%	17.6%	**-34.1%**

*Per member per year

The oral anticoagulants Eliquis® (apixaban) and Xarelto® (rivaroxaban) had the highest (78.3%) and third-highest total trends (19.1%) among the traditional top 10 drugs. Increases in spending for these drugs were driven largely by 72.6% and 10.9% increases in PMPY utilization, respectively.

Utilization declined significantly for some of the top 10 brands. Spiriva® (tiotropium), a COPD medication, was down by 3.2%; Advair Diskus® (fluticasone propionate/salmeterol), an asthma medication, by 11.6%; and Zetia® (ezetimibe) and Crestor® (rosuvastatin), high blood cholesterol treatments, by 7.3% and 51.7%, respectively. Both Zetia and Crestor faced generic competition in 2016.

MAPD

By PMPY spend, four of the top 10 drugs were for diabetes and two were anticoagulants.

PMPY utilization for the top insulin, Lantus, increased 7.3% in 2016. Another insulin product, NovoLog® FlexPen® (insulin aspart injection), replaced Crestor in the top 10 traditional drugs.

While Eliquis, an oral anticoagulant, had the highest increase in PMPY utilization (87.3%), the highest increase in unit cost (16.1%) was observed for Zetia, a high blood cholesterol medication.

MAPD: TOP 10 TRADITIONAL 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	$87.37	4.5%	7.3%	-8.0%	**-0.7%**
2	Spiriva® (tiotropium)	COPD	$50.01	2.6%	-6.1%	5.8%	**-0.3%**
3	Xarelto® (rivaroxaban)	Anticoagulants	$49.05	2.6%	17.4%	4.7%	**22.1%**
4	Advair Diskus® (fluticasone/salmeterol)	Asthma	$45.61	2.4%	-14.1%	0.6%	**-13.5%**
5	Eliquis® (apixaban)	Anticoagulants	$41.54	2.2%	87.3%	0.6%	**87.9%**
6	Januvia® (sitagliptin)	Diabetes	$41.40	2.2%	6.6%	0.3%	**6.9%**
7	Zetia® (ezetimibe)	High blood cholesterol	$31.26	1.6%	-8.9%	16.1%	**7.2%**
8	NovoLog® FlexPen® (insulin aspart injection)	Diabetes	$29.13	1.5%	6.3%	7.7%	**14.0%**
9	Lyrica® (pregabalin)	Pain/inflammation	$28.88	1.5%	2.4%	11.4%	**13.8%**
10	Humalog® KwikPen® (insulin lispro)	Diabetes	$24.87	1.3%	3.7%	4.9%	**8.6%**

*Per member per year

PDP

Three medications – Nexium® (esomeprazole magnesium), Renvela® (sevelamer carbonate) and Sensipar® (cinacalcet) – replaced Xarelto, Eliquis and Zetia among the top 10 traditional medications when compared to overall Medicare. Nexium is used for treatment of heartburn/ulcer disease; Renvela is used to treat patients with chronic kidney disease (CKD) receiving dialysis, while Sensipar is used for treatment of secondary hyperparathyroidism in adult patients with CKD on dialysis.

Utilization of Nexium decreased 19.1%, dwarfing its unit cost rise of 2.6% to result in a total trend of -16.5%. Renvela captured 56.2% of market share in its class.

All of the top 10 drugs were brands in 2016.

All of the top 10 traditional drugs were brand-name medications in 2016.

PDP: TOP 10 TRADITIONAL 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	$171.99	4.5%	9.8%	-2.4%	**7.4%**
2	Humalog® KwikPen® (insulin lispro)	Diabetes	$93.92	2.4%	14.3%	13.0%	**27.3%**
3	Advair Diskus® (fluticasone/salmeterol)	Asthma	$87.41	2.3%	-12.4%	8.9%	**-3.5%**
4	Januvia® (sitagliptin)	Diabetes	$84.99	2.2%	2.6%	7.5%	**10.1%**
5	Crestor® (rosuvastatin)	High blood cholesterol	$84.33	2.2%	-29.9%	16.4%	**-13.5%**
6	Lyrica® (pregabalin)	Pain/inflammation	$84.28	2.2%	3.3%	13.6%	**16.9%**
7	Spiriva® (tiotropium)	COPD	$82.45	2.1%	3.1%	6.8%	**9.9%**
8	Nexium® (esomeprazole magnesium)	Heartburn/ulcer disease	$67.06	1.7%	-19.1%	2.6%	**-16.5%**
9	Renvela® (sevelamer carbonate)	Kidney disease	$64.54	1.7%	-0.7%	16.1%	**15.4%**
10	Sensipar® (cinacalcet)	Endocrine disorders	$60.74	1.6%	12.1%	21.4%	**33.5%**

*Per member per year

EGWP

In 2016, the top 10 medications accounted for 20.4% of the total traditional spend.

Two generic medications replaced brand medications among the top 10 rankings.

At $56.43, esomeprazole magnesium, the generic for Nexium, ranked number four by PMPY spend. The high cholesterol medication rosuvastatin, the generic for Crestor, which launched in May 2016, ranked ninth by PMPY spend.

Together, the two generics in the top 10 contributed 3.9% of the total traditional PMPY spend, with unit cost for esomeprazole declining by 44.5% in 2016.

The top 10 medications accounted for 20.4% of total traditional drug spend.

EGWP: TOP 10 TRADITIONAL 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	$74.65	2.9%	2.5%	-7.0%	**-4.5%**
2	Eliquis® (apixaban)	Anticoagulants	$61.24	2.3%	67.1%	2.0%	**69.1%**
3	Xarelto® (rivaroxaban)	Anticoagulants	$57.79	2.2%	8.7%	9.0%	**17.7%**
4	esomeprazole magnesium	Heartburn/ulcer Disease	$56.43	2.2%	9.4%	-44.5%	**-35.1%**
5	Zetia® (ezetimibe)	High blood cholesterol	$54.55	2.1%	-5.3%	20.7%	**15.4%**
6	Lyrica® (pregabalin)	Pain/inflammation	$49.43	1.9%	1.9%	10.1%	**12.0%**
7	Januvia® (sitagliptin)	Diabetes	$47.37	1.8%	5.1%	-6.1%	**-1.0%**
8	Spiriva® (tiotropium)	COPD	$44.46	1.7%	-7.7%	1.6%	**-6.1%**
9	rosuvastatin	High blood cholesterol	$44.18	1.7%	–	–	**–**
10	Advair Diskus® (fluticasone/salmeterol)	Asthma	$42.33	1.6%	-10.1%	-0.6%	**-10.7%**

*Per member per year

Top 10 specialty drugs

The top 10 specialty drugs accounted for 37.7% of PMPY spend for all Medicare specialty drugs in 2016. They represented only four therapy classes – five oncology drugs, two for inflammatory conditions, two for MS and one for hepatitis C. Together, the five oncology medications in the top 10 contributed 17.1% of Medicare specialty drug spend.

Harvoni® (ledipasvir/sofosbuvir) was the only specialty drug in the top 10 that decreased in both PMPY utilization (-35.1%) and unit cost (-3.3%), to result in a total trend of -38.4% in 2016. Despite its decline, Harvoni alone contributed 6.2% of all Medicare specialty drug spend in 2016.

Increased spending for Enbrel and Humira Pen was mainly driven by unit cost increases of 21.0% and 17.0%, respectively. Finally, while total trend for Copaxone declined (-6.3%), Tecfidera saw an increase of 7.5% in 2016.

MEDICARE: TOP 10 SPECIALTY DRUGS

RANKED BY 2016 PMPY* SPEND

					TREND		
RANK	DRUG NAME	THERAPY CLASS	PMPY SPEND	% OF TOTAL SPECIALTY SPEND	UTILIZATION	UNIT COST	TOTAL
1	Revlimid® (lenalidomide)	Oncology	$72.41	7.0%	11.3%	10.0%	**21.3%**
2	Harvoni® (ledipasvir/sofosbuvir)	Hepatitis C	$64.48	6.2%	-35.1%	-3.3%	**-38.4%**
3	Enbrel® (etanercept)	Inflammatory conditions	$49.47	4.8%	-3.6%	21.0%	**17.4%**
4	Humira® Pen (adalimumab)	Inflammatory conditions	$40.69	3.9%	3.5%	17.0%	**20.5%**
5	Copaxone® (glatiramer)	Multiple sclerosis	$32.94	3.2%	-9.9%	3.6%	**-6.3%**
6	Imbruvica® (ibrutinib)	Oncology	$28.72	2.8%	41.1%	6.4%	**47.5%**
7	Ibrance® (palbociclib)	Oncology	$28.03	2.7%	220.1%	6.3%	**226.4%**
8	Tecfidera® (dimethyl fumarate)	Multiple sclerosis	$25.77	2.5%	-4.4%	11.9%	**7.5%**
9	Xtandi® (enzalutamide)	Oncology	$25.41	2.4%	10.7%	1.8%	**12.5%**
10	Zytiga® (abiraterone)	Oncology	$23.33	2.2%	-4.7%	7.6%	**2.9%**

*Per member per year

MAPD

Avonex® (interferon beta-1a), an MS medication, replaced Zytiga in the top 10 drugs by PMPY spend.

A decrease in utilization (-37.5%) and unit cost (-1.6%) for Harvoni resulted in the only double-digit negative trend (-39.1%) for a top 10 specialty medication.

Use of several oncology medications is higher for MAPD beneficiaries, as seen in high utilization trends for Revlimid (13.4%), Imbruvica (51.8%) and Ibrance (234.4%).

Total trend for both Enbrel (1.9%) and Humira Pen (12.6%) was lowest among the three Medicare plan types.

Use of several oncology medications is higher for MAPD beneficiaries as seen in high utilization trends for Revlimid, Imbruvica and Ibrance.

MAPD: TOP 10 SPECIALTY DRUGS

RANKED BY 2016 PMPY* SPEND

					TREND		
RANK	DRUG NAME	THERAPY CLASS	PMPY SPEND	% OF TOTAL SPECIALTY SPEND	UTILIZATION	UNIT COST	TOTAL
1	Revlimid® (lenalidomide)	Oncology	$56.00	7.8%	13.4%	11.1%	**24.5%**
2	Harvoni® (ledipasvir/sofosbuvir)	Hepatitis C	$46.90	6.6%	-37.5%	-1.6%	**-39.1%**
3	Copaxone® (glatiramer)	Multiple sclerosis	$28.84	4.0%	-9.5%	5.8%	**-3.7%**
4	Imbruvica® (ibrutinib)	Oncology	$24.13	3.4%	51.8%	5.7%	**57.5%**
5	Enbrel® (etanercept)	Inflammatory conditions	$24.00	3.4%	-15.7%	17.6%	**1.9%**
6	Humira® Pen (adalimumab)	Inflammatory conditions	$23.55	3.3%	-4.7%	17.3%	**12.6%**
7	Ibrance® (palbociclib)	Oncology	$22.41	3.1%	234.4%	7.6%	**242.0%**
8	Xtandi® (enzalutamide)	Oncology	$21.36	3.0%	1.2%	1.9%	**3.1%**
9	Tecfidera® (dimethyl fumarate)	Multiple sclerosis	$21.35	3.0%	-16.4%	11.5%	**-4.9%**
10	Avonex® (interferon beta-1a)	Multiple sclerosis	$19.01	2.7%	-11.9%	10.6%	**-1.3%**

*Per member per year

PDP

Sovaldi® (sofosbuvir), H.P. Acthar® Gel (repository corticotropin) and Truvada® (emtricitabine/tenofovir disoproxil fumarate) replaced three oncology medications – Imbruvica, Xtandi and Zytiga – in the top 10 rankings by PMPY spend.

Two hepatitis C medications – Harvoni and Sovaldi – decreased in PMPY utilization, unit costs and total spend.

H.P. Acthar, a product with multiple indications, declined in unit costs by 4.8%. However, due to a large 14.8% increase in PMPY utilization, it had a 10.0% total trend.

Truvada was the only HIV medication to rank among the top 10 medications. Its trend was -7.7% as a result of a 12.7% decrease in utilization and a 5.0% increase in unit costs. Similar to its trend in MAPD plans, Ibrance had the highest increase in utilization (232.9%) and overall trend (240.7%) for PDPs among the top 10 specialty drugs.

Truvada was the only HIV medication to rank among the top 10 specialty drugs for PDPs

PDP: TOP 10 SPECIALTY DRUGS

RANKED BY 2016 PMPY* SPEND

					TREND		
RANK	DRUG NAME	THERAPY CLASS	PMPY SPEND	% OF TOTAL SPECIALTY SPEND	UTILIZATION	UNIT COST	TOTAL
1	Harvoni® (ledipasvir/sofosbuvir)	Hepatitis C	$151.87	9.6%	-35.8%	-1.9%	**-37.7%**
2	Revlimid® (lenalidomide)	Oncology	$76.30	4.8%	9.1%	10.8%	**19.9%**
3	Enbrel® (etanercept)	Inflammatory conditions	$64.22	4.1%	9.1%	22.5%	**31.6%**
4	Copaxone® (glatiramer)	Multiple sclerosis	$50.43	3.2%	-14.0%	3.0%	**-11.0%**
5	Humira® Pen (adalimumab)	Inflammatory conditions	$49.48	3.1%	17.5%	21.8%	**39.3%**
6	Tecfidera® (dimethyl fumarate)	Multiple sclerosis	$48.05	3.0%	5.7%	11.8%	**17.5%**
7	Ibrance® (palbociclib)	Oncology	$34.09	2.2%	232.9%	7.8%	**240.7%**
8	H.P. Acthar® Gel (repository corticotropin)	Central nervous system (CNS)/autonomic disorders	$31.65	2.0%	14.8%	-4.8%	**10.0%**
9	Sovaldi® (sofosbuvir)	Hepatitis C	$31.20	2.0%	-21.5%	-1.7%	**-23.2%**
10	Truvada® (emtricitabine/tenofovir disoproxil fumarate)	HIV	$29.56	1.9%	-12.7%	5.0%	**-7.7%**

*Per member per year

EGWP

The top 10 medications accounted for 41.6% of the total specialty spend.

Forteo® (teriparatide) and imatinib replaced Harvoni and Tecfidera among the top 10 rankings.

Forteo, an injection used for the treatment of osteoporosis, had a PMPY spend of $25.90 and a total trend of 16.7%, mainly from a 15.6% unit cost increase.

Imatinib, launched in February 2016 as a generic for the oncology drug Gleevec®, is the only generic medication that ranked in the top 10 by PMPY spend ($27.44).

Forteo had a total trend of 16.7%, influenced mainly by a 15.6% unit cost increase.

EGWP: TOP 10 SPECIALTY DRUGS

RANKED BY 2016 PMPY* SPEND

					TREND		
RANK	DRUG NAME	THERAPY CLASS	PMPY SPEND	% OF TOTAL SPECIALTY SPEND	UTILIZATION	UNIT COST	TOTAL
1	Revlimid® (lenalidomide)	Oncology	$88.72	8.8%	11.8%	8.9%	**20.7%**
2	Enbrel® (etanercept)	Inflammatory conditions	$68.28	6.8%	-4.1%	20.9%	**16.8%**
3	Humira® Pen (adalimumab)	Inflammatory conditions	$54.19	5.4%	2.4%	13.1%	**15.5%**
4	Imbruvica® (ibrutinib)	Oncology	$34.39	3.4%	37.2%	7.1%	**44.3%**
5	Xtandi® (enzalutamide)	Oncology	$34.12	3.4%	30.9%	2.4%	**33.3%**
6	Zytiga® (abiraterone)	Oncology	$30.83	3.1%	-3.2%	7.8%	**4.6%**
7	Ibrance® (palbociclib)	Oncology	$30.10	3.0%	197.8%	5.1%	**202.9%**
8	imatinib	Oncology	$27.44	2.7%	–	–	**–**
9	Forteo® (teriparatide)	Osteoporosis	$25.90	2.6%	1.1%	15.6%	**16.7%**
10	Copaxone® (glatiramer)	Multiple sclerosis	$24.67	2.4%	-9.5%	1.0%	**-8.5%**

*Per member per year

Trend comparison for Medicare and commercial populations

- The 4.1% overall increase in prescription drug spending for Medicare plans was slightly higher than the 3.8% trend for commercial plans.
- Medicare spending ($3,694.09) was more than triple that of commercial plans ($1,078.04).
- Medicare members had an average of 56.0 prescriptions PMPY while commercial members averaged only 13.8 PMPY.These stark differences in drug spend and prescriptions highlight the challenges of supporting an older, often sicker Medicare population.
- Trend for each of the top 15 classes moved in the same direction for both populations, except for medications used to treat pain/inflammation and COPD.
- Pain/inflammation trend for Medicare decreased by 1.3% but increased 1.5% for commercial plans. Trend for COPD increased by 9.3% for Medicare but decreased by 5.1% for commercial plans.
- Medicare trend was moderately lower than commercial trend for five classes – diabetes, pain and inflammation, inflammatory conditions, urinary disorders and HIV.

MEDICARE VS. COMMERCIAL: COMPONENTS OF TREND FOR TOP 15 MEDICARE THERAPY CLASSES

RANKED BY 2016 PMPY* SPEND

			MEDICARE		COMMERCIAL	
RANK	TYPE	THERAPY CLASS	PMPY SPEND	TOTAL TREND	PMPY SPEND	TOTAL TREND
1	T	Diabetes	$439.39	11.6%	$108.80	19.4%
2	S	Oncology	$341.81	22.3%	$60.70	21.5%
3	T	Pain/inflammation	$218.76	-1.3%	$51.64	1.5%
4	T	High blood cholesterol	$209.26	-2.2%	$38.45	-7.4%
5	T	High blood pressure/heart disease	$200.21	-4.0%	$34.52	-9.1%
6	T	Mental/neurological disorders	$161.08	-12.9%	$18.38	-28.8%
7	S	Inflammatory conditions	$146.83	24.6%	$118.21	26.4%
8	T	Asthma	$140.78	4.3%	$30.42	0.7%
9	S	Multiple sclerosis	$130.74	6.5%	$58.63	6.1%
10	T	Anticoagulants	$128.56	30.9%	$11.80	27.6%
11	T	Heartburn/ulcer disease	$105.72	-10.0%	$20.93	-24.0%
12	S	Hepatitis C	$99.99	-27.2%	$25.26	-34.0%
13	T	Urinary disorders	$88.38	-4.0%	$10.21	-1.8%
14	T	Chronic obstructive pulmonary disease (COPD)	$82.82	9.3%	$6.40	-5.1%
15	S	HIV	$78.43	15.8%	$39.92	21.7%
		TOTAL FOR ALL THERAPY CLASSES	$3,694.09	4.1%	$1,078.04	3.8%

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

- The biggest differences in trend for the two populations were seen for mental and neurological disorders (-12.9% for Medicare vs. -28.8% for commercial) and heartburn and ulcer disease (-10.0% vs. -24.0%).
- The decline in spend for high blood cholesterol medications was less for Medicare plans (-2.2%) than for commercial plans (-7.4%). However, trend for asthma medications among Medicare beneficiaries (4.3%) was more than that for commercially insured patients (0.7%).
- Specialty class trends for Medicare plans were consistent with those for commercial plans. Both had double-digit trend for three of the five specialty classes – oncology, inflammatory conditions and HIV.
- The only specialty class trend decrease among the top 15 classes for both Medicare and commercial plans was hepatitis C (-27.2% and -34.0%, respectively).
- With the exceptions of HIV and inflammatory conditions, all of the specialty classes in the top 15 had higher trend for Medicare than for commercial, due to the higher prevalence of the conditions those medications treat among older adults.
- CMS regulations that inhibit Medicare plan sponsors from implementing programs that might affect trend to a greater degree may also have played a role in the higher Medicare trend.

The biggest differences in trend for the two populations were seen in mental/neurological disorders and heartburn/ulcer disease.

MEDICARE

Methodology

Methodology

Prescription drug use data for Medicare members with drug coverage provided by Express Scripts plan sponsors[11] was analyzed for the 2016 Drug Trend Report. The Medicare plan sponsors providing the pharmacy benefit paid at least some portion of the cost for the prescriptions dispensed to their members, providing what is 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; and limited distribution and specialized handling or administration. Nonprescription medications (with the exception of medical 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 members with coverage for Medicare beneficiaries. Medicare beneficiaries included in this analysis received their prescription benefits from the following plan types: Medicare Advantage Prescription Drug plans (MAPDs), Prescription Drug Plans (PDPs) or Employer Group Waiver Plans (EGWPs).

Total trend measures the rate of change in gross costs, which include ingredient costs, taxes, dispensing fees and administrative fees. Gross cost includes 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.

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.

[11] 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 or home delivery-only benefits, if they had 100% or 0% copayment benefits, if they had eligibility shifts exceeding 50% 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.

Medicaid

MEDICAID

Introduction

Keeping care affordable for the most vulnerable

Last year, when we published our Medicaid Drug Trend report, we were fresh off celebrating the 50th anniversary of the Medicaid and Medicare programs. This year, we saw significant pieces of federal Medicaid regulation, which was absent in previous years. Although we normally see a number of regulatory and legislative changes in state Medicaid programs, 2016 was a year of more intense federal focus on Medicaid, specifically on managed care regulations.

Through the Covered Outpatient Drugs Final Rule, the Centers for Medicare & Medicaid Services (CMS), defined Average Manufacturer Price (AMP), which affects the calculation of Medicaid drug rebates – which in turn affects both fee-for-service (FFS) and managed Medicaid claims.[1] In addition, the regulation also shifted FFS reimbursement away from estimated acquisition cost (EAC) methodologies to average acquisition cost (AAC) reimbursement methodologies. While this regulation was designed for FFS programs, we note a few states requiring such methodologies for managed Medicaid claims – signaling a shift away from more traditional pharmacy reimbursement approaches using average wholesale price (AWP).

A major source of federal regulatory change was CMS' release of the Medicaid Managed Care, CHIP Delivered in Managed Care, and Revisions Related to Third Party Liability Rule, often referred to as the Medicaid Mega Rule or Medicaid Managed Care Oversight Rule.[2] The release of this regulation was significant because managed Medicaid regulations had not been updated since 2002 and it gave CMS an opportunity to align requirements between managed Medicaid programs and other federally-regulated programs, such as Qualified Health Plans and Medicare Advantage plans.

While these federal regulatory changes are important to note, their effects may not be immediately seen as some portions of the regulations do not take effect until mid to late 2018. Within the Medicaid landscape, we know that a good indicator of current and future market dynamics can be observed by watching legislation introduced at the state level – whether successful or not.

[1] Medicaid Program; Covered Outpatient Drugs; Final Rule. 81 Federal Register 20 (1 February 2016), pp 5170-5357.
[2] Medicaid and Children's Health Insurance Program (CHIP) Programs; Medicaid Managed Care, CHIP Delivered in Managed Care, and Revisions Related to Third Party Liability; Final Rule. Federal Register 81 (6 May 2016) 88, pp 27498-27901.

In 2016, we saw two key areas of focus – opioids and formulary management – both of which play an important role in effective management of Medicaid drug spend.

Opioids continue to generate significant focus within the Medicaid population as research shows Medicaid enrollees are prescribed opioids twice as often as those with private health insurance and that opioid-related deaths are estimated to be 10 times higher in Medicaid than in non-Medicaid populations.[3,4] Despite most Medicaid programs and Medicaid managed care plans having restricted recipient, or lock-in, programs to help try and curb opioid abuse, the pain and inflammation therapy class remains the seventh highest therapy class for Medicaid spend at $59.32 per member per year. Growing concern about how to encourage appropriate prescribing and manage abuse led many states to introduce legislation regarding prescribing guidelines, the quantity of an opioid medication dispensed, and the method for issuing prescriptions for opioids, with an increased focus on electronic prescribing of such medications.

In an increasing effort to maximize Medicaid rebates, we saw a number of states implement or consider state-mandated formularies for their Medicaid managed care programs. With such requirements, managed Medicaid plans are required to follow the state FFS formulary and are prohibited from collecting supplemental rebates, thereby removing two effective tools for pharmacy benefit management from the Medicaid health plan toolkit. While touted as an improvement in provider administrative simplification and a cost savings, Express Scripts research shows that moving to a state-managed preferred drug list (PDL) significantly lowers the generic dispensing rate and increases health plan costs.[5] In addition, such actions cause considerable concern about the timely and adequate adjustment in capitation rates for managed Medicaid plans as rising drug expenditures may not be adequately offset by adjustments in their capitation payments.

In addition to regulatory and legislative changes, we continue to see states move more Medicaid populations to managed care, specifically members that require more complicated care, such as those with intellectual or development disabilities. With such complex populations moving to managed care, it's more important than ever for Medicaid plans to focus on effective utilization management and innovative solutions to dealing with common problems like adherence, refilling medication on time, and utilizing the most appropriate and cost effective care settings. These things will become critically important if per capita caps or block grants are utilized within Medicaid reform efforts being considered with the new Administration.

We are proud of the work we do to support our Medicaid health plans – most importantly, holding drug trend to just 5.5%. Our work is not done though; while we saw decreases in specialty medication usage – primarily driven by significant decreases in HIV and hepatitis C medication utilization – we continue to see unit cost increase, both in traditional and specialty therapy classes. In addition, there is always room for improvement in the main Medicaid disease states of diabetes, asthma, and mental/neurological disorders. As we await impending changes to the Medicaid program – whether through the Medicaid Mega Rule or through the use of per capita caps or block grants – diligence in managing the pharmacy benefit is our primary concern. We know our Medicaid health plans count on us for creative solutions to help manage the pharmacy benefit and we eagerly accept the challenge.

Peggy Finn
Vice President, Medicaid
Express Scripts

[3] Waxhino V. Best practices for addressing prescription opioid overdoses, misuse and addiction. CMCS Informational Bulletin. Center for Medicaid and CHIP Services. https://www.medicaid.gov/federal-policy-guidance/downloads/cib-02-02-16.pdf. Jan. 28, 2016. Accessed Feb. 2, 2017.

[4] Centers for Disease Control and Prevention (CDC). Overdose deaths involving prescription opioids among Medicaid enrollees - Washington, 2004-2007. MMWR Morb Mortal Wkly Rep. 2009 Oct 30;58(42):1171-5.

[5] Munshi K, Mager D, Ward K, Mischel B, Henderson R. Does Florida Medicaid's state-mandated formulary provision influence prescription drug utilization and costs? Abstract U23. J Manag Care Pharm. 2016;22(10-a):S92. http://www.jmcp.org/doi/pdf/10.18553/jmcp.2016.22.10-a.s1. Accessed Feb. 2, 2017.

MEDICAID

Trend analysis

Looking at drug spending in 2016

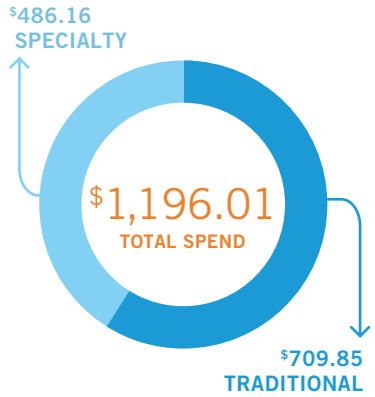
- In 2016, per-member-per-year (PMPY) spend for Medicaid was $1,196.01, an increase of 5.5% over 2015, as evaluated across the Medicaid beneficiary data examined in this report.
- The rise in spending was mainly attributed to a 4.3% increase in the unit cost of drugs – 3.5% for traditional medications and 12.8% for specialty medications – along with a 1.2% bump in drug utilization.
- Overall spending on traditional medications rose 4.8% in 2016, primarily due to the jump in unit cost, although there was a slight 1.3% increase in utilization.
- The overall 6.6% specialty medication spend increase was due predominantly to the double-digit bump in unit cost, which offset a 6.2% decline in utilization.
- Medicaid health plans continued to implement a diverse set of benefit design, utilization management and formulary administration techniques to contain utilization and costs which had an impact on overall and Medicaid enrollment category trends.

Drug spending for Medicaid rose 5.5%, driven mainly by an increase in unit cost.

Click here for details

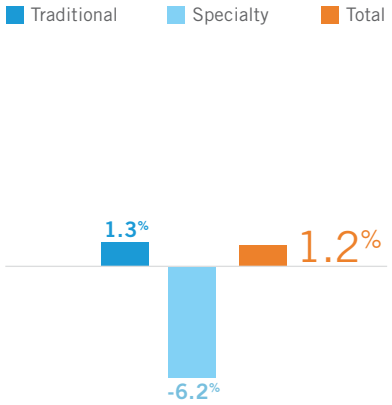
PMPY* SPEND

2016



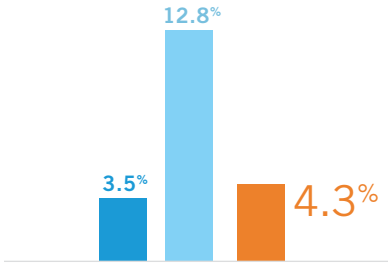
UTILIZATION TREND

2016



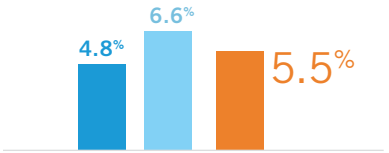
UNIT COST TREND

2016



TOTAL TREND

2016



January-December 2016 compared to same period in 2015 for Medicaid members with drug coverage provided by Express Scripts plan sponsors. Reflects total cost for both payers and patients, net of rebates.
*Per member per year

MEDICAID ENROLLMENT CATEGORIES

Our insights and observations are organized around the following enrollment categories within our Medicaid book of business:

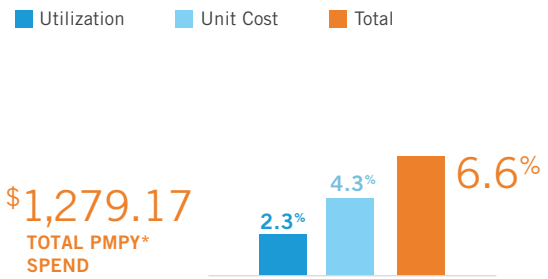
- **Temporary Assistance for Needy Families (TANF) –** all TANF members and similar populations including, but not limited to, pregnant women, foster children, the homeless and ACA Medicaid Expansion members
- **Children's Health Insurance Program (CHIP) –** stand-alone or separate CHIP plans, as well as Medicaid extension CHIP programs
- **Aged, Blind and Disabled (ABD) –** all ABD members or members classified as long-term care (LTC) members

Dual-eligible beneficiaries are excluded as their drug benefits are managed mainly by Medicare Part D drug plans and most of the pharmacy spend is absorbed by those plans.

- PMPY spend was highest for TANF recipients ($1,279.17) – higher than the overall Medicaid PMPY spend of $1,196.01 – and up 6.6% from 2015, driven primarily by increases in unit costs.
- Drug spend for our CHIP population declined 1.3%, driven by a 4.6% drop in drug utilization.
- ABD members had the highest increase in drug spend (8.4%), driven by increases in both utilization (3.5%) and unit cost (4.9%) that topped all Medicaid enrollment categories. The high utilization trend for ABD members was not unexpected as most beneficiaries have multiple comorbidities that typically result in high healthcare spending.

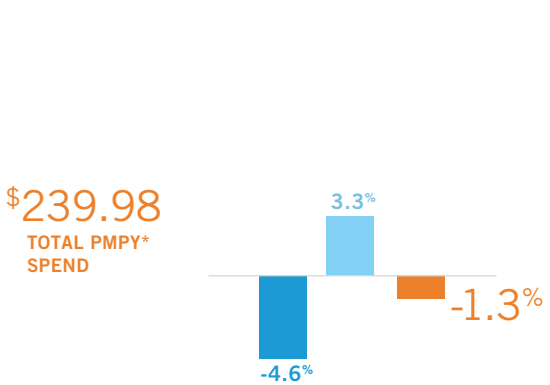
TANF: COMPONENTS OF TREND

2016



CHIP: COMPONENTS OF TREND

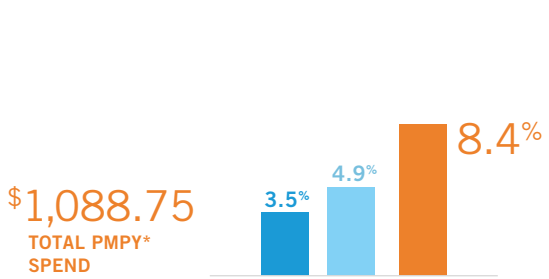
2016



ABD: COMPONENTS OF TREND

Click here for details

2016



January-December 2016 compared to same period in 2015 for Medicaid members with drug coverage provided by Express Scripts plan sponsors. Reflects total cost for both payers and patients, net of rebates.
*Per member per year

MEDICAID

Therapy class review

Top 15 therapy classes and insights

- When ranked by PMPY spend, the top 15 drug therapy classes, including traditional and specialty, contributed 73.4% of the total overall drug spend among Medicaid beneficiaries.
- HIV and diabetes medications, the top two therapy classes by spend, accounted for 27.6% of total Medicaid drug spend.
- Three of the top 15 therapy classes had decreases in spending in 2016, with medications used to treat mental/neurological disorders experiencing the largest decrease of 21.6%.

The top 15 drug therapy classes contributed 73.4% of the total overall drug spend.

MEDICAID: 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	HIV	$197.07	-11.5%	16.0%	4.5%
2	T	Diabetes	$133.07	3.2%	13.2%	16.4%
3	T	Asthma	$70.28	-0.5%	8.2%	7.7%
4	S	Hepatitis C	$65.14	-20.1%	0.1%	-20.0%
5	S	Inflammatory conditions	$63.87	15.0%	24.0%	39.0%
6	T	Mental/neurological disorders	$63.41	-1.6%	-20.0%	-21.6%
7	T	Pain/inflammation	$59.32	-0.6%	4.5%	3.9%
8	T	Attention disorders	$54.82	4.2%	2.3%	6.5%
9	S	Oncology	$40.70	6.9%	15.8%	22.7%
10	S	Multiple sclerosis	$34.34	2.8%	10.9%	13.7%
11	T	Seizures	$25.70	2.1%	12.4%	14.5%
12	T	Chemical dependence	$21.09	10.3%	0.5%	10.8%
13	T	Chronic obstructive pulmonary disease (COPD)	$16.81	0.2%	6.8%	7.0%
14	T	Infections	$16.36	-2.0%	-9.4%	-11.4%
15	T	High blood pressure/heart disease	$16.07	1.9%	0.5%	2.4%
		TOTAL FOR ALL THERAPY CLASSES	$1,196.01	1.2%	4.3%	5.5%

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

HIGHLIGHTS

- **For the second year, PMPY spend for HIV treatments ($197.07) topped all other therapy classes.** Despite a utilization trend of -11.5%, unit cost increases of 16.0% resulted in a 4.5% trend for HIV. Brand medications continued to dominate this class, comprising the top 17 drugs by market share. Despite a few upcoming patent expirations, the HIV drug pipeline is being replenished with newer drugs that tackle the continuously mutating virus strains, offer broader control or produce fewer side effects.
- Truvada® (emtricitabine/tenofovir disoproxil fumarate) had the highest PMPY drug spend ($31.99) in the HIV class, followed by Stribild® (cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil fumarate) at $19.36 and Atripla® (efavirenz/emtricitabine/tenofovir disoproxil fumarate) at $18.77. The only drug approved by the U.S. Food and Drug Administration (FDA) for pre-exposure prophylaxis (PrEP), Truvada also had the highest market share, with 16.6% of all HIV drug claims among Medicaid members. **Recently approved drugs containing the improved chemical form, tenofovir alafenamide, are expected to replace some of the established HIV drugs that contain an older chemical compound, tenofovir disoproxil fumarate.** They include Vemlidy® (tenofovir alafenamide) replacing the single agent Viread® (tenofovir disoproxil fumarate), Odefsey® (emtricitabine/rilpivirine/tenofovir alafenamide) succeeding Complera® (emtricitabine/rilpivirine/tenofovir disoproxil fumarate), Genvoya® (cobicistat/elvitegravir/emtricitabine/tenofovir alafenamide) replacing Stribild, and Descovy® (emtricitabine/tenofovir alafenamide) for Truvada.
- For the fourth year in a row, diabetes drugs had the highest PMPY spend ($133.07) of all traditional therapy classes among Medicaid beneficiaries. **The 16.4% total trend for diabetes was attributed mainly to a 13.2% jump in unit cost coupled with a healthy 3.2% rise in utilization.** Continued brand inflation for insulins, such as Humalog® (insulin lispro) and NovoLog® FlexPen® (insulin aspart), was a big contributor. Although metformin was the most widely used diabetes drug, Lantus® (insulin glargine) continued to have the highest PMPY spend in Medicaid ($33.96). However, the unit cost trend for Lantus was only 0.6% in 2016; with most of its rise in spend resulting from a 4.3% increase in utilization. Launched in December 2016, Basaglar® (insulin glargine), the first follow-on, long-acting insulin, is expected to add further pricing pressure on Lantus moving forward.
- **Asthma was among the top three therapy classes, although PMPY spending of $70.28 was well below that for the top two classes.** Spending was up 7.7% from 2015, primarily due to an 8.2% rise in unit cost. Advair Diskus® (fluticasone/salmeterol) had the highest PMPY drug spend for an asthma drug at $17.06, followed by $11.41 for Ventolin® HFA (albuterol sulfate) and $10.12 for Symbicort® (budesonide/formoterol). Each of these drugs also had unit cost trends over 9.0% in 2016, with Ventolin HFA having the highest of the three at 14.2%. Ventolin HFA was also the most utilized drug, with its 30.7% share of the Medicaid asthma market nearly double that of the next most utilized asthma drug, montelukast (18.6%), the generic form of Singulair®. Over the past two years, several asthma drugs gained approvals for expanded indications, which affected trend. In 2016, both ProAir® RespiClick® (albuterol) powder and Xolair® (omalizumab) got expanded indications for pediatric use, while Breo® Ellipta® (fluticasone/vilanterol) and Spiriva® Respimat® (tiotropium bromide) were newly approved for adult asthma in 2015.
- **PMPY spend for hepatitis C ($65.14) continued to decline for the second straight year.** Its 20.0% decrease was influenced heavily by a 20.1% drop in utilization. Harvoni® (ledipasvir/sofosbuvir) still dominated the Medicaid hepatitis C market with the highest market share (31.5%) and highest PMPY spend ($28.82). Sovaldi® (sofosbuvir) and Viekira Pak™ (ombitasvir/paritaprevir/ritonavir; with dasabuvir) were a distant second and third at $10.43 and $7.78 PMPY, respectively. Increased pressure from CMS to allow broad access for these medications for state Medicaid enrollees caused a number of states to instruct plans to ease clinical coverage requirements. Despite factors that should seemingly drive up utilization, the 20.1% decline may be due to decreased demand for treatment after the initial wave of patients was cured.

For the fourth year in a row, diabetes drugs had the highest PMPY spend of all traditional therapy classes.

- Spend for inflammatory conditions drugs surged by 39.0%, the highest trend among the top 15 Medicaid therapy classes. **This rise was boosted by a utilization increase of 15.0% and unit cost jump of 24.0%, due to both utilization and unit cost increases for anti-inflammatory drugs,** such as Humira Pen® (adalimumab), Enbrel® (etanercept) and Otezla® (apremilast). Otezla, one of the newest drugs to be approved for treatment of psoriasis and psoriatic arthritis, was the fastest growing drug in this class with large increases in both utilization (77.2%) and unit cost (32.4%) in 2016.
- The largest drop in total trend, -21.6% for mental and neurological disorder therapies, resulted from a 20.0% decline in unit cost. Despite its April 2015 launch, the generic form of Abilify® (aripiprazole) had the highest 2016 PMPY spend ($19.64) whereas quetiapine, the generic of Seroquel®, held the highest Medicaid market share (23.5%) in this therapy class. Together, the two generics accounted for nearly 39% of all mental/neurological disorders prescriptions in Medicaid. **Large declines in unit cost trends for aripiprazole (-56.7%) and quetiapine (-30.3%) contributed greatly to the lower overall 2016 trend for this therapy class.**
- In 2016, medications for pain and inflammation had a PMPY spend of $59.32, which was up by 3.9% and was largely influenced by a unit cost increase of 4.5%. **Generics continued to dominate this class, with the top 14 drugs by market share all being generics and comprising 88.0% of all prescriptions.** Nonetheless, the brand drug, Lyrica® (pregabalin) had the highest spend at $10.01. Newer brand opioids, which are focused on abuse-deterrent formulations and are much more expensive, have not significantly affected costs because they have limited coverage among Medicaid formularies.
- Drugs to treat attention disorders had the fifth-highest spend ($54.82) among traditional therapy classes in Medicaid. The 6.5% total trend in spending resulted mostly from a 4.2% rise in drug utilization. While two generics, methylphenidate and dextroamphetamine/amphetamine, comprise more than half of the market share for this therapy class, the brand drug Vyvanse® (lisdexamfetamine) continued to have double-digit increases in both utilization (15.4%) and unit cost (13.2%) in 2016. **Vyvanse gained an additional FDA approval in January 2015 for treatment of binge eating disorders, which could also be responsible for some of its increased utilization.**[6,7]
- In 2016, PMPY spend for oncology medications increased by 22.7% to $40.70 for the Medicaid population. Positive trends of 6.9% in utilization and 15.8% in unit cost led to the overall increase in trend. **Brand drugs continue to dominate this class, comprising 78.8% of all oncology prescriptions and 88.9% of oncology drug spend, despite the launch of generic Gleevec® (imatinib) in February 2016.** Revlimid® (lenalidomide), an oral therapy used to treat multiple myeloma, had the highest PMPY spend ($4.18), while Lupron Depot® (leuprolide), used in the treatment of prostate cancer, had the highest market share (10.3%) in this therapy class. The immuno-oncology (I-O) drug, Opdivo® (nivolumab), which treats certain types of skin and non-small cell lung cancers while also having a number of other indications, had a total trend increase of over 200%, boosted by a jump in utilization that surpassed 270%. The generic form of Gleevec (imatinib) captured a significant portion of the class market share from its brand counterpart (3.8% vs. 2.2%) to rank third among oncology drugs with the highest PMPY spend in the Medicaid population ($2.37).
- Spending on multiple sclerosis (MS) medications trended upward by 13.7%, mainly from a unit cost increase of 10.9%. Due to growth in both its utilization (7.8%) and unit cost (12.3%), Tecfidera® (dimethyl fumarate) displaced Copaxone® (glatiramer) as the MS drug most widely

Spend for inflammatory conditions surged by 39.0%, the highest trend for the top 15 Medicaid therapy classes.

[6] U.S. Food and Drug Administration. FDA expands uses of Vyvanse to treat binge-eating disorder. http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm432543.htm. Jan. 30, 2015. Accessed Jan. 24, 2017.

[7] Roland D. Shire posts first-quarter profit, revenue growth. The Wall Street Journal. http://www.wsj.com/articles/shire-sees-first-quarter-profit-and-revenue-climb-1461933449. Apr. 29, 2016. Accessed Jan. 24, 2017.

used by Medicaid members. It also had the highest PMPY spend ($9.64) for the class. Tecfidera, an oral twice-a-day capsule and the only drug approved in its subclass, offers convenience over injectable MS drugs, such as Copaxone. Launched in June 2015, Glatopa™, a generic alternative for Copaxone's 20 mg/mL strength, is gaining market share, with utilization increasing by more than 198% in 2016. The longer-acting, 40 mg/mL form of Copaxone does not yet have generic competition.

- **The 10.3% increase in utilization for the chemical dependence therapy class was not surprising, as substance abuse disorders are prevalent in the Medicaid population.**[8] For Medicaid, Suboxone® (buprenorphine/naloxone) had the highest PMPY spend ($17.88) and was the most commonly used drug in the class. Far behind in second place was its generic, buprenorphine/naloxone, at $2.88. Combined, the brand and generic versions of all buprenorphine/naloxone dose forms captured more than 94% of the chemical dependence market share in 2016 among the Medicaid population.

Suboxone had the highest PMPY spend and was the most commonly used drug in the chemical dependence therapy class.

[8] Sareen J, Wang Y, Mota N, et al. Baseline insurance status and risk of common mental disorders: a propensity-based analysis of a longitudinal U.S. sample. Psychiatr Serv. 2016;67(1):62-70

Top 10 traditional drugs

- In 2016, the top two traditional drugs ranked by PMPY spend for Medicaid were insulins. Lantus once again was the most expensive, while Humalog jumped to second place this year. Eighth-ranked NovoLog FlexPen rounded up the trio of insulins that were among the 10 most-expensive traditional Medicaid therapies in 2016.
- Combined with the seventh-ranked OneTouch Ultra® Test Strips, the top 10 drugs and supplies associated with diabetes contributed 12.3% of the total Medicaid traditional drug spend.

MEDICAID: TOP 10 TRADITIONAL 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	$33.96	4.8%	4.3%	0.6%	**4.9%**
2	Humalog® (insulin lispro)	Diabetes	$26.04	3.7%	-2.2%	13.5%	**11.3%**
3	aripiprazole	Mental/neurological disorders	$19.64	2.8%	51.5%	-56.7%	**-5.2%**
4	Suboxone® (buprenorphine/naloxone)	Chemical dependence	$17.88	2.5%	17.0%	-0.2%	**16.8%**
5	Advair Diskus® (fluticasone/salmeterol)	Asthma	$17.06	2.4%	1.6%	9.7%	**11.3%**
6	methylphenidate extended release	Attention disorders	$15.26	2.1%	-1.3%	4.8%	**3.5%**
7	OneTouch Ultra® Test Strips	Diagnostic aids	$15.22	2.1%	0.2%	1.1%	**1.3%**
8	NovoLog® FlexPen® (insulin aspart)	Diabetes	$11.81	1.7%	22.2%	13.4%	**35.6%**
9	Ventolin® HFA (albuterol sulfate)	Asthma	$11.41	1.6%	7.6%	14.2%	**21.8%**
10	Vyvanse® (lisdexamfetamine)	Attention disorders	$10.77	1.5%	15.4%	13.2%	**28.6%**

*Per member per year

- Aripiprazole and methylphenidate extended release were the only two generics in the top 10 traditional drug classes for Medicaid. Although aripiprazole had a 51.5% upward trend in utilization, its unit cost declined by 56.7%. As a result, aripiprazole took a significant chunk of market share from its brand counterpart Abilify, which was knocked out of the top 10 traditional drugs in 2016.
- The chemical dependence drug Suboxone was the fourth most-expensive traditional drug in Medicaid due to a 16.8% increase in drug spend on the back of a 17.0% rise in utilization.
- The 11.3% jump in spend for Advair Diskus was fueled largely by 9.7% brand inflation.
- NovoLog FlexPen and Ventolin HFA had substantial positive trends of 35.6% and 21.8%, respectively, due to large increases for each in both utilization and unit cost trends.
- The 28.6% total trend for the attention disorders drug Vyvanse was due in nearly equal parts to a rise in both utilization (15.4%) and unit cost (13.2%).

Although aripiprazole had a 51.5% upward trend in utilization, its unit cost declined by 56.7%.

Top 10 specialty drugs

- In 2016, the 10 most expensive specialty drugs comprised only three therapy classes – HIV, hepatitis C and inflammatory conditions.
- Seven of the top 10 specialty drugs for Medicaid were HIV medications, six of which were combination products containing two or more different drugs in one dosage form. Together, these seven HIV drugs contributed 27.2% of the total specialty drug spend in Medicaid.

Seven of the top 10 specialty drugs for Medicaid were HIV medications.

MEDICAID: TOP 10 SPECIALTY DRUGS

RANKED BY 2016 PMPY* SPEND

					TREND		
RANK	DRUG NAME	THERAPY CLASS	PMPY SPEND	% OF TOTAL SPECIALTY SPEND	UTILIZATION	UNIT COST	TOTAL
1	Truvada® (emtricitabine/tenofovir disoproxil fumarate)	HIV	$31.99	6.6%	-16.4%	7.0%	**-9.4%**
2	Harvoni® (ledipasvir/sofosbuvir)	Hepatitis C	$28.82	5.9%	-48.3%	0.2%	**-48.1%**
3	Humira® Pen (adalimumab)	Inflammatory conditions	$25.70	5.3%	14.9%	30.8%	**45.7%**
4	Stribild® (cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil fumarate)	HIV	$19.36	4.0%	-10.0%	7.3%	**-2.7%**
5	Atripla® (efavirenz/emtricitabine/tenofovir disoproxil fumarate)	HIV	$18.77	3.9%	-30.0%	6.3%	**-23.7%**
6	Triumeq® (abacavir/dolutegravir/lamivudine)	HIV	$18.23	3.7%	119.4%	14.1%	**133.5%**
7	Complera® (emtricitabine/rilpivirine/tenofovir disoproxil fumarate)	HIV	$16.59	3.4%	-17.7%	9.4%	**-8.3%**
8	Enbrel® (etanercept)	Inflammatory conditions	$14.52	3.0%	3.3%	24.8%	**28.1%**
9	Genvoya® (elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide)	HIV	$13.48	2.8%	13,817.2%	-90.0%	**13,727.2%**
10	Prezista® (darunavir)	HIV	$13.39	2.8%	-25.3%	5.5%	**-19.8%**

*Per member per year

- Truvada had the highest PMPY spend for Medicaid in 2016 ($31.99). Despite it being the only drug approved and marketed for pre-exposure prophylaxis (PrEP, or prevention of HIV), its utilization dropped 16.4%, leading to its -9.4% total trend. Triumeq® (abacavir/dolutegravir/lamivudine) and Genvoya were the only two HIV drugs with positive total trends. Triumeq had a 133.5% total trend. This rise was mainly due to a 119.4% growth in utilization coupled with a 14.1% rise in unit cost. Because Genvoya was launched in November 2015, its total trend does not provide a complete picture of the year-over-year trend.
- While Harvoni had the second highest PMPY spend in 2016 ($28.82), it had the lowest total trend (-48.1%) due to a 48.3% fall in drug utilization and only a slight rise in unit cost. The decline in trend may be due to the initial wave of hepatitis C patients already receiving their fixed-duration treatments and getting cured.
- Spending for the number three drug, Humira Pen, continued to rise in double digits to a total trend of 45.7%, mainly due to 30.8% brand inflation. The other anti-inflammatory drug in the top 10, Enbrel, had a PMPY spend of $14.52, which was up by 28.1% from 2015, mainly due to an increase of 24.8% in unit cost.

While Harvoni had the second highest PMPY spend in 2016, it had the lowest total trend due to a 48.3% fall in drug utilization.

MEDICAID

Methodology

Methodology

Prescription drug use data for Medicaid members with drug coverage provided by Express Scripts plan sponsors[9] was analyzed for the 2016 Drug Trend Report. The Medicaid plan sponsors providing the pharmacy benefit paid at least some portion of the cost for the prescriptions dispensed to their members, providing what is 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 medical 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 members with coverage for Medicaid enrollees. Medicaid enrollees included in this analysis were enrolled in the following programs: Temporary Assistance for Needy Families (TANF), Children's Health Insurance Program (CHIP) and Aged, Blind and Disabled (ABD).

Total trend measures the rate of change in gross costs, which include ingredient costs, taxes, dispensing fees and administrative fees. Gross cost includes 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.

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.

[9] 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 or home delivery-only benefits, if they had 100% or 0% copayment benefits, if they had eligibility shifts exceeding 50%, 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.

Health Insurance Exchanges

HEALTH INSURANCE EXCHANGES

Introduction

"Our continued partnership with Express Scripts has provided us guidance, expertise and marketplace insights in a challenging and volatile environment."

Chad Murphy
VP, Pharmacy, Contracting and Consulting
Integrated Health Management
Premera Blue Cross

Setting a steady course for the future of exchange plans

As the public health insurance exchanges ("exchanges") completed their third year of operation in 2016, the marketplace continued to struggle with only modest growth in enrollment and an unsettled population with costly conditions.

Year-over-year prescription drug spending for this population increased 14% in 2016. Chronic, costly conditions continued to drive benefit usage with specialty medications accounting for nearly half of total drug spending among exchange plans.

However, there are signs that suggest benefit usage is expanding beyond the chronically ill. At the therapy class level, we observed higher utilization trends among more traditional therapy classes, such as attention disorders, asthma, mental health and even acne (among members age 20 to 34).

As lawmakers and the industry grapple with the best way to provide healthcare for all, we see opportunities in the trends noted on the following pages to help insurers mitigate challenges in offering affordable and comprehensive plans for exchange members. By optimizing pharmacy benefits, we can reduce costs for plans, which can help lower premiums and total costs for patients.

Implementing advanced utilization management solutions – formulary management, prior authorization, step therapy and specialized pharmacy care – have proven successful to control both high specialty costs and chronic medication use. Among commercially insured plans with a tightly managed pharmacy benefit, use of these and other strategies kept the increase in year-over-year spending to just 2.6%.

Whether the current system is ultimately amended or replaced, we believe advanced pharmacy benefit solutions must be part of the discussion and the way forward. We look forward to working with our exchange plan clients to make that happen.

Julie Huppert
Vice President, Healthcare Reform
Express Scripts

HEALTH INSURANCE EXCHANGES

Therapy class review

Looking at drug spending in 2016

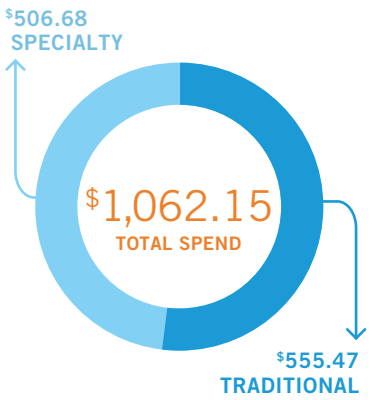
- Overall 2016 per-person spending on prescription drugs for the exchange population increased 14.0%, driven almost equally by increases in utilization (6.2%) and unit costs (7.8%).
- Although unit costs rose just 1.2% for traditional medications, they increased 8.8% for specialty medications.
- The 6.2% and 13.5% higher utilization for traditional and specialty medications also contributed substantially to the overall increase in spending.

Drug spending in the exchanges rose 14% – driven by increases in utilization and unit cost.

Click here for details

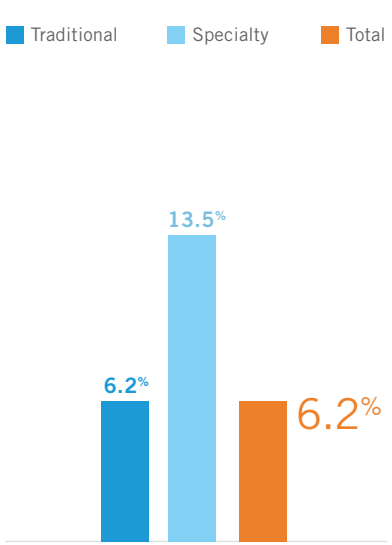
PMPY* SPEND

2016



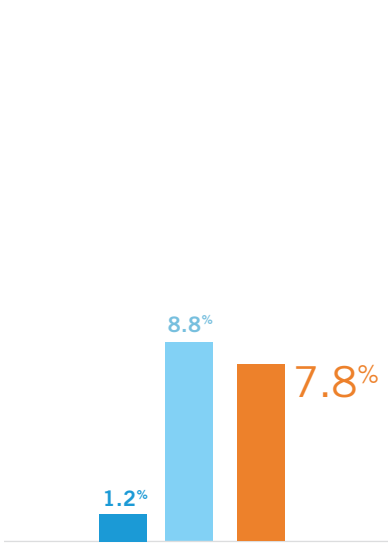
UTILIZATION TREND

2016



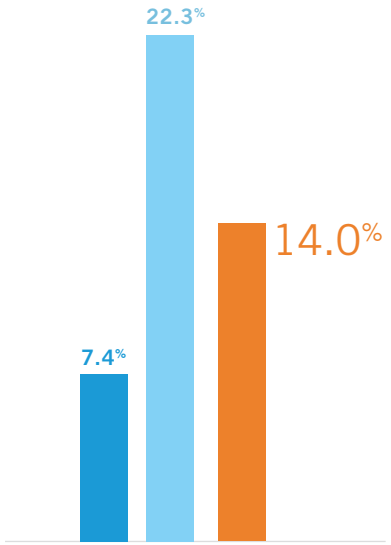
UNIT COST TREND

2016



TOTAL TREND

2016



January-December 2016 compared to same period in 2015 for public health insurance exchange members with drug coverage provided by Express Scripts plan sponsors. Reflects total cost for both payers and patients, net of rebates.
*Per member per year

Top 15 therapy classes and insights

Specialty medications are an increasingly significant contributor to the overall cost for the exchange market, representing 47.7% of PMPY spend.

The top two therapy classes, HIV and inflammatory conditions, contributed almost one-fourth (23.0%) of total PMPY spend by exchange beneficiaries. Diabetes was the third costliest therapy class, with 16.9% in spend due mostly to unit cost increases. Skin conditions appeared in the top 15 therapy classes in 2016, replacing infections.

Total trend was negative for four of the top 15 therapy classes; trend for hepatitis C medications declined the most (-23.6%). Two other therapy classes with large declining trends were depression (-8.5%) and mental/neurological disorders (-15.4%), both primarily due to lower unit cost trends. Trend for drugs that treat high blood pressure and heart disease also showed a decrease (-2.0%).

Utilization among exchange members increased in all of the top 15 classes, except hepatitis C. It is likely that the initial surge of patients with advanced disease seeking treatment has ended. Going forward, patients will benefit from greater access to therapy and a decline in unit costs. The unit cost trend was negative for eight therapy classes ranging from -0.2% to -25.2%.

HEALTH INSURANCE EXCHANGES: 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	HIV	$135.87	3.9%	16.4%	20.3%
2	S	Inflammatory conditions	$108.14	36.7%	19.0%	55.7%
3	T	Diabetes	$92.91	5.9%	11.0%	16.9%
4	S	Oncology	$70.34	33.0%	10.7%	43.7%
5	S	Hepatitis C	$65.95	-22.7%	-0.9%	-23.6%
6	T	Pain/inflammation	$53.74	1.6%	2.1%	3.7%
7	S	Multiple sclerosis	$52.64	6.6%	6.7%	13.3%
8	T	High blood pressure/heart disease	$29.16	6.2%	-8.2%	-2.0%
9	T	Attention disorders	$27.32	14.9%	-0.2%	14.7%
10	T	Asthma	$25.12	9.4%	-2.2%	7.2%
11	T	High blood cholesterol	$24.83	6.5%	-5.6%	0.9%
12	T	Depression	$21.90	8.2%	-16.7%	-8.5%
13	T	Mental/neurological disorders	$18.46	9.8%	-25.2%	-15.4%
14	T	Contraceptives	$16.40	5.5%	-1.8%	3.7%
15	T	Skin conditions	$14.92	5.3%	4.9%	10.2%
		TOTAL FOR ALL THERAPY CLASSES	$1,062.15	6.2%	7.8%	14.0%

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

HIGHLIGHTS

- **HIV had the highest PMPY spend ($135.87) among the top 15 therapy classes for exchange plans.** Its 20.3% overall trend was heavily influenced by a 16.4% increase in unit cost. Increased utilization of new products, including Genvoya® (elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide) and Triumeq® (abacavir/dolutegravir/lamivudine), factored into HIV's 3.9% utilization trend.
- Inflammatory conditions, at number two, had a total trend of 55.7%. Unit cost rose substantially (19.0%), and utilization increased by 36.7%. **Together, the top three drugs by PMPY spend – Humira® Pen (adalimumab), Enbrel® (etanercept) and Stelara® (ustekinumab) – accounted for 70.6% of the market share in this class.** Utilization of these three drugs increased between 22.3% and 56.2% in 2016, contributing to a major portion of the escalation in utilization within this class. Unit costs for the top five drugs for inflammatory conditions, ranked by PMPY spend, increased by an average of 13.3%.
- Drugs to treat diabetes had the third largest PMPY spend ($92.91), among the exchange beneficiaries. **Trend for diabetes medications was 16.9% due to an 11.0% increase in unit cost and a 5.9% increase in utilization.** Highly utilized medications, including metformin and Lantus® (insulin glargine injection) drove the utilization and cost increases.
- Spend for oncology medications increased 43.7%, influenced by a 33.0% rise in utilization. **Overall, oncology trend was the second highest of the top 15 classes by PMPY spend for exchange beneficiaries, driven by high utilization** of such drugs as Revlimid® (lenalidomide), Ibrance® (palbociclib) and Sprycel® (dasatinib). Unit cost increased by 10.7% for medications in this class, which had an average cost per prescription of $7,890.02 in 2016.
- **Although ranked at number five by PMPY spend, the hepatitis C therapy class had the sharpest decline in spend (-23.6%) among the top 15 therapy classes.** Harvoni® (ledipasvir/sofosbuvir) and Sovaldi® (sofosbuvir) remained the two most utilized hepatitis C medications, together capturing 65.8% of market share and 76.8% of PMPY spend in this class. High utilization trend in previous years has been reversed, since patients 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 will benefit from increased access to these therapies.
- **Total trend for multiple sclerosis (MS) medications was 13.3%, due to increases in both PMPY utilization (6.6%) and unit cost (6.7%).** This therapy class is currently dominated by branded medications Copaxone® (glatiramer), Tecfidera® (dimethyl fumarate), Gilenya® (fingolimod) and Avonex® (interferon beta-1a), which account for more than 65% of drugs prescribed in the class. With the exception of Copaxone, which has a generic available for its short-acting version (glatiramer 20mg/mL), these top drugs by market share increased in unit cost by more than 10%.
- **Medications used to treat attention disorders had a 14.7% PMPY trend in 2016, driven by a 14.9% increase in utilization.** Unit cost trend declined slightly (-0.2%). Vyvanse® (lisdexamfetamine), one of the leading brands in this class, increased in both utilization and unit cost. Spend for Vyvanse won't decrease soon, as its manufacturer has secured patent protection until at least 2023, and in January 2015 received additional indication for treating adults with binge eating disorder (BED).

Eight of the top 15 therapy classes by PMPY drug spend declined in unit cost trend, and four decreased in total trend.

Top 10 traditional drugs

Together, the top 10 traditional drugs contributed 15.2% to the total PMPY spend for all traditional therapy drugs. **Six of the top 10 traditional drugs were for diabetes and account for nearly two-thirds (63.8%) of spend among the top 10 drugs.** Five of these diabetes medications are injectables – Lantus® SoloStar (insulin glargine), Levemir® FlexTouch® (insulin detemir), Victoza® 3-Pak (liraglutide), Humalog® U-100 KwikPen® (insulin lispro) and NovoLog® FlexPen® (insulin aspart) – and are packaged as prefilled pen delivery devices.

Among the top 10 traditional drugs, the only two brand-name drugs that decreased in unit cost trend were insulin therapies Lantus SoloStar (-3.1%) and Levemir FlexTouch (-4.3%). Also, Levemir FlexTouch had the lowest total trend (-16.7%) among top 10, largely influenced by declining utilization (-12.4%).

Among the top 10 drugs, a generic, dextroamphetamine/amphetamine, had the largest decline (-18.5%) in unit cost, which led to its negative total trend despite an 11.4% increase in utilization.

HEALTH INSURANCE EXCHANGES: 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® SoloStar (insulin glargine)	Diabetes	$15.33	2.8%	8.6%	-3.1%	**5.5%**
2	dextroamphetamine/amphetamine	Attention disorders	$8.95	1.6%	11.4%	-18.5%	**-7.1%**
3	Victoza® 3-Pak (liraglutide)	Diabetes	$8.17	1.5%	11.6%	13.8%	**25.4%**
4	Humalog® KwikPen® (insulin lispro)	Diabetes	$8.15	1.5%	13.8%	18.5%	**32.3%**
5	Levemir® Flextouch® (insulin detemir)	Diabetes	$7.97	1.4%	-12.4%	-4.3%	**-16.7%**
6	Lialda® (mesalamine)	Inflammatory conditions	$7.31	1.3%	8.5%	11.8%	**20.3%**
7	Novolog® FlexPen® (insulin aspart)	Diabetes	$7.19	1.3%	-1.6%	7.6%	**6.0%**
8	Lyrica® (pregabalin)	Pain/inflammation	$7.16	1.3%	5.6%	13.1%	**18.7%**
9	Vyvanse® (lisdexamfetamine)	Attention disorders	$7.13	1.3%	27.9%	12.6%	**40.5%**
10	metformin	Diabetes	$7.00	1.3%	8.2%	69.2%	**77.4%**

*Per member per year

Top 10 specialty drugs

Specialty medications accounted for almost one-half (47.7%) of total pharmacy spend in the exchanges for 2016. **The top 10 specialty drugs were responsible for 42.9% of PMPY spend on all specialty drugs.** They represent only five therapy classes – five drugs for HIV, two drugs for inflammatory conditions, and one each for hepatitis C, oncology and MS.

PMPY spend among the top 10 specialty drugs for 2016 ranged from $11.98 for Tecfidera to $43.13 for Humira Pen. Compared with last year, the contribution of Harvoni declined from 16.1% to 7.7% of the total specialty spend. Humira Pen, a drug to manage inflammatory conditions and with the largest PMPY spend for specialty medications, greatly increased in utilization (43.5%), unit cost (19.2%) and total spend (62.7%).

HEALTH INSURANCE EXCHANGES: 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	$43.13	8.5%	43.5%	19.2%	**62.7%**
2	Harvoni® (ledipasvir/sofosbuvir)	Hepatitis C	$38.92	7.7%	-32.1%	-6.3%	**-38.4%**
3	Enbrel® (etanercept)	Inflammatory conditions	$25.45	5.0%	22.3%	11.7%	**34.0%**
4	Atripla® (efavirenz/emtricitabine/tenofovirdisoproxil fumarate)	HIV	$20.36	4.0%	-24.4%	6.6%	**-17.8%**
5	Truvada® (emtricitabine/tenofovir disoproxilfumarate)	HIV	$20.14	4.0%	8.2%	8.9%	**17.1%**
6	Stribild® (cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil fumarate)	HIV	$17.31	3.4%	-17.2%	6.9%	**-10.3%**
7	Triumeq® (dolutegravir/abacavir/lamivudine)	HIV	$13.95	2.8%	140.6%	16.6%	**157.2%**
8	Genvoya® (elvitegravir/ cobicistat/emtricitabine/tenofovir alafenamide)	HIV	$13.51	2.7%	6,329.7%	-25.9%	**6,303.8%**
9	Revlimid® (lenalidomide)	Oncology	$12.75	2.5%	37.9%	12.8%	**50.7%**
10	Tecfidera® (dimethyl fumarate)	Multiple Sclerosis	$11.98	2.4%	1.8%	11.2%	**13.0%**

*Per member per year

The five HIV medications among the 10 top specialty drugs for exchange beneficiaries are all combination therapies that have two or more different drugs in one oral dosage form: Atripla® (efavirenz/emtricitabine/tenofovir disoproxil fumarate), Stribild® (cobicistat/elvitegravir/emtricitabine/tenofovir disoproxil fumarate), Truvada® (emtricitabine/tenofovir disoproxilfumarate), Triumeq and Genvoya. Triumeq had 157.2% total trend, mostly due to a 140.6% increase in utilization. Genvoya had the steepest trend (6,303.8%) since it was approved and introduced in late 2015; however, it declined in unit cost by 25.9% in 2016. Together, among the top 10 specialty drugs, those for HIV accounted for 16.8% of total exchange specialty spend.

The oral MS drug, Tecfidera, increased by double digits in total spend (13.0%), reflecting an 11.2% increase in unit cost. The original form of Copaxone (glatiramer 20mg/mL) did not make it to the top 10 specialty drugs by PMPY spend in 2016. Utilization is shifting to Glatopa™ (glatiramer 20mg/mL), a generic alternative, launched in the U.S. in June 2015; and to Copaxone (glatiramer 40mg/mL), a longer-acting formulation introduced in 2014.

Among the top 10 specialty drugs, those for HIV accounted for 16.8% of total exchange specialty spend.

HEALTH INSURANCE EXCHANGES

Trend by age group

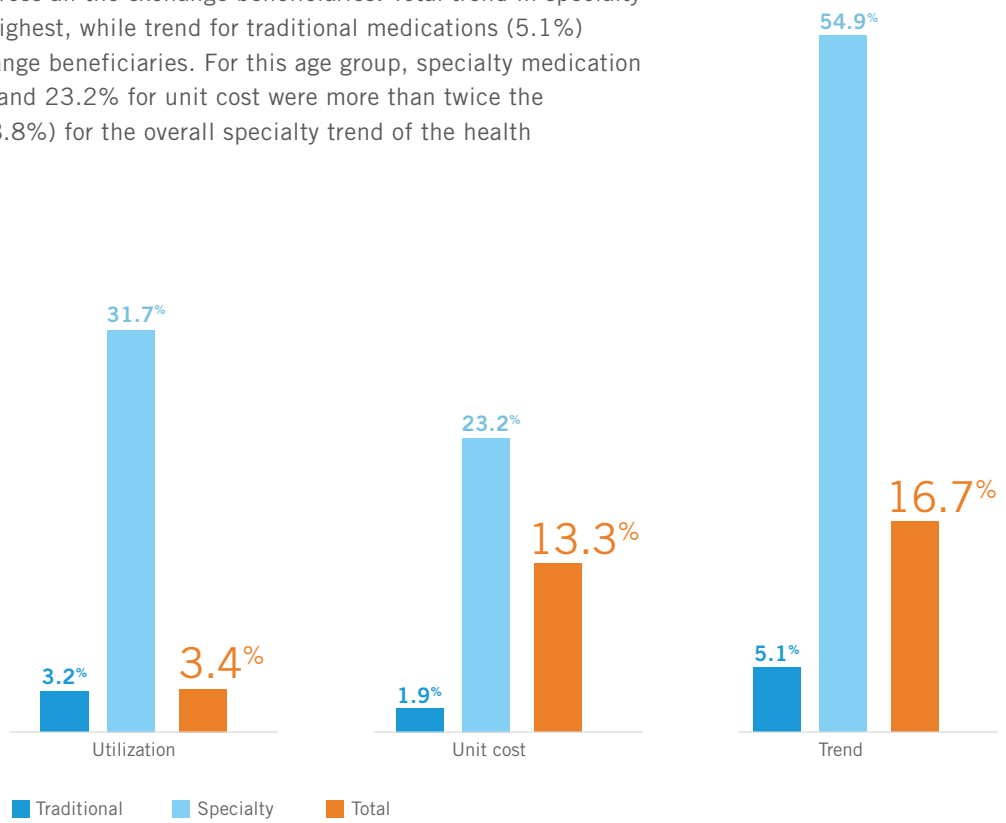
AGE 0 TO 19

Despite a high increase in specialty spending, this age group spent more than twice as much on traditional drugs compared to specialty drugs.

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$306.12	3.4%	13.3%	16.7%

Click here for details

The 16.7% total trend for the youngest exchange beneficiaries was slightly higher than the aggregate trend (14.0%) across all the exchange beneficiaries. Total trend in specialty medications (54.9%) was the highest, while trend for traditional medications (5.1%) was the lowest, across all exchange beneficiaries. For this age group, specialty medication trends of 31.7% for utilization and 23.2% for unit cost were more than twice the respective trends (13.5% and 8.8%) for the overall specialty trend of the health exchange beneficiaries.



HIGHLIGHTS FOR AGE 0 TO 19

- In contrast to the top 15 for overall exchange beneficiaries, **the list for this age cohort is dominated by medications to treat conditions more prevalent in younger beneficiaries.** The top 15 therapy classes ranked by spend for those age 0 to 19 include acne, cystic fibrosis (CF), gastrointestinal (GI) disorders, anaphylaxis and growth deficiency. Drugs for growth deficiency are mostly prevalent among children and teens.
- Until recently, treatment for CF, a genetic disorder that causes thickening of mucus, sweat, digestive juices and other body fluids, was only intended to control or relieve complications and improve the quality of life for people suffering from this disorder. The newer CF medications are more effective at clinically controlling these symptoms but cost more than $20,000 per month. Utilization for CF drugs increased by 57.5% in this age group, driven by a rise in utilization for the top three drugs, all brands – Orkambi® (lumacaftor/ivacaftor), Kalydeco® (ivacaftor) and Pulmozyne® (dornase alfa).
- In 2016, growth deficiency medications trended at 56.6%, due to increased trends in utilization (40.0%) and unit cost (16.6%). Utilization trend was driven by such drugs as Omnitrope® (somatropin [rDNA origin] injection) and Norditropin® (somatropin [rDNA origin] injection) FlexPro®. Unit costs for these two drugs also increased at steep rates, contributing to a 16.6% rise in the therapy-level unit cost trend for this age group.

HEALTH INSURANCE EXCHANGES: TOP 15 THERAPY CLASSES, AGE 0 TO 19

RANKED BY 2016 PMPY* SPEND

				TREND		
RANK	TYPE	THERAPY CLASS	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL
1	T	Attention disorders	$53.05	4.0%	2.3%	**6.3%**
2	T	Acne	$22.96	0.4%	4.9%	**5.3%**
3	S	Cystic fibrosis	$22.15	57.5%	5.2%	**62.7%**
4	T	Infections	$19.42	2.8%	3.5%	**6.3%**
5	S	Inflammatory conditions	$16.41	47.8%	33.0%	**80.8%**
6	T	Asthma	$16.17	1.2%	-3.3%	**-2.1%**
7	S	Growth deficiency	$15.99	40.0%	16.6%	**56.6%**
8	T	Contraceptives	$12.04	1.0%	-3.7%	**-2.7%**
9	T	Diabetes	$9.71	14.4%	8.4%	**22.8%**
10	T	Seizures	$9.54	2.2%	24.6%	**26.8%**
11	S	Gastrointestinal disorders	$7.92	N/A	N/A	**N/A**
12	T	Anaphylaxis	$7.63	-5.4%	24.2%	**18.8%**
13	T	Mental/neurological disorders	$6.92	9.7%	-41.8%	**-32.1%**
14	T	Skin conditions	$6.35	4.8%	-5.1%	**-0.3%**
15	T	Gastrointestinal disorders	$4.92	12.0%	14.8%	**26.8%**
		TOTAL FOR ALL THERAPY CLASSES	**$306.12**	**3.4%**	**13.3%**	**16.7%**

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

- During 2016, the inflammatory conditions drugs used for this age group increased in spend by 80.8%, highest among all age groups, reflecting a 47.8% increase in utilization and a 33.0% increase in unit cost. Enbrel, a highly utilized drug for inflammatory conditions, received an additional indication from the U.S. Food and Drug Administration (FDA) in late 2016 to treat psoriasis in children as young as four years old.[1] Though this may not have significantly affected spending for 2016, it may increase future trend for the inflammatory conditions class.
- The overall 26.8% trend for seizure drugs among users in the youngest age bracket was influenced heavily by its 24.6% unit cost trend.
- Specialty GI disorder medications are used to treat conditions like Zellweger spectrum disorders, short bowel syndrome (SBS) and primary biliary cholangitis (PBC). In 2016, the average cost per prescription for a specialty GI disorder drug was $54,979.20, influencing the class ranked 11th by PMPY spend for those age 0 to 19. There was no usage among this population in our 2015 data for this age group, thus no trend was calculated.
- Spend for drugs in the anaphylaxis therapy class increased by 18.8%. Unit cost increased substantially (24.2%). EpiPen® (epinephrine) and epinephrine are the two medications in this class. In December 2016, Mylan announced the launch of an authorized generic (AG) to its EpiPen auto-injector for the emergency treatment of severe allergic reactions, including anaphylaxis.

Enbrel received an additional FDA indication in late 2016 to treat psoriasis in children as young as four years old. Though this may not have significantly affected spending for 2016, it may increase future trend for the inflammatory conditions class.

[1] FDA Approves Expanded Use of ENBREL (etanercept) to Treat Children with Chronic Moderate-to-Severe Plaque Psoriasis. https://www.amgen.com/media/news-releases/2016/11/fda-approves-expanded-use-of-enbrel-etanercept-to-treat-children-with-chronic-moderatetosevere-plaque-psoriasis/. Accessed January 31, 2017.

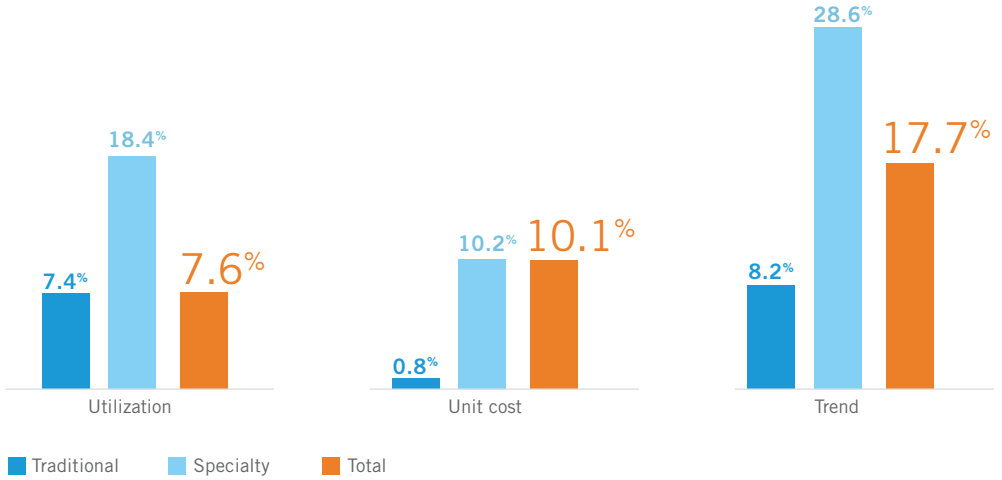
AGE 20 TO 34

Spending for this age group was nearly evenly split between traditional and specialty medications.

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$689.73	7.6%	10.1%	17.7%

Click here for details

PMPY spend for health exchange beneficiaries age 20 to 34 increased 17.7%, about 3% greater than overall health exchange beneficiaries (14.0%). The top 15 therapy classes ranked by PMPY spend among those age 20 to 34 were similar to the overall health exchange beneficiaries, with the exception of acne and chemical dependence.



HIGHLIGHTS FOR AGE 20 TO 34

- Although unit cost trends decreased for six therapy classes used by the 20 to 34 age group, total trend decreased for only three due to increased utilization in those classes. Eight classes had a total trend that increased by more than 15%, with the highest trend of 83.7% for CF drugs. HIV had the highest PMPY spend in this age group with an increase of 9.7% in utilization and 13.8% in unit cost.
- The inflammatory conditions class includes a number of branded biological drugs that treat rheumatoid arthritis, psoriasis, inflammatory bowel diseases and lupus – all conditions that are considered the most common autoimmune diagnoses among young adults.[2] The 59.4% total trend for the class resulted from a 39.9% increase in utilization and a 19.5% rise in unit cost.
- The presence of acne and chemical dependence in the top 15 therapy classes ranked by PMPY cost reflects the prevalence of use among beneficiaries in the age 20 to 34 cohort. Acne, a common visible condition in this age group, had a total trend of 16.4%, almost equally influenced by utilization (7.4%) and unit cost (9.0%) trends. Unit cost trend is mainly attributed to Tretinoin® (with unit cost trend of 15.8% for the exchange population). Utilization trends were influenced by topical drugs like adapalene and the generic version of SulfaCleanse® 8/4 (sodium sulfacetamide/sulfur). Utilization for drugs to treat chemical dependencies rose by 8.8%, but an 8.7% decrease in unit cost kept the total trend nearly flat.

[2] Feldman B., The Serious Health Concern All 20-Somethings Should Know About | Greatist. http://greatist.com/health/young-adults-and-autoimmune-disease. Accessed January 20, 2017.

HEALTH INSURANCE EXCHANGES: TOP 15 THERAPY CLASSES, AGE 20 TO 34

RANKED BY 2016 PMPY* SPEND

				TREND		
RANK	TYPE	THERAPY CLASS	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL
1	S	HIV	$138.82	9.7%	13.8%	**23.5%**
2	S	Inflammatory conditions	$77.97	39.9%	19.5%	**59.4%**
3	T	Contraceptives	$46.79	6.7%	-2.1%	**4.6%**
4	T	Attention disorders	$46.07	16.8%	-1.4%	**15.4%**
5	S	Multiple sclerosis	$29.14	7.5%	9.3%	**16.8%**
6	T	Diabetes	$23.25	6.3%	10.2%	**16.5%**
7	S	Hepatitis C	$20.24	-14.2%	7.2%	**-7.0%**
8	T	Pain/inflammation	$19.81	-3.0%	5.8%	**2.8%**
9	T	Mental/neurological disorders	$19.73	15.9%	-25.1%	**-9.2%**
10	S	Cystic fibrosis	$16.42	40.5%	43.2%	**83.7%**
11	T	Depression	$15.73	13.9%	-11.0%	**2.9%**
12	T	Acne	$14.74	7.4%	9.0%	**16.4%**
13	T	Seizures	$14.69	5.0%	19.7%	**24.7%**
14	T	Chemical Dependence	$13.93	8.8%	-8.7%	**0.1%**
15	T	Infections	$12.17	0.7%	-5.3%	**-4.6%**
		TOTAL FOR ALL THERAPY CLASSES	**$689.73**	**7.6%**	**10.1%**	**17.7%**

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

AGE 35 TO 44

In 2016, the 22.1% spending increase for this age group was the highest among the exchange population

PMPY SPEND $1,012.83

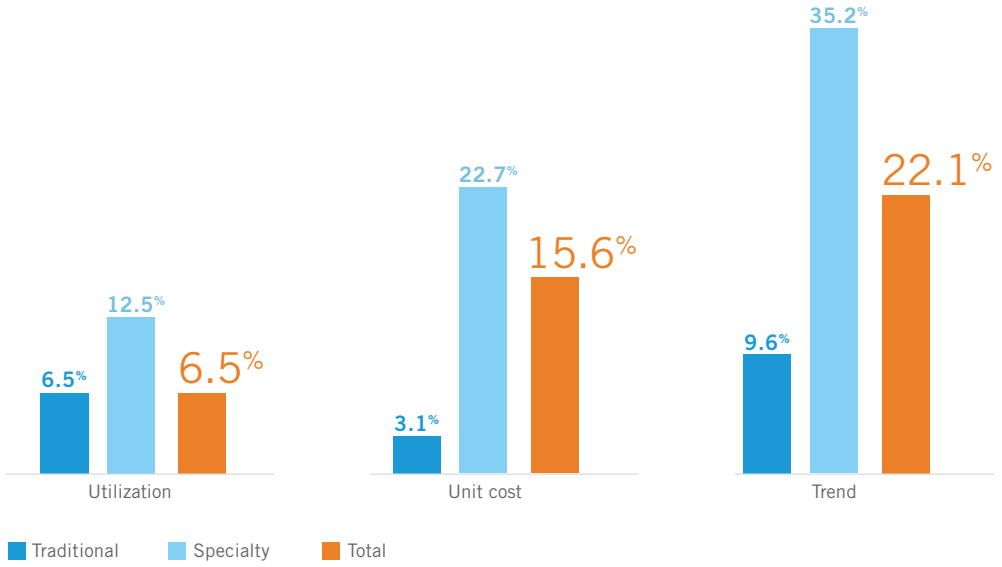
UTILIZATION 6.5%

UNIT COST 15.6%

TOTAL TREND 22.1%

Click here for details

In 2016, the 35 to 44 age group had a specialty trend of 35.2%, driven by a 22.7% increase in unit cost and a 12.5% increase in utilization. The 9.6% trend of traditional components also was higher in this age group than that for the overall exchange population. Together, specialty and traditional trends increased PMPY spend by 22.1% for this group – significantly higher than the overall exchange trend (14.0%) and the highest among all exchange beneficiary age groups less than 65 years of age.



HIGHLIGHTS FOR AGE 35 TO 44

- Although HIV drugs had the highest PMPY spend for those age 35 to 44, drugs that treat inflammatory conditions, oncology, hereditary angioedema and seizures all had higher total trends.
- The inflammatory conditions class was the second highest at 68.0%, influenced largely by an increase in utilization.
- For this age group, the highest percent increase in total spending was for drugs that treat hereditary angioedema, a rare genetic condition causing unpredictable and potentially fatal swelling. Utilization increased by 153.8% for the class, heavily influencing the 174.3% overall trend.
- All the top therapy classes by PMPY spend in this age group, except pain/inflammation and hepatitis C, increased in utilization. Although six of the traditional classes showed negative trends for unit costs, only two – depression and mental/neurological disorders – had negative total trends.

The highest percent increase in total spending was 174.3% for drugs that treat hereditary angioedema.

HEALTH INSURANCE EXCHANGES: TOP 15 THERAPY CLASSES, AGE 35 TO 44

RANKED BY 2016 PMPY* SPEND

				TREND		
RANK	TYPE	THERAPY CLASS	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL
1	S	HIV	$203.12	1.7%	17.0%	**18.7%**
2	S	Inflammatory conditions	$118.40	47.9%	20.1%	**68.0%**
3	S	Multiple sclerosis	$63.21	5.9%	6.1%	**12.0%**
4	T	Pain/inflammation	$55.54	-0.2%	8.1%	**7.9%**
5	T	Diabetes	$53.90	3.5%	14.0%	**17.5%**
6	S	Hepatitis C	$38.11	-3.2%	4.1%	**0.9%**
7	S	Oncology	$32.69	32.4%	14.4%	**46.8%**
8	T	Attention disorders	$29.13	18.9%	-2.3%	**16.6%**
9	S	Hereditary angioedema	$25.28	153.8%	20.5%	**174.3%**
10	T	Depression	$24.53	9.9%	-13.3%	**-3.4%**
11	T	Mental/neurological disorders	$23.75	10.4%	-20.1%	**-9.7%**
12	T	Contraceptives	$19.64	9.4%	-0.3%	**9.1%**
13	T	Asthma	$18.32	10.9%	-3.8%	**7.1%**
14	T	Seizures	$15.90	4.4%	25.8%	**30.2%**
15	T	High blood pressure/heart disease	$14.94	5.7%	-4.7%	**1.0%**
		TOTAL FOR ALL THERAPY CLASSES	**$1,012.83**	**6.5%**	**15.6%**	**22.1%**

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

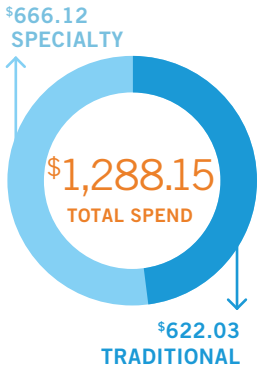
AGE
45 TO 54

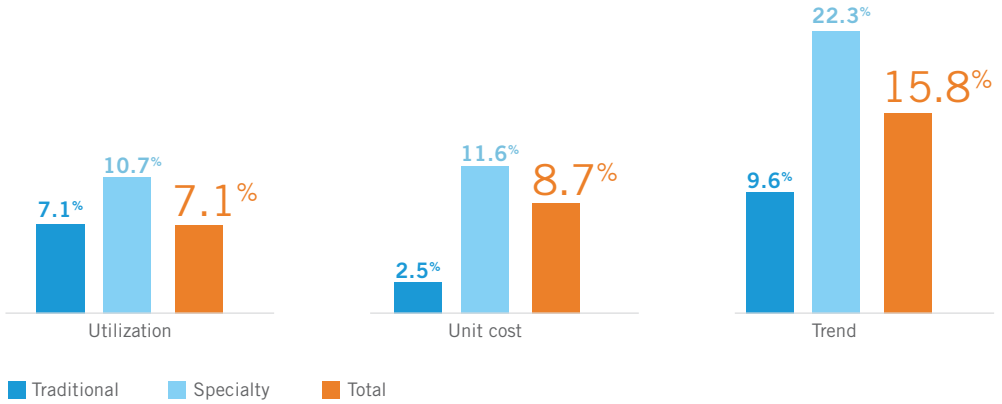
The 22.3% increase in specialty drug spending for this age group matched the total specialty trend across all exchange beneficiaries.

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$1,288.15	7.1%	8.7%	15.8%

Click here for details

For 2016, the 22.3% overall specialty medication trend for those age 45 to 54 was affected almost equally by utilization (10.7%) and unit cost (11.6%) trends. The trend was in line with the aggregate specialty component trend for all exchange beneficiaries. Total traditional trend for this age group (9.6%) was slightly higher than the total traditional trend for health exchange (7.4%).





HIGHLIGHTS FOR AGE 45 TO 54

- Specialty classes filled five of the top seven spots for exchange members age 45 to 54, with HIV claiming the highest PMPY spend for this age group as well.
- Inflammatory conditions and oncology each rose in utilization by more than 35%, making their respective total trend the highest for the age group.
- One specialty class, hepatitis C, had a 29.2% drop in utilization, bringing its total trend to -27.4%.
- Negative trends occurred in three highly genericized traditional classes – high blood pressure/heart disease (-1.3%), depression (-7.5%) and mental/neurological disorders (-15.0%).
- Attention disorders still appeared as one of the top 15 conditions by PMPY spend, even among middle-aged exchange members, which reflected growing use of the drugs to treat ADHD among adults.

The appearance of attention disorders in the top 15 therapy classes reflects the increased utilization of drugs to treat ADHD among adults.

HEALTH INSURANCE EXCHANGES: TOP 15 THERAPY CLASSES, AGE 45 TO 54

RANKED BY 2016 PMPY* SPEND

				TREND		
RANK	TYPE	THERAPY CLASS	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL
1	S	HIV	$219.81	4.0%	18.2%	**22.2%**
2	S	Inflammatory conditions	$133.46	43.6%	20.0%	**63.6%**
3	T	Diabetes	$113.59	7.9%	13.2%	**21.1%**
4	S	Multiple sclerosis	$80.44	5.6%	5.5%	**11.1%**
5	S	Oncology	$79.31	37.7%	10.5%	**48.2%**
6	T	Pain/inflammation	$78.27	2.6%	4.8%	**7.4%**
7	S	Hepatitis C	$74.01	-29.2%	1.8%	**-27.4%**
8	T	High blood pressure/heart disease	$32.41	6.8%	-8.1%	**-1.3%**
9	T	Depression	$27.68	8.4%	-15.9%	**-7.5%**
10	T	High blood cholesterol	$27.43	6.0%	-4.3%	**1.7%**
11	T	Asthma	$25.92	9.8%	-1.8%	**8.0%**
12	T	Mental/neurological disorders	$20.21	10.0%	-25.0%	**-15.0%**
13	T	Skin conditions	$18.50	5.0%	13.0%	**18.0%**
14	T	Attention disorders	$17.98	18.5%	0.0%	**18.5%**
15	S	Hereditary angioedema	$16.50	-5.1%	13.6%	**8.5%**
		TOTAL FOR ALL THERAPY CLASSES	**$1,288.15**	**7.1%**	**8.7%**	**15.8%**

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

AGE

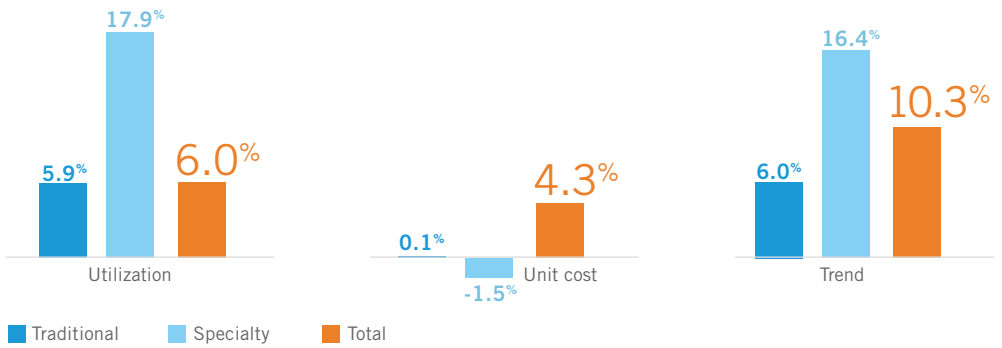
55 TO 64

The 1.5% decrease in unit costs for specialty drugs in this age group had very little impact on total unit cost trend.

PMPY SPEND	UTILIZATION	UNIT COST	TOTAL TREND
$1,487.43	6.0%	4.3%	10.3%

Click here for details

In 2016, the PMPY cost trend was 10.3% for beneficiaries in the 55 to 64 age group and was lower than the 14.0% overall trend for health exchange beneficiaries. Utilization increased by 6.0% and unit cost increased by 4.3%. Specialty unit costs decreased by 1.5% for this age group and utilization increased by 17.9%. Because of a comparatively low number of specialty prescriptions, the declining unit cost for specialty drugs had little to no effect on the overall unit cost trend, while a small positive trend of traditional drugs with higher utilization had a magnifying effect.



HIGHLIGHTS FOR AGE 55 TO 64

- The top 15 classes ranked by PMPY spend for those age 55 to 64 echoed the spend of the overall health exchange population with the exception of chronic obstructive pulmonary disease (COPD). PMPY spend for COPD increased 5.0%, influenced by a 3.6% increase in utilization and a 1.4% increase in unit costs.
- Diabetes, a progressive and chronic condition that requires multiple-drug treatment as it worsens, assumed the top spot in PMPY spend for this age group. The next four classes, ranked by PMPY spend, were all specialty therapies – oncology, inflammatory conditions, hepatitis C and HIV. For those in the 55 to 64 age group, the anticoagulant class had a total trend of 39.8%, driven primarily by a unit cost increase of 30.6%. Four classes had negative total trends ranging from -4.4% for high blood pressure/heart disease to -26.1% for hepatitis C, the latter being the only class to decline in utilization.

Four classes had decreases in total spending: hepatitis C, high blood pressure/heart disease, depression and heartburn/ulcer disease.

HEALTH INSURANCE EXCHANGES: TOP 15 THERAPY CLASSES, AGE 55 TO 64

RANKED BY 2016 PMPY* SPEND

				TREND		
RANK	TYPE	THERAPY CLASS	PMPY SPEND	UTILIZATION	UNIT COST	TOTAL
1	T	Diabetes	$180.75	4.9%	10.0%	**14.9%**
2	S	Oncology	$146.85	30.1%	7.6%	**37.7%**
3	S	Inflammatory conditions	$143.70	30.2%	17.7%	**47.9%**
4	S	Hepatitis C	$132.70	-22.6%	-3.5%	**-26.1%**
5	S	HIV	$91.61	9.4%	18.1%	**27.5%**
6	T	Pain/inflammation	$80.81	3.9%	-1.5%	**2.4%**
7	S	Multiple sclerosis	$65.76	11.7%	7.7%	**19.4%**
8	T	High blood pressure/heart disease	$61.59	5.3%	-9.7%	**-4.4%**
9	T	High blood cholesterol	$56.85	6.2%	-6.2%	**0.0%**
10	T	Asthma	$41.65	9.5%	-3.1%	**6.4%**
11	T	Depression	$28.51	7.2%	-20.7%	**-13.5%**
12	T	Anticoagulant	$23.61	9.2%	30.6%	**39.8%**
13	T	Skin conditions	$19.98	6.6%	2.4%	**9.0%**
14	T	Heartburn/ulcer disease	$19.97	5.3%	-20.1%	**-14.8%**
15	T	Chronic obstructive pulmonary disease	$19.31	3.6%	1.4%	**5.0%**
		TOTAL FOR ALL THERAPY CLASSES	**$1,487.43**	**6.0%**	**4.3%**	**10.3%**

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

HEALTH INSURANCE EXCHANGES

Methodology

Methodology

Prescription drug use data for public health insurance exchange members with drug coverage provided by Express Scripts plan sponsors[3] 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 beneficiaries, providing what is 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 medical 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 members with coverage through the public health exchanges. Age breakouts for exchange members do not include those who are age 65 and older as they transition to Medicare.

Total trend measures the rate of change in gross costs, which include ingredient costs, taxes, dispensing fees and administrative fees. Gross cost includes 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.

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.

[3] 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 or home delivery-only benefits, if they had 100% or 0% copayment benefits, 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

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