



Commercial Specialty Medication Research: 2016 Benchmark Projections

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I. EXECUTIVE SUMMARY

The purpose of this study is to provide specialty medication claim cost benchmarks to illustrate the magnitude and distribution of specialty medication costs adjudicated under the pharmacy and medical benefit. This is done by:

- Identifying specialty products and the percentage of total healthcare costs they represent
- Benchmarking, or determining from historical data, the amount of specialty spend covered under the medical and pharmacy benefits
- Evaluating the amount of spend by therapeutic class and place of service under the medical benefit
- Quantifying specialty trends by therapeutic class and place of service for specialty medications administered under the medical benefit
- Projecting specialty spend into the future
- Summarizing the distribution of costs for specialty utilizers

For the purposes of this study we defined specialty medical products as those administered by a healthcare professional in the home, a hospital outpatient facility, or a physician's office, and typically covered under the medical benefit. We defined specialty pharmacy products as those dispensed in retail, mail, or specialty pharmacies, which are self-administered by the patient and covered under the pharmacy benefit.

The information in this study was based on claims data from a commercially insured group population (i.e., primarily commercial group members under age 65, excluding Medicare, Medicaid, and individually insured populations). This study was based on 2012 and 2013 claims data from the Truven Health MarketScan® Research Database (MarketScan), which we projected forward to 2016.

HIGHLIGHTS

Highlights from this study include:

- Total medication costs, including those adjudicated under both the medical and pharmacy benefits, are expected to account for nearly 30% of total healthcare claim costs in 2016.
- Approximately 36% of total specialty costs are expected to be paid as a medical benefit and 64% paid as a pharmacy benefit in 2016.
- Historical specialty cost trends far exceed the trend in total medical and pharmacy costs.
- Specialty utilization differed significantly between the medical and pharmacy benefits:
 - Specialty medical costs are projected to comprise about 58% of total medication costs under the medical benefit in 2016
 - Specialty pharmacy costs are projected to comprise about 33% of total pharmacy costs in 2016

- The top 10 therapeutic classes for specialty products comprise about 85% of total specialty spend:
 - Inflammatory conditions are projected to make up 27% of total specialty spend, the majority of which are pharmacy products
 - Oncology is projected to make up 20% of total specialty spend, the majority of which is under the medical benefit.
- 47% of total specialty medical costs are provided in a hospital outpatient setting, 42% are provided in a physician's office, and 9% are provided in the patient's home.
- Specialty medical costs as a percentage of total specialty costs vary somewhat by area, but are generally similar by region.
- The average aggregate healthcare costs per member per month (PMPM) of patients who use specialty medications is about 10 times higher than the average aggregate healthcare costs PMPM of all members in the study.

II. BACKGROUND

In recent years, patent expirations on blockbuster brand medications (e.g., Lipitor, Plavix, Seroquel, and Singulair) have brought about billions of dollars in annual savings on U.S. pharmacy expenditures.¹ Generic product launches in recent years helped keep the inflationary trend for pharmacy expenditures in the low single digits. We are now nearing the end of the patent cliff, with only a few blockbuster brands remaining (Crestor, Advair Diskus, etc.). While the first biosimilars will emerge soon, these products are not expected to produce nearly the same degree of savings as small molecule generic launches.²

Both brand and generic products have experienced high price trends in recent years. However, the largest driver of increased pharmacy spending is from specialty products. Pharmacy benefit managers (PBMs) reported total 2014 per member per month (PMPM) specialty pharmacy cost trends as high as 31%.³ Magellan Rx Management reported trends in medical benefit pharmacy costs of 9% to 13%.⁴

Specialty medications are typically associated with high-cost, complex, or rare healthcare conditions such as cancer, rheumatoid arthritis, and multiple sclerosis. There are thousands of specialty products in the pipeline, which are expected to drive a significant portion of future medication costs and inflationary trends.

Although specialty products are often treated as a distinct class of medications, there is no universally accepted definition. Often the term “specialty” is a label that payers put on medications for the purpose of benefit management, cost sharing, and clinical oversight. A specialty medication may possess one or more of the following characteristics:

- Significantly higher cost than non-specialty medications.
 - For example, Medicare Part D defines “specialty” as any medication in which the negotiated monthly price is \$600 or more. Note that this definition has not changed over time and, as such, products traditionally considered non-specialty now have average wholesale prices (AWPs) nearing this \$600 limit.
- Developed from biological natural sources, such as human, animal, protein-based, nucleic-acid-based, living cells, tissue, and microorganisms, rather than conventional chemical processing (i.e., biologic).
 - This definition becomes increasingly important as the first biosimilars, which are intended to be copies of biologics, are approved.
- Specialized delivery, storage, handling, or administration requirements.
- Administered via injection or infusion; however, specialty medications can also be inhaled or orally administered.
- Intensive patient administration and compliance training.

¹ Generic Pharmaceutical Association (2013). Generic Drug Savings in the U.S. Retrieved November 17, 2015, from http://www.gphaonline.org/media/cms/2013_Savings_Study_12.19.2013_FINAL.pdf.

² Kopenski, F. & Holcomb, K. (August 26, 2015). Understanding Biosimilars and Projecting the Cost Savings to Employers: Update. Milliman White Paper. Retrieved November 17, 2015, from <http://www.milliman.com/insight/2015/Understanding-biosimilars-and-projecting-the-cost-savings-to-employers-Update/>.

³ Express Scripts (March 2015). 2014 Drug Trend Report. Retrieved November 17, 2015, from lab.express-scripts.com/drug-trend-report/.

⁴ Magellan Rx Management (2015). 2014 Medical Pharmacy Trend Report. Retrieved November 17, 2015, from <http://www.magellanrxinsights.com/>.

- Requires close patient monitoring for adverse events, or the product requires patient to be included in the Risk Evaluation and Mitigation Strategy (REMS) program mandated by the U.S. Food and Drug Administration (FDA).
- Available through limited distribution channels (e.g., a designated specialty pharmacy).
- Used for the treatment of uncommon healthcare conditions, or orphan diseases, which are defined as conditions that affect fewer than 200,000 people nationwide.⁵

Payers do not classify specialty products in the same way, and it is important to define specialty medications clearly in any type of cost analysis. For purposes of this study we developed a specific specialty list based largely on the definition used in Milliman's *Health Cost Guidelines*TM (HCG) Grouper software, which is similar to other publicly available specialty definitions. Examples of medications defined as specialty are provided in Appendix C.

In addition, we differentiate specialty claims adjudicated under the medical and pharmacy benefits by the following:

- Specialty medical products are defined as those typically administered by a healthcare professional in the home, a hospital outpatient facility, or a physician's office, and covered under the medical benefit. Medications administered in an inpatient hospital setting are typically bundled with other ancillary services, and thus little inpatient specialty medication data is available through most sources.
- Specialty pharmacy products such as those typically dispensed in a retail, mail, or specialty pharmacy, self-administered by the patient, and covered under the pharmacy benefit.

About 36% of specialty costs are projected to be administered by a healthcare professional and covered under the medical benefit in 2016, and the other 64% are covered under the pharmacy benefit. The proportion of specialty costs covered under the medical benefit has been declining in recent years as a larger portion of newly launched specialty products are covered under the pharmacy benefit, and is projected to continue to decline. In addition, there has been a shift away from medical coverage of existing specialty medications over the past few years, which is partly due to a better ability to manage costs in a pharmacy setting. There are cases, however, where it is more advantageous to cover specialty products under the medical benefit. For example:

- A physician group or outpatient infusion clinic leveraging class of trade to secure lower pricing. "Class of trade" is defined as a group of pharmaceutical buyers who share similar purchasing characteristics and may be eligible for specific pricing discounts and rebates that are due to these shared attributes.⁶ (Examples include retail, long-term care, mail order, and institutional.)
- In the treatment of diseases, where dosages are often changed and waste of product could lead to increased costs.
- If there are concerns about compliance, a doctor can better monitor that a patient is actually taking a medication if it is infused in the office.

This dynamic may lead to confusion among payers and providers as to how to best manage the patient and coordinate care in the most cost-effective manner. In addition, it may also lead to confusion among patients about how and where to obtain specialty medications.

⁵ U.S. Food and Drug Administration, 2012.

<http://www.fda.gov/forindustry/developingproductsforrareconditions/default.htm>.

⁶ Academy of Managed Care Pharmacy (2009). AMCP Guide to Pharmaceutical Payment Methods, 2009 Update (Version 2.0). *J Managed Care Pharm* Vol 15, No. 6a. Retrieved November 17, 2015, from <http://www.amcp.org/data/jmcp/1002.pdf>.

A specialty medication adjudicated under the medical benefit is processed differently from a medication adjudicated under the pharmacy benefit. When a claim is covered under the pharmacy benefit, a PBM is typically responsible for electronically capturing and processing that claim. The claim adjudication happens at the point of sale, which allows various drug utilization review (DUR) interventions and formulary controls to take place before the medication is dispensed. As a result, data sets containing pharmacy prescription claims are often considered highly accurate, with correct cost, number of units dispensed, and minimal lag time between claim adjudication and payment. In contrast, medical specialty claims are not adjudicated in real time and may not have the correct number of units dispensed. The manual adjudication of medical prescription claims limits the DUR interventions and formulary management programs that PBMs rely upon to control costs.

The costs of medications vary by the types of contracts that may be in place between different types of medical and pharmacy providers. Medical prescription claims are typically reimbursed using a discounted basis, fee schedule, average sales price (ASP), or other methods. Medical providers submit medical prescription claims for reimbursement using the Level I and Level II Healthcare Common Procedural Coding System (HCPCS) to identify medication quantity and strength. Because of the lack of granularity in the HCPCS billing system, healthcare organizations may pay higher costs for medications that are adjudicated under the medical benefit versus the pharmacy benefit.⁷

Prescription claims adjudicated through the pharmacy benefit are processed at the National Drug Code (NDC) level and pricing is determined at the point of sale based upon pricing benchmarks. Typical PBM contracts reimburse prescription products using one of several methodologies including: average wholesale price (AWP) minus, wholesale acquisition cost (WAC) plus, maximum allowable cost (MAC) lists for generics, federal upper limits (FUL), or average manufacture price (AMP) plus.

The remainder of this report is divided into the following sections:

- Section III includes our primary results and conclusions, including the following benchmark information:
 - A per member per month (PMPM) claim cost summary of total healthcare spend by service category, including separate claim cost summaries for total medical and pharmacy benefit spend and specialty medical and pharmacy benefit spend
 - Specialty medication spend by region
 - Specialty cost distribution by therapeutic class, in total and separately for medical and pharmacy
 - Specialty medical trends for the top 10 HCPCS products
- Section IV contains more detailed information on the Inflammatory Conditions, Oncology, and Multiple Sclerosis classes, which are three of the largest specialty medication classes across both medical and pharmacy spending.
- Section V discusses trend mitigation strategies for managing specialty medical costs.
- Section VI provides a summary of the study data sources and methodology used.

⁷ Fein A. (January 2012). 2011-2012 Economic Report on Retail and Specialty Pharmacies.

III. RESULTS

This study was based on 2012 and 2013 claims for a commercially insured population, as reported in the MarketScan database, which we projected forward to 2016. We used this information to develop allowed cost and trend information and to illustrate changes in costs and utilization within the medical and pharmacy benefits. Allowed costs represent total expenditures by both plan and members, and are calculated at contractual prices prior to rebates.

SUMMARY OF HEALTHCARE EXPENDITURES

The table in Figure 1 provides a breakdown of healthcare expenditures in total, for all medications, and for specialty medications, by type of service:

Figure 1:
Projected Healthcare Expenditures by Type of Service
Per Member Per Month (PMPM)
2016

Claim or Benefit Type	Hospital Outpatient	Hospital Inpatient	Home Health	Physician Office	Other Medical	Total Medical	Pharmacy Benefit	Total
All Services	\$138	\$119	\$11	\$111	\$42	\$421	\$120	\$541
Medications Only*	\$18	N/A	\$2	\$16	\$1	\$37	\$120	\$157
Specialty Medications Only*	\$10	N/A	\$2	\$9	\$0	\$21	\$39	\$60
Specialty Medication % of Total	7%	N/A	19%	8%	1%	5%	33%	11%

* Medical components include only ingredient costs with no administrative fee or professional fee.

Note: Pharmacy component includes ingredient costs plus dispensing fee.

Costs included in an inpatient hospital admission are not identified separately from other inpatient costs because of the bundling of inpatient services in claims data. Thus, inpatient medication costs are not included in our definition (noted as "N/A" in Figure 1), which likely understates the distribution of medication spend under the medical benefit.

In 2016, total medication costs (including specialty and non-specialty) are expected to represent approximately 29% of total healthcare costs (\$157 out of \$541 PMPM). Specialty costs represent approximately 11% of the overall total healthcare costs (\$60 out of \$541 PMPM). Both of these ratios have been increasing steadily over time, with no change expected in the near future.

Approximately 36% of specialty costs are expected to be covered under the medical benefit in 2016 (\$21 out of \$60 PMPM). This represents a decrease from previous years. In 2011 to 2013, the proportion of specialty costs covered under the medical benefit declined, which we expect to continue in 2014 to 2016 as more high-cost medications are introduced to the pharmacy benefit. In 2014, in particular, new high-cost treatments for the Hepatitis C virus (HCV) covered by the pharmacy benefit caused a reduction in the proportion of specialty costs covered under the medical benefit.

Specialty costs increased at a higher rate than overall healthcare costs and overall pharmacy costs in recent years, and this trend is expected to continue into the future. Average annual trend in specialty costs from 2013 to 2016 is expected to be 21.3%, while overall medical costs are expected to increase by 8.6% per year on average and overall medication costs by 12.5%. Note that the increase in pharmacy costs is prior to the impact of rebates; increases in rebates may help offset the net impact to plan sponsors.

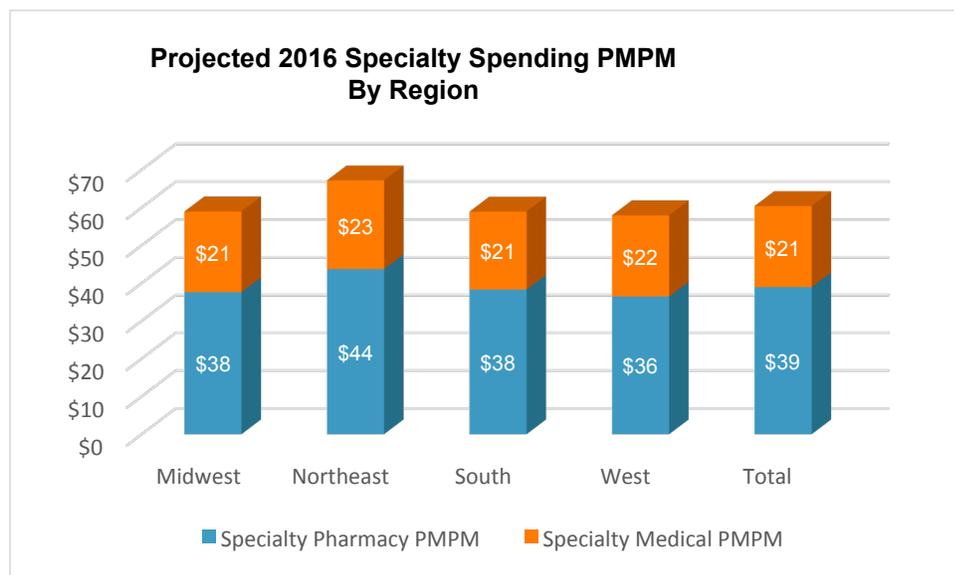
Specialty utilization is dramatically different under the medical and pharmacy benefits. Specialty costs are expected to comprise about 58% of total medication costs under the medical benefit in 2016, but only about 33% of total pharmacy costs.

We generally found lower PMPM cost trends in specialty medical than specialty pharmacy in historical data. We also expect specialty medical trends to remain lower than specialty pharmacy trends. One reason for the lower trend may be that several new specialty products became available orally or as a self-injectable, with these medications primarily dispensed through the pharmacy benefit. Additionally, the high-cost treatments for HCV, almost exclusively administered under the pharmacy benefit, contributed to high PMPM cost trends on the pharmacy side, with little impact on specialty medical trends. However, the expected introduction of new high-cost treatments on the medical side, such as new intravenous cancer treatments, may contribute to higher specialty medical trends than in the past.

SPECIALTY COSTS BY REGION

The chart in Figure 2 summarizes aggregate specialty costs, including both medical and pharmacy medication costs, for 2016 by region of the country. The costs provided below are not normalized for population or plan design differences.

Figure 2: Projected 2016 Specialty Spending PMPM by Region



We assumed all regions would experience the same trend rates in our analysis, and thus the relativity of costs by region is reflective of 2013 experience. Actual trend rates may vary by region causing a wider or narrower differential. Differences in prevalence of certain disease states could contribute to differences in average costs and trends. For example, HCV prevalence varies widely by state, which would contribute to higher pharmacy trend rates in states with more use of HCV treatments, though this regional variation was not reflected in our trend projections.

Specialty medical costs are slightly higher in the Northeast. The regional costs in Figure 2 may differ because of differences in population mix, average patient cost sharing, prescribing patterns, and other factors.

SPECIALTY COSTS BY THERAPEUTIC CLASS

The table in Figure 3 summarizes 2016 PMPM specialty costs separated between medical and pharmacy for the top 10 specialty therapeutic classes by projected total specialty spending.

Figure 3:
Projected Specialty Medication Spending PMPM
Medical vs. Pharmacy Benefit
Top 10 Specialty Therapeutic Classes
2016

Therapeutic Class	2016		
	Specialty Medical PMPM	Specialty Pharmacy PMPM	Total Specialty PMPM
Inflammatory Conditions	\$3.95	\$12.30	\$16.25
Oncology	\$7.56	\$4.66	\$12.23
Multiple Sclerosis	\$0.97	\$5.91	\$6.88
Immune Deficiency	\$1.87	\$3.92	\$5.79
Hepatitis Agents	\$0.00	\$4.50	\$4.50
Growth Hormone	\$0.00	\$1.26	\$1.26
Cystic Fibrosis	\$0.00	\$1.15	\$1.15
Hemophilia	\$0.33	\$0.79	\$1.12
Fertility Regulatory	\$0.01	\$1.11	\$1.12
Hematopoietic Growth Factors	\$0.37	\$0.43	\$0.81
All Other	\$6.41	\$2.89	\$9.30
Total	\$21.48	\$38.93	\$60.41
% of Total	36%	64%	100%

The top 10 specialty therapeutic classes account for about 70% of total specialty medical costs and 93% of total specialty pharmacy costs. The most expensive and highly utilized specialty therapeutic class is Inflammatory Conditions, which accounts for about 27% of all specialty costs. About 76% of specialty costs for Inflammatory Conditions are paid through the pharmacy benefit, with 24% paid through the medical benefit.

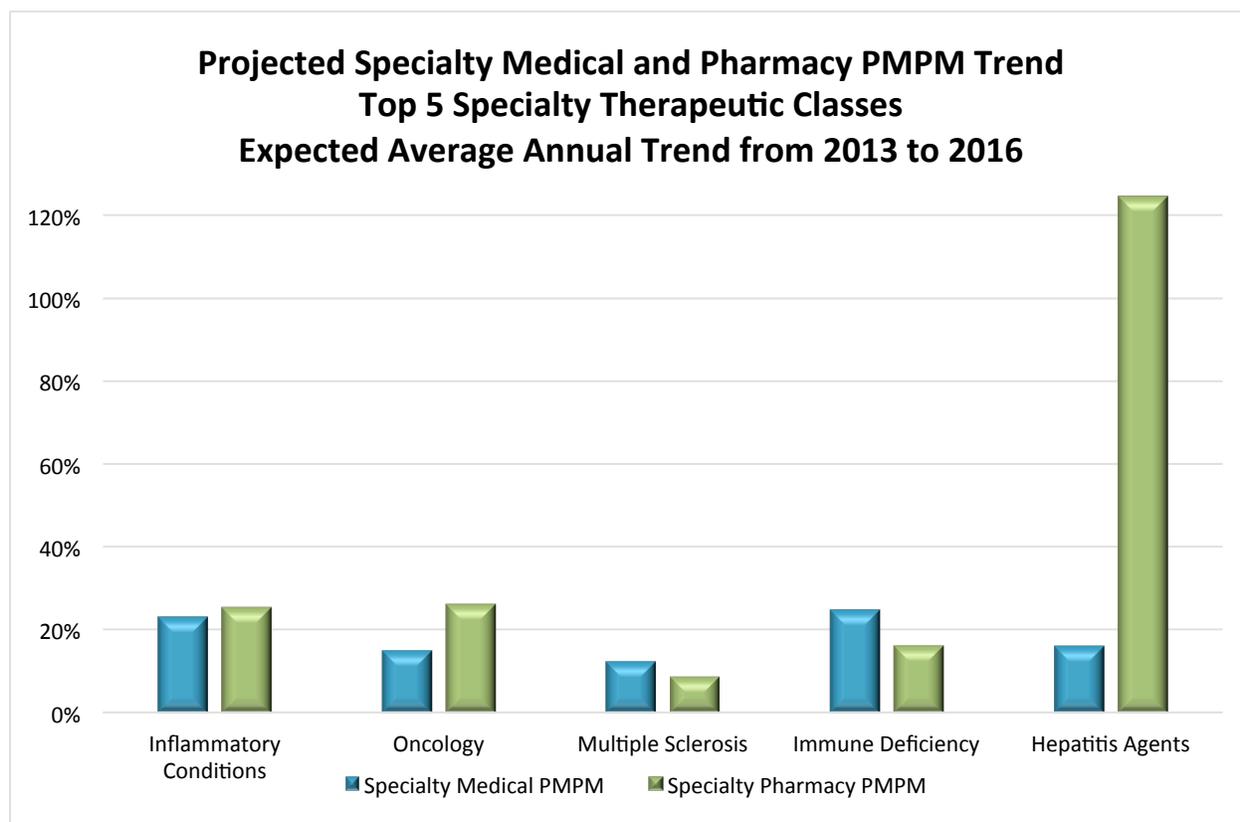
The largest class specific to specialty medical spending is Oncology, which represents about 35% of all specialty medical costs and 20% of total specialty costs for medical and pharmacy combined.

We discuss Oncology and Inflammatory Conditions in more detail in Section IV of this report, as well as Multiple Sclerosis, which is the third-highest cost specialty class. The top 10 specialty medical classes - which include several of the classes in the table in Figure 3 as well as Neuromuscular Blocking Agents, Hereditary Angioedema, and Osteoporosis - capture 92% of total specialty medical costs.

Among the top 10 therapeutic classes, only Oncology had a majority (more than 50%) of specialty costs covered under the medical benefit. On the other hand, Hepatitis Agents, Growth Hormones, and Cystic Fibrosis are almost exclusively covered as a pharmacy benefit.

The chart in Figure 4 shows the expected average annual medical and pharmacy PMPM trends from 2013 to 2016 for the top five specialty therapeutic classes provided in Figure 3.

**Figure 4: Projected Specialty Medical and Pharmacy PMPM Trend
Top 5 Specialty Therapeutic Classes, Average Annual Trend
From 2013 to 2016**



In many of the top specialty classes, the specialty pharmacy trend is expected to be higher than the specialty medical trend. Hepatitis Agents is a unique case, with extremely high trends related to new very high-cost treatments such as Sovaldi and Harvoni. While these medications caused a significant spike in 2014 and 2015, use of them is expected to come down in future years, with more reasonable trends expected as patients complete their courses of treatment and are cured of the disease.

One reason for the expected higher specialty pharmacy trends is that some plan sponsors will cover certain specialty medications only through a specialty pharmacy as a way of controlling costs, resulting in a shift from medical to pharmacy. This coverage can be done through “white bagging,” where a specialty medication is dispensed at a specialty pharmacy and the medication is sent directly to the hospital pharmacy on behalf of a patient. The hospital takes possession of the medication and provides the administration to the patient. Another method is “brown bagging,” which is where the patient is dispensed the specialty medication directly and brings the medication to the physician’s office or clinic for administration.⁸

⁸ Pembroke Consulting (2012). Channels leading to dispensing of specialty products under the pharmacy benefit. Retrieved November 15, 2015, from http://4.bp.blogspot.com/-eV6Q-CK43xk/T_r65dQaULI/AAAAAAAAABZI/8BTU5sX4FO8/s1600/Channels_leading_to_dispensing_specialty_products_under_pharmacybenefit.png.

SPECIALTY MEDICAL DISTRIBUTION CHANNELS

Specialty medical products are dispensed in various settings or places of service (POS), such as a physician's office, a home health encounter, or a hospital outpatient facility. The table in Figure 5 shows the distribution of specialty medical costs and changes in PMPM cost by place of service observed in historical data from 2012 to 2013.

Figure 5:
Projected Specialty Medical Spending Trends by Place of Service
2013 - 2016

Place of Service	Spending PMPM		Avg. Annual Trend
	2013	2016	
Physician Office	\$5.21	\$8.94	20%
Home Health	\$1.33	\$2.02	15%
Hospital Outpatient	\$6.16	\$10.06	18%
Hospital Inpatient	N/A	N/A	N/A
Other Medical	\$0.31	\$0.46	14%
Total	\$13.01	\$21.48	18%

Note: Other categories include end-stage renal disease treatment facilities, emergency rooms, ambulatory surgical centers, and skilled nursing facilities.

For many medications, the hospital outpatient facility is a higher-cost distribution channel than the physician office. For example, based on a Walgreens study, infliximab injections (J1745) are on average over twice as expensive, on a per unit basis, at an outpatient facility versus a physician's office.⁹ However, a comparison between the cost per unit by place of service (or even between the medical benefit and pharmacy benefit) may be misleading because costs may be adjudicated differently, with potentially different dosing and coding, and they may be based on different mixes of medications.

In 2016, 47% of the specialty medical spend is expected to be dispensed in a hospital outpatient setting, 9% in the home, and 42% in an office setting. There has been a noticeable increase in the proportion of specialty medical spend in the hospital outpatient setting in recent years, which has the largest specialty medical spending among all care settings in both 2013 and 2016. The increase in the percentage of claims going to a hospital outpatient setting may be due to claims shifting from a physician's office to a hospital outpatient setting. Additionally, hospital outpatient claims may be growing at a faster rate than other medical settings, possibly because of medications shifting to the pharmacy benefit from the physician's office, leaving fewer products in the medical benefit. Several self-injectables that used to be administered in the physician's office are now dispensed mostly by specialty pharmacies, leaving predominantly infusion products for the physician's office and other treatment settings.

Because a hospital outpatient facility is typically more expensive than a physician's office, this shift puts additional pressure on the unit cost trend. There has been a shift toward providing oncology care at a hospital setting, often through accountable care organizations (ACOs), the formation of which was encouraged by the Patient Protection and Affordable Care Act (ACA). An IMS Institute study found that, among 10 commonly used oncology medications, the average cost to the patient was \$134 higher in the hospital outpatient setting than in a physician's office.¹⁰

Home health specialty utilization has been slowly rising. The home provides a convenient alternative for a skilled healthcare professional to administer specialty medications to patients taking infusion-based medications. The product mix in the home health setting is quite different from other places of service. The home health setting represents a much higher proportion of specialty costs for Hemophilia and

⁹ Specialty Drugs (June 2012). Presentation developed for Societies of Actuaries 2012 Health Meeting.

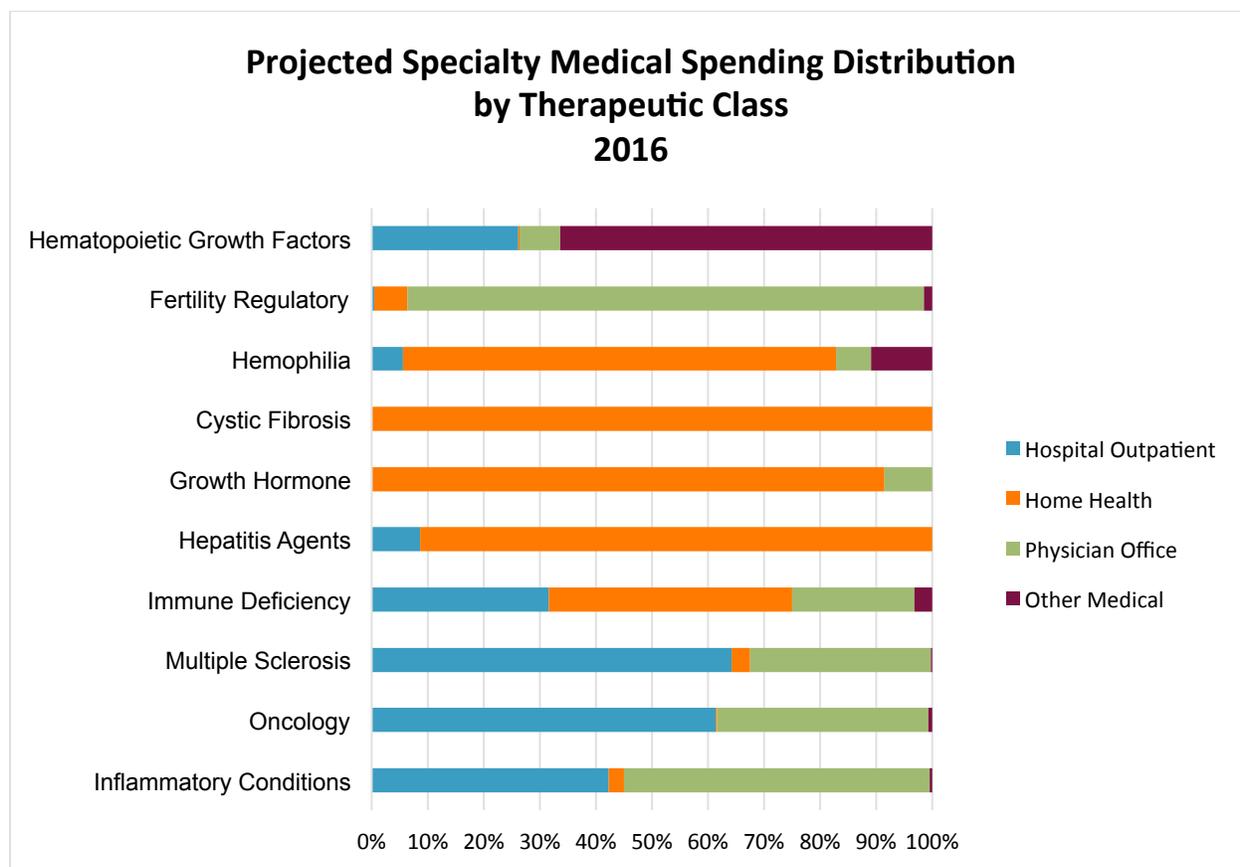
¹⁰ IMS Institute for Healthcare Informatics (2014). Innovation in Cancer Care and Implications for Health Systems.

Growth Hormone medications, 77% and 92% of cost, respectively. Note that Hemophilia is a class for which some health plans have been encouraging use of the specialty pharmacy rather than medical benefit.¹¹

The Other Medical place of service category includes specialty costs associated with end-stage renal disease treatment facilities, emergency rooms, ambulatory surgical centers, and skilled nursing facilities. It also includes a small number of claims identified as hospital inpatient. Hospital inpatient was otherwise excluded from our data, which is due to bundling of services.

The chart in Figure 6 shows the distribution of 2016 specialty medical costs by place of service and specialty therapeutic class.

Figure 6: Projected Specialty Medical Spending Distribution by Therapeutic Class 2016



About 61% of oncology specialty costs were delivered in a hospital outpatient setting, with most of the remaining costs in a physician’s office. Several classes had a majority of their costs dispensed in the home (e.g., Cystic Fibrosis, Growth Hormone). Fertility products were almost exclusively administered in a physician’s office. Examples of medications within each of these therapeutic classes are shown in Appendix C.

¹¹ Prime Therapeutics (October 11, 2013). Press release: Prime Therapeutics study shows wide variation in hemophilia treatment costs. Retrieved November 17, 2015, from https://www.primetherapeutics.com/Files/AMCP_fall_2013_-_hemophilia_FINAL.pdf.

SPECIALTY MEDICAL PRODUCTS

The table in Figure 7 shows the top 10 products (defined by Level I and Level II HCPCS) by projected 2016 allowed cost PMPM within specialty medical. Some products have more than one HCPCS code to account for different dosing or diagnosis. However, Figure 7 is summarized by individual HCPCS codes.

**Figure 7:
Projected Specialty Medical Spending
Top 10 HCPCS Summary**

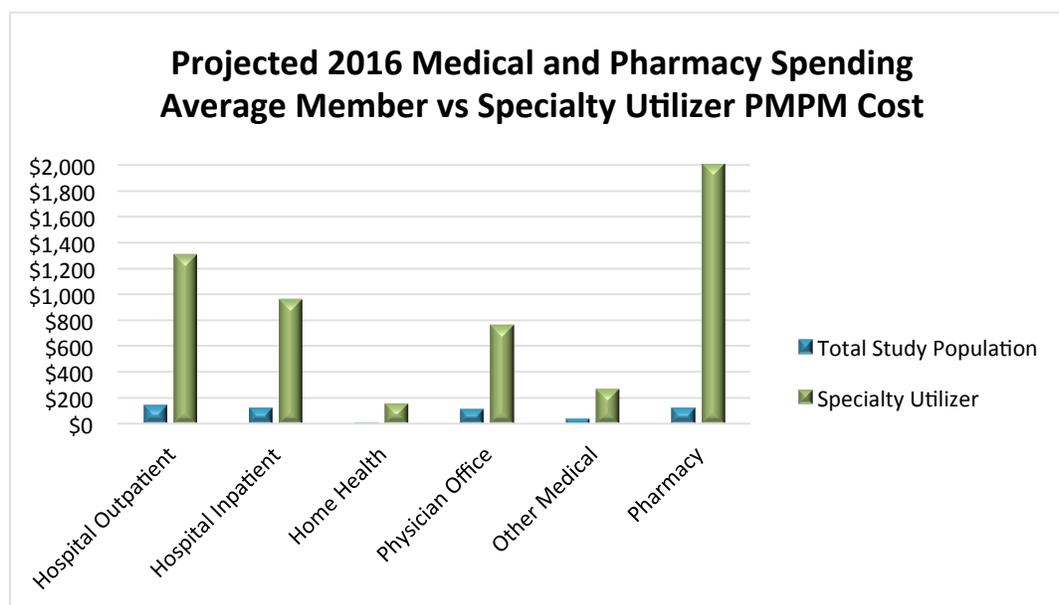
HCPCS	Name	Therapeutic Class	2016 Spending PMPM
J1745	Remicade	Inflammatory Bowel Agents	\$3.34
J2505	Neulasta	Hematopoietic Growth Factors	\$1.67
J9035	Bethanechol Chloride	Antineoplastic - Angiogenesis Inhibitors	\$1.37
J9310	Rituxan	Antineoplastic - Antibodies	\$1.21
J9355	Tranzgel	Antineoplastic - Antibodies	\$1.21
J2323	Tysabri	Multiple Sclerosis Agents	\$0.97
J1561	Gammagard Liquid	Immune Serums	\$0.65
J2778	Cyramza	Ophthalmic - Angiogenesis Inhibitors	\$0.64
J0585	Xeomin	Neuromuscular Blocking Agent - Neurotoxins	\$0.62
J1569	Gammagard S/D Iga Less Than 1Mcg/MI	Immune Serums	\$0.60

The 10 HCPCS codes listed above represented approximately 57% of the overall projected specialty medical spend. Note, however, that we projected 2013 experience at a class level, rather than product-specific. As such, Figure 7 does not account for changing market share for certain products between the experience period and the projection period. New blockbuster treatments, such as Keytruda, or existing products with growing market share, could potentially enter the list in 2016.

SPECIALTY UTILIZERS

The chart in Figure 8 shows average allowed PMPM costs (i.e., discounted charges prior to reductions for member cost sharing) for the total study population versus the average allowed PMPM costs for those patients who had at least two specialty claims across any site of service during the experience period (“specialty utilizers”).

Figure 8: Projected 2016 Medical and Pharmacy Spending Average Member vs. Specialty Utilizer PMPM Cost



The average healthcare costs for specialty utilizers are expected to be 10 times higher than the average healthcare costs for all members in 2016. In addition, specialty utilizers have a very different distribution of medical and pharmacy costs. Specialty costs (medical and pharmacy combined) represented approximately 48% of their healthcare costs and 84% of their total medication costs versus 11% of healthcare costs and 38% of total medication costs for the study population.

PATIENT COST SHARING

Average patient cost sharing or out-of-pocket costs vary by place of service. Under the medical benefit, the patient’s financial responsibility is typically subject to deductibles and coinsurance with some maximum annual out-of-pocket limit. The deductible and out-of-pocket limits typically apply to all medical and pharmacy services combined. Under the pharmacy benefit, the patient’s responsibility may include a separate pharmacy deductible with copayments and/or coinsurance, with potentially a separate out-of-pocket limit from the medical benefit. Note, however, that separate pharmacy and medical out-of-pocket limits are no longer permitted for non-grandfathered commercial health plans.

The table in Figure 9 shows the actual patient cost sharing realized and average patient cost share (i.e., out-of-pocket cost) per claim for specialty medications by place of service in 2013. This table uses historical 2013 data rather than 2016 projections because we did not attempt to project future changes in patient cost sharing.

**Figure 9:
Specialty Patient Cost Sharing by Place of Service
2013**

Place of Service	Average Spending Per Claim	Average Patient Cost Share Per Claim	Average Patient Cost Share Percent
Specialty Medical	\$2,014	\$43	2.1%
Hospital Outpatient	\$3,266	\$43	1.3%
Home Health	\$3,791	\$48	1.3%
Physician Office	\$1,337	\$45	3.3%
Other Medical	\$2,014	\$43	2.1%
Specialty Pharmacy	\$3,654	\$83	2.3%
Total	\$2,782	\$62	2.2%

Average patient cost share for specialty medications is lower than for aggregate medical or pharmacy benefits (e.g., under 3%), which is due to the high cost of these products and the impact of annual maximum out-of-pocket limits under the medical benefit and the copay structure under the pharmacy benefit limiting the amount patients are required to pay. Note that coupon cards, which can reduce member out-of-pocket spending, are excluded from this analysis.

CONCLUSIONS

Specialty costs are expected to continue to rise and to become a more significant proportion of pharmacy and overall healthcare expenditures. Numerous factors have contributed to the rise in specialty costs. Although there is an inconsistency in the specialty definition, specialty medications can be defined by cost, route of delivery (e.g., injectable, infusion, or oral), and therapeutic class. Specialty medications are distributed via a complex system, with the medication covered under both the pharmacy and medical benefits and available via various delivery channels (i.e., physician's office, home health setting, hospital outpatient facility, pharmacy, mail-order pharmacy, and specialty pharmacy). This variation results in differing and sometimes complex pricing schedules for these products.

Continued price increases for these products are a concern for both providers and patients. Specialty medication trends have been double-digit, particularly specialty pharmacy medication trends, and these patterns are expected to continue in the near future. There has been a shift in cost and utilization to the hospital outpatient and home health setting, with a decline in physician's office administration of specialty pharmacy products. Approximately 38% of all specialty costs are expected to be adjudicated under the medical benefit in 2016, which represents 58% of the total medication spend within the medical benefit. The top 10 specialty therapeutic classes represented 85% of total specialty costs, 70% of total specialty medical costs, and 93% of total specialty pharmacy costs.

The specialty landscape continues to change and evolve and these changes are reflected in this benchmarking study. There was an overall increase in cost within specialty products, which was due to numerous factors. The introduction of new infusion and injectable specialty medications, the expansion of indications for existing products, along with expected medications in the pipeline, have the ability to change prescribing patterns and impact specialty medical trends in the future. These specialty medications, along with those in the pipeline, are specialized and unique therapies with unknown cost and utilization expectations. In addition, utilization and availability of self-injectable and oral agents may continue to drive current and new products to be administered and adjudicated under the pharmacy benefit.

Provider choice of place of service and the changes in utilization by place of service have a large impact on specialty trends. Specialty costs will likely increase as delivery continues to shift from the physician's office setting to an outpatient hospital setting. As more self-injectables potentially move out of the medical benefit, in particular the physician's office, the pharmacy mix remaining in the medical benefit dramatically changes. In addition, the unit cost of these specialty medications can vary dramatically under both medical and pharmacy benefit and place of service. These factors, along with the historical cost and utilization trends, demonstrate the need for health plans and employers to take a more comprehensive view of specialty cost management across both the medical and pharmacy benefits.

IV. KEY THERAPEUTIC CLASSES

To better understand the administration of specialty medications covered under the medical benefit, we analyzed in more depth the three largest areas of specialty medication costs:

- Inflammatory Conditions
- Oncology
- Multiple Sclerosis

INFLAMMATORY CONDITIONS

The Inflammatory Conditions therapeutic class includes products used for the treatment of diseases such as rheumatoid arthritis, psoriasis, and inflammatory bowel disease. The increased use of these medications can be attributable to recent product launches and expanded FDA-approved indications for current products. These medications include numerous self-injectable and infusion-based products. Although this therapeutic class includes a wide range of diseases, only a small number of unique HCPCS codes are utilized under the medical benefit.

The average annual expected specialty trend within this class was 26% within the pharmacy benefit and 23% within the medical benefit. Approximately 24% of total specialty costs are expected to be covered under the medical benefit in 2016. This percentage has been decreasing over time.

The top three Inflammatory Conditions HCPCS codes are provided in the table in Figure 10.

**Figure 10:
Projected Inflammatory Conditions Specialty Medical Spending
Top 3 HCPCS Summary
2016**

HCPCS	Medication Name	2016 Allowed PMPM	2016 Cost per Claim
J1745	Remicade	\$3.34	\$6,969
J0129	Orencia	\$0.28	\$3,368
J3262	Actemra	\$0.19	\$3,047
All Other		\$0.17	\$11,763
Total		\$3.98	\$6,232

Note that Remicade may have one or more biosimilar available by 2016, which may produce some savings on the cost per claim.

Inflammatory Conditions specialty medical costs by place of service are provided in the table in Figure 11.

**Figure 11:
Projected Inflammatory Conditions Specialty Medical Spending by Place of Service
2016**

Place of Service	Utilization Per 1,000 Members	Allowed Cost Per Claim	PMPM	Percent of Total PMPM
Physician Office	5.20	\$4,973	\$2.16	54.6%
Home Health	0.23	\$5,621	\$0.11	2.7%
Hospital Outpatient	2.15	\$9,333	\$1.67	42.3%
Other Medical	0.02	\$11,022	\$0.02	0.5%
Total Medical	7.60	\$6,240	\$3.95	100.0%

Fifty-five percent of the specialty medical costs for Inflammatory Conditions are administered in a physician's office and 42% in a hospital outpatient facility. Average annual specialty medical trend for this class is expected to be 23% from 2013 to 2016. Note that we did not estimate trends by place of service, though there may be a continued shift toward more hospital outpatient utilization, which has been occurring over the past several years.

ONCOLOGY

A survey of 2014 health plans indicated that managing Oncology is a top concern for nearly 80% of respondents.¹² Oncology costs represent approximately 20% of total specialty medication costs (medical and pharmacy combined). Many Oncology products are infusion-based products that require a healthcare professional for administration. In addition, patients may require additional adjunctive therapy and close monitoring for adverse events. The growth in the Oncology therapeutic class is driven by a combination of factors:

- Technology that has led to earlier and higher diagnosis rates
- Research and development of new products enabling new treatment options for patients

The expected annual PMPM specialty trend for the Oncology therapeutic class is 19%, with the pharmacy trend higher than medical trend. Medical products comprised about 71% of the Oncology spend in 2012, which decreased to 68% in 2013, and is expected to continue decreasing to 62% in 2016. An increase in utilization led to the increase in PMPM trends in the pharmacy benefit, which was potentially due to oral cancer medications being introduced to the market along with white bagging and brown bagging.

¹² EMD Serono (2015). EMD Serono Specialty Digest, 11th edition.

The top 10 Oncology Level I and Level II HCPCS codes are provided in the table in Figure 12.

**Figure 12:
Projected Oncology Specialty Medical Spending
Top 10 HCPCS Summary
2016**

HCPCS	Medication Name	2016 Spending PMPM	2016 Cost per Claim
J9035	Bethanechol Chloride	\$1.37	\$6,736
J9310	Rituxan	\$1.21	\$11,360
J9355	Tranzgel	\$1.21	\$6,496
J9305	Alimta	\$0.43	\$14,489
J9263	Oxaliplatin	\$0.43	\$4,383
J9171	Taxotere	\$0.42	\$3,989
J9041	Calcifol	\$0.25	\$3,274
J9228	Yervoy	\$0.23	\$61,230
J9033	Treanda	\$0.22	\$8,484
J9264	Paclitaxel	\$0.22	\$5,846
Other		\$1.60	\$1,051
Total		\$7.59	\$3,170

The top 10 Oncology products accounted for 79% of Oncology specialty medical costs. Note that the ranking of products within the Oncology class is reflective of historical market share. Oncology is a rapidly evolving class with many new treatments; the actual order of the top Oncology HCPCS codes will likely vary from the table in Figure 12, and may even include very new products such as Keytruda or Opdivo.

Oncology specialty medical costs by place of service are provided in Figure 13.

**Figure 13:
Projected Oncology Specialty Medical Spending by Place of Service
2016**

Place of Service	Utilization Per 1,000 Members	Allowed Cost Per Claim	PMPM	Percent of Total PMPM
Physician Office	15.74	\$2,180	\$2.86	37.8%
Home Health	0.62	\$232	\$0.01	0.2%
Hospital Outpatient	12.07	\$4,616	\$4.64	61.4%
Other Medical	0.08	\$7,125	\$0.05	0.7%
Total Medical	28.51	\$3,184	\$7.56	100.0%

Thirty-eight percent of Oncology specialty medical costs are administered in a physician's office and 62% at a hospital outpatient facility. Only a very small portion of Oncology costs were administered in home health or other medical settings. The total average annual trend for specialty medical oncology products is expected to be about 15%.

MULTIPLE SCLEROSIS

Multiple Sclerosis costs represent approximately 11% of specialty medical and pharmacy costs. The majority of these costs are associated with the pharmacy benefit, with only 14% of Multiple Sclerosis costs provided under the medical benefit.

The top two Multiple Sclerosis Level I and Level II HCPCS codes are provided in the table in Figure 14.

**Figure 14:
Projected Multiple Sclerosis Specialty Medical Spending
Top 2 HCPCS Summary
2016**

HCPCS	Medication Name	2016 Spending PMPM	2016 Cost per Claim
J2323	Tysabri	\$0.97	\$7,284.53
J1826	Betaseron	\$0.01	\$5,426.38
All Other		\$0.00	\$19,375.08
Total		\$0.98	\$7,271.31

Multiple Sclerosis specialty medical costs by place of service are provided in the table in Figure 15.

**Figure 15:
Projected Multiple Sclerosis Specialty Medical Spending by Place of Service
2016**

Place of Service	Utilization Per 1,000 Members	Allowed Cost Per Claim	PMPM	Percent of Total PMPM
Physician Office	\$0.68	\$5,487	\$0.31	32.2%
Home Health	\$0.07	\$5,690	\$0.03	3.3%
Hospital Outpatient	\$0.85	\$8,839	\$0.62	64.2%
Other Medical	\$0.01	\$5,855	\$0.00	0.3%
Total Medical	\$1.61	\$7,267	\$0.97	100.0%

Thirty-two percent of Multiple Sclerosis specialty medical costs are administered in a physician's office and 64% at a hospital outpatient facility. Only a very small portion of Multiple Sclerosis treatments are administered in home health or other medical settings. The total average annual trend for Multiple Sclerosis medical products is expected to be about 12%. Trends are expected to be somewhat lower in the pharmacy setting, which is due to expected savings from the generic launch of Copaxone. Copaxone is an oral treatment that is only covered under the pharmacy benefit.

V. TREND MITIGATION STRATEGIES

Controlling specialty spend has proved difficult, and controlling spend within the medical benefit has not received as much attention as within the pharmacy benefit. Many health plans do not monitor specialty medical spend separately within their plans.¹³ Besides the difficulty in tracking medical product expenditures, the strategies for trend mitigation can be complex. Some of these strategies include:

- Renegotiating contracts with provider networks to provide similar reimbursement for specialty medical claims regardless of place of service.
- Shifting place of service to most cost-effective channel.
- Eliminating financial incentives for physicians and hospitals to dispense more expensive medications. Current reimbursement is based on ASP plus methodology, which creates higher profit incentives for dispensing higher-cost therapy.
- Covering medications through a specialty pharmacy only when there are tighter controls for pricing and pharmacy management (not necessarily patient comorbid condition management).
- Aligning member financial incentives to be delivery-channel neutral.
- Implementing traditional PBM utilization management techniques, such as step therapies, preferred medication lists, quantity limits, and prior authorizations.
- Development of systems to consolidate and coordinate specialty utilization through the medical and pharmacy benefit.
- Timely and accurate reporting and analyzing of specialty medication across both the medical and pharmacy benefit.

On the pharmacy side, there has been a lot of attention on controlling specialty costs, within health plans but also among the general public and political space. Plans continue to use traditional strategies to manage specialty pharmacy costs, such as formulary management, and there has been a particular emphasis on improving rebates for specialty medications (and non-specialty medications) to offset increasing prices. Rebates have grown substantially in recent years, and some organizations use trend guarantees, which result in a higher rebate payment if trend exceeds a certain predetermined threshold. As more and more specialty products enter the market, products that are facing market competition for the first time may need to offer rebates to retain formulary placement, helping to control costs.

Specialty costs have grown in recent years and will continue to grow in the future. Understanding which areas are driving costs and how they vary by care setting will help direct plans toward appropriately managing the specialty benefit.

¹³ EMD Serono. *ibid.*

VI. METHODOLOGY

This report was based on the analysis of the MarketScan database for 2012 and 2013 claims data. The database includes allowed cost and utilization for inpatient, outpatient, professional, and retail / mail pharmacy services for a commercial population.

Medication costs and utilization were studied in the following settings:

- Hospital outpatient facility
- Physician's office
- Home health
- Outpatient retail / mail pharmacy

This study focused on pharmacy claims that are not associated with an inpatient hospital admission. Inpatient ancillary services are often subject to bundled reporting, making it nearly impossible to separate out pharmacy costs. A pharmacy claim line was defined as the unit of measure.

Specialty pharmacy claims were identified using Milliman's proprietary *Health Cost Guidelines* definition of specialty pharmacy products. A variety of sources are used to determine the Health Cost Guidelines specialty medication list, including lists of products typically dispensed through specialty pharmacies, definitions from the Centers for Medicare and Medicaid Services (CMS), and publicly available specialty medication lists provided by PBMs and health plans. There are no universally accepted criteria or lists for specialty identification. Specialty medical claims were identified using all HCPCS associated with a product on Milliman's *Health Cost Guidelines* specialty pharmacy medication list, as well as additional HCPCS codes identified as specialty by a clinician.

An additional cohort was developed to identify and analyze medical and pharmacy costs for specialty utilizers. A specialty utilizer was defined as a member having at least two specialty claims across any place of service in the study period.

We projected 2013 claims data to 2014, 2015, and 2016 using detailed trend projections. Our trend assumptions varied by year and therapeutic class, separately for specialty medical and specialty pharmacy claims, and separately for utilization and unit cost. The trend assumptions were based on a variety of sources, including internal Milliman trend research, published PBM trend reports, historical AWP price trends, and observed historical trends within the MarketScan data. Actual trends are volatile and will vary from our assumptions. We did not apply separate trends by region or by place of service for medical claims, though trends will likely vary by these factors. We attempted to account for the impact of new products within each therapeutic class as a whole but did not vary trends at a product-specific level.

UNDERLYING DATA DEMOGRAPHICS

Appendix A highlights the geographical area and gender composition of the data for the two years in the study period.

The MarketScan database had a large change in contributing entities from 2012 to 2013. To control for large population changes, only contributors that were present in every month of both 2012 and 2013 and whose membership counts did not change by more than 25% from year-to-year were included in the study.

The membership for this analysis was separated into four regional segments: Midwest, Northeast, South, and West (see Appendix B for states by region). The data is credible and broad enough to represent national average expenditures. In addition, the gender composition, which plays a big part in predicting healthcare expenditures, was fairly uniform by region and year.

VII. CAVEATS AND LIMITATIONS

The information in this study is intended to describe specialty cost trends in the commercial market and provide a benchmark for the specialty drug experience of health plans. It may not be appropriate, and should not be used, for other purposes.

We relied on data obtained through proprietary and purchased data sources as the basis for our analysis and did not independently audit or verify the source of the information. If this information is incomplete or inaccurate, our observations and comments may not be appropriate. We performed general reasonableness tests on the underlying data.

Actual results will differ from these estimates, which is due to differences in population, mix of therapies used, distributions of medications by places of service, and medication prices, among other factors. The authors are not required to update this report when new information emerges.

The results of this study would be different for the Medicare, Medicaid, individual, or uninsured populations. In addition, the results in the study may not be representative of populations covered under state insurance exchanges or population changes brought about by the ACA.

Katie Holcomb and Justin Harris are members of the American Academy of Actuaries and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

EXHIBITS

**Exhibit 1:
Summary of Demographic Distribution Underlying Specialty Benchmarks
All Members, Specialty Users, and Non-Specialty Users**

Region	All Members		Specialty Drug Utilizers		Non-Specialty Drug Utilizers	
	Member Months	% of Total	Member Months	% of Total	Member Months	% of Total
Midwest	4,847,635	21%	105,109	20%	4,742,526	21%
Northeast	4,525,276	20%	108,169	21%	4,417,107	20%
South	9,824,442	43%	220,514	43%	9,603,928	43%
West	3,737,324	16%	83,159	16%	3,654,165	16%
Total	22,934,677	100%	516,951	100%	22,417,726	100%

Region	% Male		% Female		% Male		% Female	
	% Male	% Female	% Male	% Female	% Male	% Female	% Male	% Female
Midwest	49%	51%	33%	67%	49%	51%	49%	51%
Northeast	48%	52%	33%	67%	49%	51%	49%	51%
South	48%	52%	34%	66%	48%	52%	48%	52%
West	48%	52%	34%	66%	48%	52%	48%	52%
Total	48%	52%	0%	66%	48%	52%	48%	52%

Age Band	All Members		Specialty Drug Utilizers		Non-Specialty Drug Utilizers	
	Member Months	% of Total	Member Months	% of Total	Member Months	% of Total
Children						
0-1	546,911	2%	3,638	1%	543,273	2%
2-6	1,488,448	6%	3,761	1%	1,484,687	7%
7-18	4,236,639	18%	27,423	5%	4,209,216	19%
19-22	1,366,220	6%	17,536	3%	1,348,684	6%
23-25	674,517	3%	8,654	2%	665,863	3%
26+	0	0%	0	0%	0	0
Adults						
<25	345,369	2%	4,635	1%	340,734	2%
25-29	1,219,726	5%	24,780	5%	1,194,946	5%
30-34	1,697,244	7%	46,886	9%	1,650,358	7%
35-39	1,797,971	8%	52,256	10%	1,745,715	8%
40-44	2,042,033	9%	56,973	11%	1,985,060	9%
45-49	2,009,902	9%	58,064	11%	1,951,838	9%
50-54	2,123,947	9%	69,798	14%	2,054,149	9%
55-59	1,918,281	8%	75,018	15%	1,843,263	8%
60-64	1,446,186	6%	66,635	13%	1,379,551	6%
65+	21,283	0%	894	0%	20,389	0%
Total	22,934,677	100%	516,951	100%	22,417,726	100%

Exhibit 2A:
Summary of Medical and Pharmacy Costs as a Percentage of Total - 2016 Projected
All Members - Total

Claim Type	Outpatient	Home	Professional	Inpatient	Other	Total	Pharmacy	Total
	Hospital	Health			Medical	Medical		
	Total							
MPPM								
Total PMPM	\$137.99	\$10.54	\$111.44	\$119.27	\$42.23	\$421.47	\$119.67	\$541.14
Pharmacy PMPM	\$17.66	\$2.32	\$16.28	N/A	\$0.97	\$37.21	\$119.67	\$156.88
Specialty PMPM	\$10.06	\$2.02	\$8.94	N/A	\$0.38	\$21.39	\$38.93	\$60.33
Specialty Cost per Rx	\$4,844.92	\$4,871.23	\$2,057.11	N/A	\$1,139.08	\$2,985.79	\$5,347.96	\$4,176.33
Specialty Utilization / 1,000	24.9	5.0	52.1	N/A	4.0	86.0	87.4	173.3
Percent of Total								
Total Spend	25%	2%	21%	22%	8%	78%	22%	100%
Pharmacy Spend	11%	1%	10%	N/A	1%	24%	76%	100%
Total Scripts	6%	0%	13%	N/A	1%	20%	80%	100%
Specialty Spend	17%	3%	15%	N/A	1%	35.4%	64%	100%
Specialty Scripts	14%	3%	30%	N/A	2%	50%	50%	100%
Specialty as % of Total Spend								11.2%
Specialty as % of Drug Spend								38.5%
Drug cost % of Total Spend								29.0%
Medical Spec Drug as % of Medical Drug Spend								57.5%
Pharmacy Spec Drug as % of Pharmacy Drug Spend								32.5%

**Exhibit 2A Continued:
Summary of Medical and Pharmacy Costs as a Percentage of Total - 2016 Projected
All Members – By Region**

Claim Type	Outpatient Hospital	Home Health	Professional	Inpatient	Other Medical	Total Medical	Pharmacy	Total
Midwest								
PMPM								
Total PMPM	\$154.99	\$10.03	\$101.59	\$124.42	\$37.80	\$428.83	\$112.86	\$541.69
Pharmacy PMPM	\$16.41	\$2.44	\$15.42	N/A	\$0.76	\$35.04	\$112.86	\$147.90
Specialty PMPM	\$10.46	\$2.20	\$8.17	N/A	\$0.44	\$21.28	\$37.62	\$58.90
Specialty Cost per Rx	\$5,331.17	\$5,339.69	\$1,931.75	N/A	\$2,502.19	\$3,137.71	\$5,594.41	\$4,360.85
Specialty Utilization / 1,000	23.5	5.0	50.8	N/A	2.1	81.4	80.7	162.1
Percent of Total								
Total Spend	29%	2%	19%	23%	7%	79%	21%	100%
Pharmacy Spend	11%	2%	10%	N/A	1%	24%	76%	100%
Total Scripts	7%	0%	13%	N/A	1%	21%	79%	100%
Specialty Spend	18%	4%	14%	N/A	1%	36%	64%	100%
Specialty Scripts	15%	3%	31%	N/A	1%	50%	50%	100%
Northeast								
PMPM								
Total PMPM	\$153.32	\$11.43	\$123.12	\$122.35	\$38.21	\$448.43	\$119.42	\$567.85
Pharmacy PMPM	\$20.99	\$3.20	\$12.95	N/A	\$0.71	\$37.85	\$119.42	\$157.27
Specialty PMPM	\$14.46	\$2.60	\$5.98	N/A	\$0.44	\$23.48	\$43.72	\$67.20
Specialty Cost per Rx	\$4,987.65	\$5,928.07	\$2,027.62	N/A	\$1,460.32	\$3,563.47	\$5,239.58	\$4,500.06
Specialty Utilization / 1,000	34.8	5.3	35.4	N/A	3.6	79.1	100.1	179.2
Percent of Total								
Total Spend	27%	2%	22%	22%	7%	79%	21%	100%
Pharmacy Spend	13%	2%	8%	N/A	0%	24%	76%	100%
Total Scripts	5%	0%	14%	N/A	0%	20%	80%	100%
Specialty Spend	22%	4%	9%	N/A	1%	35%	65%	100%
Specialty Scripts	19%	3%	20%	N/A	2%	44%	56%	100%
South								
PMPM								
Total PMPM	\$128.38	\$10.23	\$107.27	\$111.90	\$43.62	\$401.40	\$128.80	\$530.20

Claim Type	Outpatient Hospital	Home Health	Professional	Inpatient	Other Medical	Total Medical	Pharmacy	Total
Pharmacy PMPM	\$16.88	\$1.73	\$18.00	N/A	\$1.14	\$37.75	\$128.80	\$166.55
Specialty PMPM	\$8.08	\$1.52	\$10.57	N/A	\$0.33	\$20.49	\$38.32	\$58.81
Specialty Cost per Rx	\$4,230.43	\$4,025.16	\$2,141.23	N/A	\$818.16	\$2,688.79	\$5,444.10	\$4,011.86
Specialty Utilization / 1,000	22.9	4.5	59.2	N/A	4.8	91.4	84.5	175.9
Percent of Total								
Total Spend	24%	2%	20%	21%	8%	76%	24%	100%
Pharmacy Spend	10%	1%	11%	N/A	1%	23%	77%	100%
Total Scripts	6%	0%	13%	N/A	1%	20%	80%	100%
Specialty Spend	14%	3%	18%	N/A	1%	35%	65%	100%
Specialty Scripts	13%	3%	34%	N/A	3%	52%	48%	100%
West								
PMPM								
Total PMPM	\$122.64	\$10.96	\$121.05	\$128.25	\$49.16	\$432.06	\$104.79	\$536.85
Pharmacy PMPM	\$17.27	\$2.64	\$16.88	N/A	\$1.09	\$37.87	\$104.79	\$142.67
Specialty PMPM	\$9.45	\$2.37	\$9.23	N/A	\$0.33	\$21.38	\$36.45	\$57.83
Specialty Cost per Rx	\$5,649.99	\$4,926.69	\$1,992.71	N/A	\$885.51	\$2,986.37	\$4,962.20	\$3,986.88
Specialty Utilization / 1,000	20.1	5.8	55.6	N/A	4.5	85.9	88.1	174.1
Percent of Total								
Total Spend	23%	2%	23%	24%	9%	80%	20%	100%
Pharmacy Spend	12%	2%	12%	N/A	1%	27%	73%	100%
Total Scripts	6%	0%	14%	N/A	1%	21%	79%	100%
Specialty Spend	16%	4%	16%	N/A	1%	37%	63%	100%
Specialty Scripts	12%	3%	32%	N/A	3%	49%	51%	100%

Exhibit 2B:
Summary of Medical and Pharmacy Costs as a Percentage of Total - 2016 Projected
Specialty Drug Utilizers - Total

Claim Type	Outpatient	Home	Professional	Inpatient	Other	Total	Pharmacy	Total
	Hospital	Health			Medical	Medical		
Total								
PMPM								
Total PMPM	\$1,307.39	\$160.97	\$764.11	\$964.00	\$271.37	\$3,467.83	\$2,004.11	\$5,471.94
Pharmacy PMPM	\$586.95	\$93.39	\$429.10	N/A	\$29.16	\$1,138.59	\$2,004.11	\$3,142.70
Specialty PMPM	\$432.99	\$88.76	\$371.13	N/A	\$15.96	\$908.84	\$1,727.33	\$2,636.17
Specialty Cost per Rx	\$5,389.30	\$4,864.64	\$2,312.37	N/A	\$1,141.65	\$3,328.29	\$5,347.96	\$4,422.71
Specialty Utilization / 1,000	964.1	219.0	1,925.9	N/A	167.8	3,276.8	3,875.9	7,152.6
Percent of Total								
Total Spend	24%	3%	14%	18%	5%	63%	37%	100%
Pharmacy Spend	19%	3%	14%	N/A	1%	36%	64%	100%
Total Scripts	15%	1%	17%	N/A	2%	35%	65%	100%
Specialty Spend	16%	3%	14%	N/A	1%	34%	65%	100%
Specialty Scripts	13%	3%	27%	N/A	2%	46%	54%	100%
Specialty as % of Total Spend								48.2%
Specialty as % of Drug Spend								83.9%
Drug cost % of Total Spend								57.5%
Medical Spec Drug as % of Medical Drug Spend								54.7%
Pharmacy Spec Drug as % of Pharmacy Drug Spend								86.2%

**Exhibit 2B Continued:
Summary of Medical and Pharmacy Costs as a Percentage of Total - 2016 Projected
Specialty Drug Utilizers - By Region**

Claim Type	Outpatient Hospital	Home Health	Professional	Inpatient	Other Medical	Total Medical	Pharmacy	Total
Midwest								
MPPM								
Total PMPM	\$1,436.08	\$167.95	\$705.84	\$1,075.22	\$233.58	\$3,618.68	\$1,995.97	\$5,614.65
Pharmacy PMPM	\$622.09	\$103.27	\$406.08	N/A	\$26.48	\$1,157.92	\$1,995.97	\$3,153.89
Specialty PMPM	\$466.89	\$101.18	\$350.22	N/A	\$20.02	\$938.31	\$1,735.06	\$2,673.37
Specialty Cost per Rx	\$5,902.66	\$5,343.76	\$2,160.82	N/A	\$2,570.75	\$3,502.52	\$5,594.41	\$4,624.90
Specialty Utilization / 1,000	949.2	227.2	1,944.9	N/A	93.4	3,214.8	3,721.7	6,936.4
Percent of Total								
Total Spend	26%	3%	12%	21%	5%	68%	32%	101%
Pharmacy Spend	20%	3%	13%	N/A	1%	37%	63%	100%
Total Scripts	17%	1%	18%	N/A	1%	37%	63%	100%
Specialty Spend	18%	4%	13%	N/A	1%	35%	65%	100%
Specialty Scripts	14%	3%	29%	N/A	2%	48%	52%	100%
Northeast								
MPPM								
Total PMPM	\$1,436.08	\$167.95	\$705.84	\$1,075.22	\$233.58	\$3,618.68	\$1,995.97	\$5,614.65
Pharmacy PMPM	\$622.09	\$103.27	\$406.08	N/A	\$26.48	\$1,157.92	\$1,995.97	\$3,153.89
Specialty PMPM	\$466.89	\$101.18	\$350.22	N/A	\$20.02	\$938.31	\$1,735.06	\$2,673.37
Specialty Cost per Rx	\$5,902.66	\$5,343.76	\$2,160.82	N/A	\$2,570.75	\$3,502.52	\$5,594.41	\$4,624.90
Specialty Utilization / 1,000	949.2	227.2	1944.9	N/A	93.4	3214.8	3721.7	6936.4
Percent of Total								
Total Spend	27%	3%	11%	17%	4%	62%	38%	100%
Pharmacy Spend	20%	3%	13%	N/A	1%	37%	63%	100%
Total Scripts	17%	1%	18%	N/A	1%	37%	63%	100%
Specialty Spend	17%	4%	13%	N/A	1%	35%	65%	100%
Specialty Scripts	14%	3%	28%	N/A	1%	46%	54%	100%

Claim Type	Outpatient Hospital	Home Health	Professional	Inpatient	Other Medical	Total Medical	Pharmacy	Total
South								
PMPM								
Total PMPM	\$2,444.38	\$295.12	\$1,727.64	\$1,921.22	\$656.44	\$7,044.80	\$4,201.53	\$11,246.33
Pharmacy PMPM	\$1,054.82	\$147.43	\$1,072.95	N/A	\$67.19	\$2,342.39	\$4,201.53	\$6,543.92
Specialty PMPM	\$728.30	\$141.30	\$937.61	N/A	\$28.66	\$1,835.87	\$3,582.08	\$5,417.95
Specialty Cost per Rx	\$4,878.55	\$4,037.78	\$2,385.66	N/A	\$809.19	\$2,996.28	\$5,444.10	\$4,263.78
Specialty Utilization / 1,000	1791.4	419.9	4716.2	N/A	425.0	7352.6	7895.7	15248.3
Percent of Total								
Total Spend	22%	3%	15%	17%	6%	63%	37%	100%
Pharmacy Spend	16%	2%	16%	N/A	1%	36%	64%	100%
Total Scripts	14%	1%	18%	N/A	2%	35%	65%	100%
Specialty Spend	13%	3%	17%	N/A	1%	34%	66%	100%
Specialty Scripts	12%	3%	31%	N/A	3%	48%	52%	100%
West								
PMPM								
Total PMPM	\$1,249.08	\$178.00	\$842.12	\$999.10	\$293.70	\$3,561.99	\$1,896.17	\$5,458.16
Pharmacy PMPM	\$556.40	\$108.76	\$453.90	N/A	\$31.38	\$1,150.44	\$1,896.17	\$3,046.61
Specialty PMPM	\$412.98	\$106.31	\$384.32	N/A	\$14.08	\$917.69	\$1,638.01	\$2,555.69
Specialty Cost per Rx	\$6,228.66	\$4,950.59	\$2,275.87	N/A	\$865.71	\$3,362.64	\$4,962.20	\$4,238.27
Specialty Utilization / 1,000	795.6	257.7	2026.4	N/A	195.2	3274.9	3961.2	7236.0
Percent of Total								
Total Spend	23%	3%	15%	18%	5%	65%	35%	100%
Pharmacy Spend	18%	4%	15%	N/A	1%	38%	62%	100%
Total Scripts	13%	1%	18%	N/A	2%	35%	65%	100%
Specialty Spend	16%	4%	15%	N/A	1%	36%	64%	100%
Specialty Scripts	11%	4%	28%	N/A	3%	45%	55%	100%

Exhibit 2C:
Summary of Medical and Pharmacy Costs as a Percentage of Total - 2016 Projected
Non-Specialty Drug Utilizers – Total

Claim Type	Outpatient	Home	Professional	Inpatient	Other	Total	Pharmacy	Total
	Hospital	Health			Medical	Medical		
Total								
PMPM								
Total PMPM	\$111.02	\$7.07	\$96.39	\$99.79	\$36.94	\$351.23	\$76.21	\$427.44
Pharmacy PMPM	\$4.53	\$0.22	\$6.76	N/A	\$0.32	\$11.82	\$76.21	\$88.03
Specialty PMPM								
Specialty Cost per Rx					N/A			
Specialty Utilization / 1,000								
Percent of Total								
Total Spend	26%	2%	23%	23%	9%	82%	18%	100%
Pharmacy Spend	5%	0%	8%	N/A	0%	13%	86%	100%
Total Scripts	5%	0%	13%	N/A	1%	19%	81%	100%
Specialty Spend								
Specialty Scripts					N/A			
Specialty as % of Total Spend								N/A
Specialty as % of Drug Spend								N/A
Drug cost % of Total Spend								20.6%
Medical Spec Drug as % of Medical								
Drug Spend								N/A
Pharmacy Spec Drug as % of								
Pharmacy Drug Spend								N/A

Exhibit 2C Continued:
Summary of Medical and Pharmacy Costs As a Percentage of Total - 2016 Projected
Non-Specialty Drug Utilizers - By Region

Claim Type	Outpatient Hospital	Home Health	Professional	Inpatient	Other Medical	Total Medical	Pharmacy	Total
Midwest								
PMPM								
Total PMPM	\$126.60	\$6.53	\$88.19	\$103.35	\$33.47	\$358.13	\$71.12	\$429.26
Pharmacy PMPM	\$2.99	\$0.20	\$6.76	N/A	\$0.19	\$10.15	\$71.12	\$81.27
Specialty PMPM								
Specialty Cost per Rx				N/A				
Specialty Utilization / 1,000								
Percent of Total								
Total Spend	29%	2%	21%	24%	8%	83%	17%	100%
Pharmacy Spend	4%	0%	8%	N/A	0%	12%	87%	100%
Total Scripts	6%	0%	13%	N/A	0%	19%	81%	100%
Specialty Spend				N/A				
Specialty Scripts								
Northeast								
PMPM								
Total PMPM	\$119.92	\$7.24	\$110.47	N/A	\$34.09	\$271.72	\$70.97	\$342.69
Pharmacy PMPM	\$3.19	\$0.36	\$6.79	N/A	\$0.14	\$10.47	\$70.97	\$81.45
Specialty PMPM								
Specialty Cost per Rx				N/A				
Specialty Utilization / 1,000								
Percent of Total								
Total Spend	27%	2%	25%	23%	8%	84%	16%	100%
Pharmacy Spend	4%	0%	8%	N/A	0%	13%	87%	100%
Total Scripts	4%	0%	14%	N/A	0%	19%	81%	100%
Specialty Spend				N/A				
Specialty Scripts								
South								
PMPM								
Total PMPM	\$104.58	\$7.23	\$90.83	\$93.44	\$37.44	\$333.52	\$186.50	\$419.29
Pharmacy PMPM	\$5.72	\$0.15	\$6.67	N/A	\$0.43	\$13.11	\$186.50	\$98.89

Claim Type	Outpatient Hospital	Home Health	Professional	Inpatient	Other Medical	Total Medical	Pharmacy	Total
Specialty PMPM								
Specialty Cost per Rx					N/A			
Specialty Utilization / 1,000								
Percent of Total								
Total Spend	25%	2%	22%	22%	9%	80%	20%	100%
Pharmacy Spend	33%	1%	62%	N/A	2%	98%	0%	98%
Total Scripts	5%	0%	12%	N/A	1%	18%	82%	100%
Specialty Spend								
Specialty Scripts					N/A			
					West			
MPPM								
Total PMPM	\$97.00	\$7.16	\$104.64	\$108.43	\$43.59	\$360.83	\$52.97	\$424.85
Pharmacy PMPM	\$5.00	\$0.22	\$6.94	N/A	\$0.40	\$12.61	\$52.97	\$76.63
Specialty PMPM								
Specialty Cost per Rx					N/A			
Specialty Utilization / 1,000								
Percent of Total								
Total Spend	23%	2%	25%	26%	10%	85%	15%	100%
Pharmacy Spend	7%	0%	9%	N/A	1%	16%	84%	100%
Total Scripts	5%	0%	13%	N/A	1%	19%	81%	100%
Specialty Spend								
Specialty Scripts					N/A			

Exhibit 3:
Average Annual PMPM Trends by Therapeutic Class
All Members

Therapeutic Class	Average Annual PMPM Trends 2013-2016	
	Pharmacy	Medical
Acromegaly	9.7%	8.0%
Anticoagulants	N/A	29.2%
Corticotropin	6.5%	18.6%
Cystic Fibrosis	23.7%	-13.5%
Fertility Regulatory	23.6%	53.9%
Growth Hormone	8.6%	-5.0%
Hematopoietic Growth Factors	11.6%	15.0%
Hemophilia	18.1%	-9.5%
Hepatitis Agents	124.6%	16.0%
Hereditary Angioedema	29.5%	31.4%
IGF-1 Deficiency	8.6%	N/A
Immune Deficiency	16.4%	24.7%
Inflammatory Conditions	25.5%	23.0%
Lysosomal Storage Disease	13.0%	24.3%
Multiple Sclerosis	8.9%	12.3%
Neuromuscular Blocking Agent - Neurotoxins	36.8%	36.8%
Oncology	26.4%	14.9%
Ophthalmic Conditions	N/A	77.3%
Osteoporosis	9.9%	29.6%
Plasma Proteins	N/A	-0.8%
Platelet Aggregation Inhibitors	N/A	1.2%
Pulmonary Hypertension	14.3%	4.8%
Respiratory Conditions	14.3%	14.3%
RSV	4.7%	N/A
Stem Cell Mobilizers	63.3%	42.1%
Thrombin Inhibitors	N/A	29.2%
Viscosupplements	30.0%	-15.4%
Other	21.0%	16.0%

Exhibit 4:
Medical and Pharmacy Use, Unit Cost, and Total Cost per Member
per Month by Place of Service
Projected 2016 Spending

Place of Service	All Members		
	Util/1000	Unit Cost	Allowed PMPM
Office	1,693	\$115	\$16.28
Home	14	\$1,979	\$2.32
Inpatient hospital	4	\$566	\$0.17
Outpatient hospital	765	\$277	\$17.66
Pharmacy	10,134	\$142	\$119.67
Other	85	\$137	\$0.97
Total	12,695	\$148	\$157.05

Place of Service	Specialty Drug Spend Only		
	Util/1000	Unit Cost	Allowed PMPM
Office	52	\$2,057	\$8.94
Home	5	\$4,871	\$2.02
Inpatient hospital	0	\$13,609	\$0.09
Outpatient hospital	25	\$4,845	\$10.06
Pharmacy	87	\$5,348	\$38.93
Other	4	\$1,139	\$0.38
Total	173	\$4,180	\$60.41

Place of Service	Specialty Drug Utilizers ¹		
	Util/1000	Unit Cost	Allowed PMPM
Office	8,250	\$624	\$429.10
Home	354	\$3,166	\$93.39
Inpatient hospital	21	\$2,136	\$3.73
Outpatient hospital	7,338	\$960	\$586.95
Pharmacy	30,840	\$780	\$2,004.11
Other	852	\$411	\$29.16
Total	47,655	\$792	\$3,146.43

Place of Service	Specialty Drug Spend Only		
	Util/1000	Unit Cost	Allowed PMPM
Office	1,926	\$2,312	\$371.13
Home	219	\$4,865	\$88.76
Inpatient hospital	3	\$13,409	\$3.22
Outpatient hospital	964	\$5,389	\$432.99
Pharmacy	3,876	\$5,348	\$1,727.33
Other	168	\$1,142	\$15.96
Total	7,156	\$4,426	\$2,639.39

¹Specialty drug utilizers have two or more specialty medications in a year

Non-Specialty Drug Utilizers²			
All Drug Spend			
Place of Service	Util/1000	Unit Cost	Allowed PMPM
Office	1,542	\$53	\$6.76
Home	6	\$417	\$0.22
Inpatient hospital	3	\$327	\$0.09
Outpatient hospital	614	\$89	\$4.53
Pharmacy	9,657	\$95	\$76.21
Other	67	\$57	\$0.32
Total	11,889	\$89	\$88.12
Specialty Drug Spend Only			
Place of Service	Util/1000	Unit Cost	Allowed PMPM
Office	9	\$786	\$0.58
Home	0	\$5,874	\$0.02
Inpatient hospital	0	\$14,729	\$0.01
Outpatient hospital	3	\$1,144	\$0.31
Pharmacy	0	\$0	\$0.00
Other	0	\$1,083	\$0.02
Total	12	\$911	\$0.94

²Non-specialty drug utilizers have less than two specialty medications in a year

Exhibit 5A:
Summary of PMPM Cost and Utilization by Drug Class for
Projected Top 25 Classes by Spending - 2016
All Members

GPI4 Class	GPI4	Total Spend PMPM	Medical Spend PMPM	Pharmacy Spend PMPM	Utilization / 1,000	Average Cost per Script
Multiple Sclerosis Agents	6240	\$6.88	\$0.97	\$5.91	29.15	\$6,863
Anti-TNF-alpha - Monoclonal Antibodies	6627	\$5.96	\$0.01	\$5.95	31.76	\$4,962
Hepatitis Agents	1235	\$4.50	\$0.00	\$4.50	12.10	\$6,080
Soluble Tumor Necrosis Factor Receptor Agents	6629	\$4.26	\$0.00	\$4.26	24.17	\$4,747
Inflammatory Bowel Agents	5250	\$4.07	\$3.32	\$0.76	13.88	\$5,689
Antiretrovirals	1210	\$3.68	\$0.00	\$3.68	51.34	\$2,095
Antineoplastic - Antibodies	2135	\$2.96	\$2.92	\$0.04	8.22	\$7,063
Antineoplastic Enzyme Inhibitors	2153	\$2.94	\$0.29	\$2.65	7.76	\$9,987
Immune Serums	1910	\$2.11	\$1.87	\$0.23	11.48	\$3,453
Antineoplastic - Angiogenesis Inhibitors	2133	\$1.37	\$1.36	\$0.01	4.91	\$5,488
Growth Hormones	3010	\$1.26	\$0.00	\$1.26	6.58	\$6,212
Alkylating Agents	2110	\$1.19	\$0.93	\$0.26	13.61	\$2,037
Antihemophilic Products	8510	\$1.12	\$0.33	\$0.79	2.01	\$15,722
Antipsoriatics	9025	\$1.09	\$0.16	\$0.93	2.07	\$12,783
Fertility Regulators	3006	\$1.05	\$0.01	\$1.05	16.19	\$1,707
Antimetabolites	2130	\$0.99	\$0.66	\$0.32	13.26	\$1,611
Hematopoietic Growth Factors	8240	\$0.81	\$0.37	\$0.43	14.27	\$1,485
Mitotic Inhibitors	2150	\$0.79	\$0.79	\$0.01	7.56	\$2,123
Immunomodulators	9939	\$0.76	\$0.00	\$0.76	1.96	\$10,738
Metabolic Modifiers	3090	\$0.76	\$0.48	\$0.27	2.74	\$5,976
Neuromuscular Blocking Agent - Neurotoxins	7440	\$0.72	\$0.63	\$0.09	8.61	\$1,409
Complement Inhibitors	8580	\$0.63	\$0.53	\$0.10	0.28	\$37,655
Bone Density Regulators	3004	\$0.63	\$0.47	\$0.16	5.84	\$2,173
Antiasthmatic - Monoclonal Antibodies	4460	\$0.55	\$0.12	\$0.43	4.46	\$3,466
Selective Costimulation Modulators	6640	\$0.54	\$0.28	\$0.26	3.36	\$3,539

Exhibit 5B:
Summary of PMPM Cost and Utilization by Drug Class for
Projected Top 25 Classes by Spending - 2016
Specialty Drug Utilizers

GPI4 Class	GPI4	Total Spend PMPM	Medical Spend PMPM	Pharmacy Spend PMPM	Utilization / 1,000	Average Cost per Script
Multiple Sclerosis Agents	6240	\$737.94	\$43.06	\$262.32	1,290.81	\$6,860
Anti-TNF-alpha -						
Monoclonal Antibodies	6627	\$581.64	\$0.24	\$264.16	1,406.13	\$4,964
Hepatitis Agents	1235	\$271.80	\$0.08	\$199.62	536.25	\$6,082
Soluble Tumor Necrosis						
Factor Receptor Agents	6629	\$423.15	\$0.00	\$188.78	1,069.59	\$4,747
Inflammatory Bowel						
Agents	5250	\$290.10	\$145.77	\$33.50	612.02	\$5,688
Antiretrovirals	1210	\$397.25	\$0.00	\$163.42	2,275.06	\$2,095
Antineoplastic - Antibodies	2135	\$209.67	\$126.71	\$1.58	358.71	\$7,014
Antineoplastic Enzyme						
Inhibitors	2153	\$286.02	\$12.91	\$117.54	343.25	\$9,999
Immune Serums	1910	\$141.29	\$79.23	\$10.42	411.82	\$4,117
Antineoplastic -						
Angiogenesis Inhibitors	2133	\$99.42	\$60.32	\$0.37	210.62	\$5,664
Growth Hormones	3010	\$150.40	\$0.16	\$55.84	290.63	\$6,210
Alkylating Agents	2110	\$102.18	\$41.13	\$11.48	598.67	\$2,048
Antihemophilic Products	8510	\$115.43	\$14.26	\$35.23	87.69	\$15,796
Antipsoriatics	9025	\$97.84	\$7.26	\$41.11	91.58	\$12,821
Fertility Regulators	3006	\$101.95	\$0.21	\$46.53	711.86	\$1,719
Antimetabolites	2130	\$78.63	\$29.40	\$14.41	579.07	\$1,629
Hematopoietic Growth						
Factors	8240	\$77.72	\$16.12	\$19.23	628.84	\$1,483
Mitotic Inhibitors	2150	\$59.14	\$34.86	\$0.28	334.63	\$2,121
Immunomodulators	9939	\$77.72	\$0.00	\$33.84	86.84	\$10,740
Metabolic Modifiers	3090	\$60.36	\$21.26	\$12.10	121.16	\$5,978
Neuromuscular Blocking						
Agent - Neurotoxins	7440	\$40.86	\$25.10	\$3.99	347.01	\$1,413
Complement Inhibitors	8580	\$39.13	\$23.58	\$4.48	12.42	\$37,796
Bone Density Regulators	3004	\$45.69	\$20.13	\$6.96	248.35	\$2,208
Antiasthmatic -						
Monoclonal Antibodies	4460	\$56.91	\$5.12	\$19.14	197.28	\$3,462
Selective Costimulation						
Modulators	6640	\$43.83	\$12.32	\$11.57	148.51	\$3,541

Exhibit 6:
Distribution of Cost and Utilization by Therapeutic Class and
by Place of Service - Projected 2016
All Members

Therapeutic Class	Outpatient % of Cost	Home Health % of Cost	Physician Office % of Cost	Other % of Cost	Pharmacy % of Cost
Agents for Gaucher Disease	6.5%	37.3%	12.0%	13.9%	30.2%
Agents for Pheochromocytoma	0.0%	0.0%	0.0%	0.0%	100.0%
Alkylating Agents	39.2%	0.2%	25.9%	12.9%	21.8%
Alpha-Proteinase Inhibitor (Human)	7.1%	50.5%	2.3%	15.5%	24.6%
ALS Agents	0.0%	0.0%	0.0%	0.0%	100.0%
Aminoglycosides	0.0%	0.0%	0.0%	0.0%	100.0%
Antiasthmatic - Monoclonal Antibodies	2.5%	0.4%	9.4%	8.9%	78.8%
Antidotes	11.1%	0.0%	2.3%	8.6%	78.0%
Antidotes - Chelating Agents	0.0%	0.0%	0.0%	0.0%	100.0%
Antihemophilic Products	1.1%	15.4%	1.2%	11.4%	70.8%
Anti-infective Agents - Misc.	0.0%	0.0%	0.0%	0.0%	100.0%
Antimetabolites	37.8%	0.4%	14.4%	14.7%	32.9%
Antineoplastic - Angiogenesis Inhibitors	64.0%	0.0%	34.9%	0.5%	0.6%
Antineoplastic - Antibodies	56.9%	0.1%	40.3%	1.5%	1.2%
Antineoplastic - Hormonal and Related Agents	10.4%	0.0%	8.3%	10.8%	70.5%
Antineoplastic - Immunomodulators	0.0%	0.0%	0.0%	0.0%	100.0%
Antineoplastic Antibiotics	81.1%	0.0%	18.1%	0.8%	0.0%
Antineoplastic Enzyme Inhibitors	3.1%	0.0%	2.6%	4.3%	90.0%
Antineoplastic Enzymes	42.3%	0.0%	57.7%	0.0%	0.0%
Antineoplastic or Premalignant Lesion Agents - Topical	0.0%	0.0%	0.0%	0.0%	100.0%
Antineoplastics Misc.	11.2%	0.0%	6.1%	10.3%	72.5%
Antiparkinson Dopaminergics	0.0%	0.0%	0.0%	0.0%	100.0%
Antipsoriatics	1.0%	0.1%	7.5%	6.6%	84.9%
Antiretrovirals	0.0%	0.0%	0.0%	0.0%	100.0%
Antirheumatic - Enzyme Inhibitors	0.0%	0.0%	0.0%	0.0%	100.0%
Anti-TNF-alpha - Monoclonal Antibodies	0.0%	0.0%	0.0%	0.0%	99.9%
Bone Density Regulators	34.6%	0.1%	26.2%	14.0%	25.0%
Bradykinin B2 Receptor Antagonists	0.0%	0.0%	0.0%	0.0%	100.0%
Central Muscle Relaxants	46.1%	14.5%	34.1%	3.2%	2.0%
Chemotherapy Rescue/Antidote Agents	49.8%	0.2%	44.3%	3.3%	2.3%
Complement Inhibitors	39.4%	19.4%	16.4%	8.7%	16.0%
Corticotropin	0.0%	0.0%	4.5%	3.9%	91.6%
Cystic Fibrosis Agents	0.0%	0.0%	0.0%	0.0%	100.0%
Cystinosis Agents	0.0%	0.0%	0.0%	0.0%	100.0%
Diabetic Other	0.0%	0.0%	0.0%	0.0%	100.0%
Diagnostic Drugs	43.7%	0.2%	24.3%	12.0%	19.8%

Therapeutic Class	Outpatient % of Cost	Home Health % of Cost	Physician Office % of Cost	Other % of Cost	Pharmacy % of Cost
Digestive Enzymes	0.0%	0.0%	0.0%	0.0%	100.0%
Enzymes	0.7%	0.0%	39.6%	16.3%	43.4%
Fertility Regulators	0.0%	0.0%	0.3%	0.2%	99.5%
GABA Modulators	0.0%	0.0%	0.0%	0.0%	100.0%
GnRH/LHRH Antagonists	0.0%	0.0%	2.2%	1.5%	96.3%
Gout Agents	65.7%	0.0%	34.3%	0.0%	0.0%
Growth Hormone Receptor Antagonists	0.0%	0.0%	0.0%	0.0%	100.0%
Growth Hormone Releasing Hormones (GHRH)	0.0%	0.0%	0.0%	0.0%	100.0%
Growth Hormones	0.0%	0.1%	0.0%	0.1%	99.7%
Hematopoietic Growth Factors	8.2%	0.1%	2.3%	35.6%	53.8%
Hepatitis Agents	0.0%	0.0%	0.0%	0.0%	100.0%
Immune Serums	25.6%	35.1%	17.7%	10.4%	11.1%
Immunomodulators	0.0%	0.0%	0.0%	0.0%	100.0%
Inflammatory Bowel Agents	31.8%	2.0%	37.0%	10.7%	18.5%
Insulin-Like Growth Factors (Somatomedins)	0.0%	0.0%	0.0%	0.0%	100.0%
Interleukin-1 Receptor Antagonist (IL-1Ra)	0.0%	0.0%	0.0%	0.0%	100.0%
Interleukin-1beta Blockers	0.0%	0.0%	0.0%	0.0%	100.0%
Interleukin-6 Receptor Inhibitors	32.1%	1.2%	48.4%	7.2%	11.1%
LHRH/GnRH Agonist Analog					
Pituitary Suppressants	16.4%	0.0%	15.7%	14.6%	53.2%
Metabolic Modifiers	15.8%	28.1%	3.9%	16.2%	36.1%
Microsomal Triglyceride Transfer Protein (MTP) Inhibitors	0.0%	0.0%	0.0%	0.0%	100.0%
Mitotic Inhibitors	63.4%	0.0%	34.6%	1.2%	0.8%
Monoclonal Antibodies	0.0%	0.0%	0.0%	0.0%	100.0%
Movement Disorder Drug Therapy	0.0%	0.0%	0.0%	0.0%	100.0%
Multiple Sclerosis Agents	5.2%	0.3%	2.6%	6.1%	85.9%
Neuromuscular Blocking Agent - Neurotoxins	18.4%	0.1%	62.3%	6.9%	12.4%
Plasma Kallikrein Inhibitors	0.0%	64.5%	0.0%	11.3%	24.2%
Posterior Pituitary Hormones	9.3%	0.0%	2.6%	8.6%	79.5%
Progestin Contraceptives - Implants	0.0%	0.0%	0.0%	0.0%	100.0%
Progestin Contraceptives - IUD	2.9%	0.1%	77.1%	8.1%	11.8%
Progestins	0.0%	0.0%	0.0%	0.0%	100.0%
Prostaglandin Vasodilators	0.1%	38.3%	0.0%	15.5%	46.2%
Pulmonary Hypertension - Endothelin Receptor Antagonists	0.0%	0.0%	0.0%	0.0%	100.0%
Pulmonary Hypertension - Phosphodiesterase Inhibitors	0.0%	0.0%	0.0%	0.0%	100.0%
Selective Costimulation Modulators	12.6%	0.4%	24.3%	14.4%	48.4%
Short Bowel Syndrome (SBS) Agents	0.0%	0.0%	0.0%	0.0%	100.0%
Soluble Tumor Necrosis Factor Receptor Agents	0.0%	0.0%	0.0%	0.0%	100.0%

Therapeutic Class	Outpatient % of Cost	Home Health % of Cost	Physician Office % of Cost	Other % of Cost	Pharmacy % of Cost
Somatostatic Agents	35.3%	0.2%	18.4%	15.5%	30.6%
Stem Cell Mobilizers	62.1%	0.0%	3.6%	11.0%	23.3%
Systemic Lupus Erythematosus Agents	31.1%	1.6%	41.2%	9.9%	16.2%
Topoisomerase I Inhibitors	74.2%	0.0%	20.1%	2.7%	3.0%
Vasopressin Receptor Antagonists	0.0%	0.0%	0.0%	0.0%	100.0%
Viscosupplements	1.3%	0.0%	41.7%	13.9%	43.2%

APPENDIX

Appendix A: Study Demographic Summary

Region	2012		2013		
	Member Months	% of Total	Member Months	% of Total	
Midwest	4,938,780	21.1%	4,847,635	21.1%	4,938,780
Northeast	4,636,224	19.8%	4,525,276	19.7%	4,636,224
South	10,020,582	42.8%	9,824,442	42.8%	10,020,582
West	3,791,823	16.2%	3,737,324	16.3%	3,791,823
Total	23,387,409	100%	22,934,677	100%	23,387,409
Region	% Male	% Female	% Male	% Female	% Male
Midwest	49%	51%	49%	51%	49%
Northeast	48%	52%	48%	52%	48%
South	48%	52%	48%	52%	48%
West	48%	52%	48%	52%	48%
Total	48%	52%	48%	52%	48%

Appendix B: Region Definition

Region	State	Region	State
Midwest	Illinois	South	Alabama
	Indiana		Arkansas
	Iowa		Delaware
	Kansas		District of Columbia
	Michigan		Florida
	Minnesota		Georgia
	Missouri		Kentucky
	Nebraska		Louisiana
	North Dakota		Maryland
	Ohio		Mississippi
	South Dakota		North Carolina
	Wisconsin		Oklahoma
West	Alaska		South Carolina
	Arizona		Tennessee
	California		Texas
	Colorado		Virginia
	Hawaii		West Virginia
	Idaho	Northeast	Connecticut
	Montana		Maine
	Nevada		Massachusetts
	New Mexico		New Hampshire
	Oregon		New Jersey
	Utah		New York
	Washington		Pennsylvania
	Wyoming		Rhode Island
			Vermont

Appendix C: Specialty Therapeutic Class Definition

Specialty Therapeutic Class	Examples of Products in Class
Acromegaly	Sandostatin, octreotide acetate, Somatuline depot
Anticoagulants	enoxaparin sodium
Corticotropin	Acthar HP
Cystic Fibrosis	Creon, Pulmozyme, Zenpep
Cystinosis	Procysbi
Fertility Regulatory	Ovidrel, Menopur, Follistim aq, Novarel
Glucose Gel / Tablets	Korlym
Growth Hormone	Norditropin flexpro, Humatrope, Genotropin
Hematopoietic Growth Factors	Neupogen, Neulasta, Procrit, Promacta
Hemophilia	Advate, Benefix, Helixate FS
Hepatitis Agents	Baraclude, Sovaldi, ribavirin, Olysio, Pegasys
Hereditary Angioedema	Soliris, Firazyr, Cinryze
HoFH	Juxtapid
Hyperkinetic Movement Disorders	Xenazine
IGF-1 Deficiency	Increlex
Immune Deficiency	Atripla, Truvada, Norvir, Isentress, Viread
Inflammatory Conditions	Remicade, Humira, Enbrel, Cimzia
Lysosomal Storage Disease	Sensipar, Kuvan
Multiple Sclerosis	Tecfidera, Copaxone, Gilenya, Avonex pen, Rebif
Neuromuscular Blocking Agent - Neurotoxins	Botox, Xeomin, Myobloc
Oncology	Leuprolide acetate, Lupron depot, Gleevec, Revlimid
Ophthalmic Conditions	Lucentis, Visudyne
Osteoporosis	Forteo, Prolia, zoledronic acid, Xgeva
Other	Riluzole, Sabril, Exjade, Thyrogen, Otezla
Pituitary Hormones	Stimate, desmopressin acetate, Ddavn
Plasma Proteins	Albuminar-5, Albuked 5, Albuminar-25
Platelet Aggregation Inhibitors	Integrilin, Reopro
Progestins	Mirena, Makena, Nexplanon, Skyla, Implanon
Pulmonary Hypertension	Sildenafil citrate, Adcirca, Letairis, Tracleer
Respiratory Conditions	Xolair, Prolastin-c, Aralast np, Zemaira, Glassia
RSV	Synagis
SLE	Benlysta
Stem Cell Mobilizers	Mozobil
Thrombin Inhibitors	Angiomax
Viscosupplements	Orthovisc, Euflexxa, Synvisc



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