



MAGELLAN RX MANAGEMENT
**MEDICAL PHARMACY
TREND REPORT™**

2019 TENTH EDITION



Unlocking a decade of
medical pharmacy growth.



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INTRODUCTION

Magellan Rx Management is pleased to present the 10th edition of its Medical Pharmacy Trend Report™, the only detailed source analyzing medical benefit drug claims for trends and data benchmarking, as well as current medical benefit drug management approaches.

Over the last 10 editions of this report, we have seen a remarkable evolution of medical pharmacy. In 2010, plans were just starting to manage drugs on the medical benefit; there were only nine approvals for medical injectable drugs, and biosimilars were talked about but still five years away. Now, the medical benefit is top of mind, and in 2019 alone, there were triple that number of approvals, seven of them biosimilars. Medical pharmacy continues to grow, with advancements in research and technology creating surges in the approvals of novel and more-costly treatments. Consequently, the management of provider-administered therapeutic drugs is an ever-moving target that requires increasingly innovative strategies.

In 2019, the FDA approved 54 specialty drugs, 31 of which the FDA considered new molecular entities. Medical pharmacy drugs accounted for 31 of the total 54 specialty approvals, or 57%, representing continued strong growth of specialty drugs covered under the medical benefit. In addition to new drug approvals, numerous current drugs received new indications, increasing their market share and spend. The trend in new drug approvals is not slowing. By 2024, the number of billion-dollar drugs is expected to increase 15%, from 33 drugs in 2018 to 38 in 2024 (see figure 59).

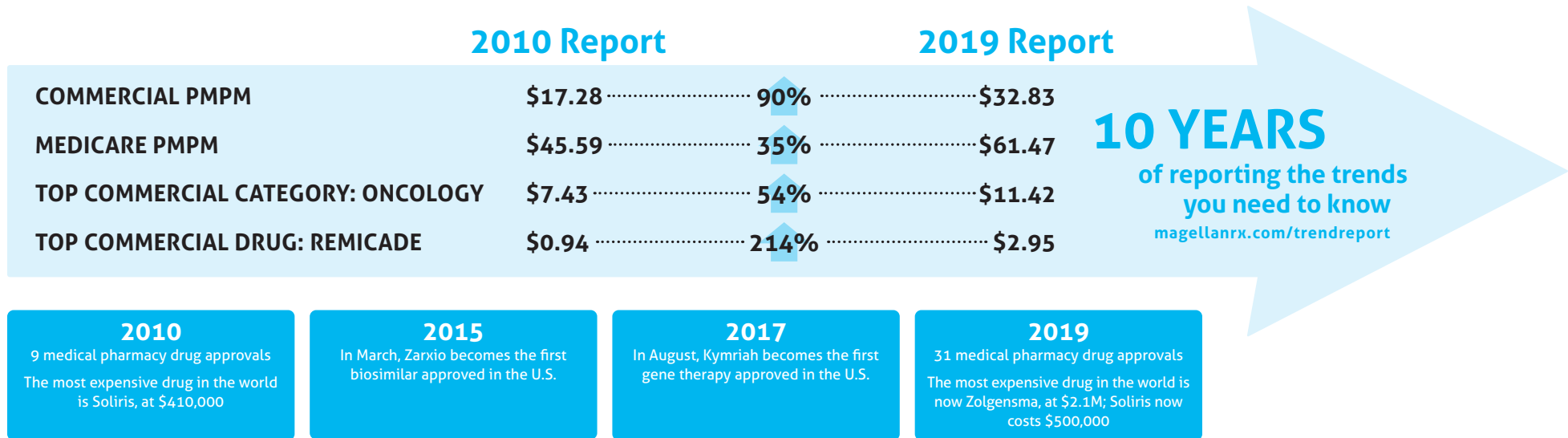
In our 2019 survey, we asked payers their greatest concern regarding the medical benefit: 61% were concerned with medical benefit spend, 44% with oncology spend specifically, and 46% with the increasing number of gene therapies (n=54). Interestingly, when we asked this same question 10 years ago, only 32% of payers were concerned with medical drug costs and a mere 15% were concerned with oncology spend (n=60) — another example of rapid growth and the changing mindset within the

industry. As biosimilars start to penetrate the market in a meaningful way, we may begin to see some cost savings. However, newer, costly therapies — including gene therapies — are being introduced and will continue to divert attention.

In addition to the rise of gene therapy, the last 12 to 18 months witnessed the continued proliferation of oncology immunotherapies, including Keytruda and Opdivo, both of which are now in the top 10 drugs by spend for commercial and the top five for Medicare and Medicaid. Keytruda managed to eclipse Opdivo in Medicare and Medicaid; they landed at the No. 2 and No. 3 spots, respectively.

This year, we are addressing these big headlines, as well as payers' concerns, via deep dives into biosimilar reimbursement and management, what's happening in the hot categories of hemophilia management and CAR-T therapy, oncology immunotherapy spend, and how forecasting is shaping medical benefit management decisions. We are also continuing our in-depth profiles of the major medical pharmacy therapy categories, a five-year look at per-member-per-month (PMPM) spend, and current and innovative medical pharmacy management strategies.

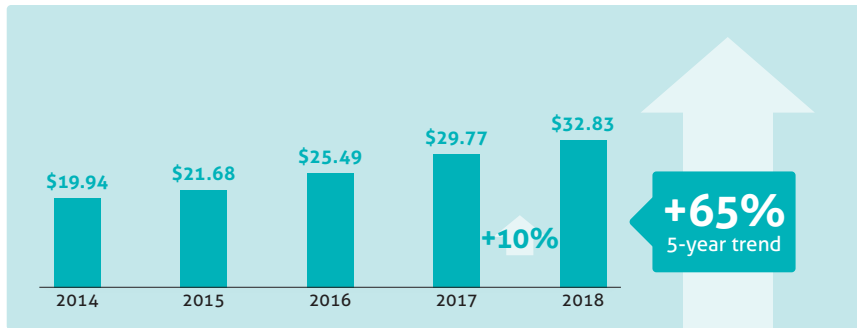
As we celebrate **10 editions** of the Medical Pharmacy Trend Report, we know you will glean valuable insights on the always changing medical benefit drug trend. Magellan Rx has been providing medical drug trend reporting for more than 10 years and, with more than 15 years of medical pharmacy management expertise, continues to lead the industry in innovative medical pharmacy specialty solutions.



EXECUTIVE SUMMARY

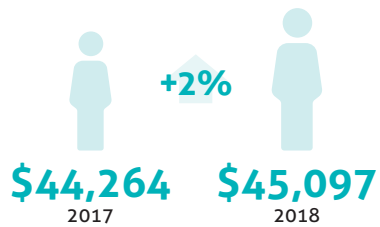
COMMERCIAL

PMPM TREND



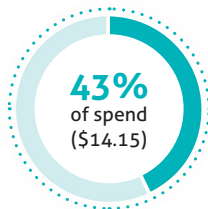
ANNUAL COST PER PATIENT

Top 10 Drugs

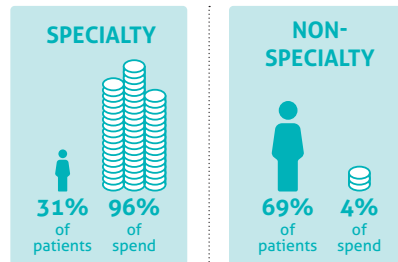


2018 CATEGORY TRENDS

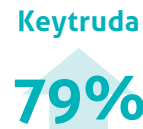
Oncology and oncology support accounted for:



2018 MEDICAL DRUG SPEND



2018 TOP DRUG TRENDS



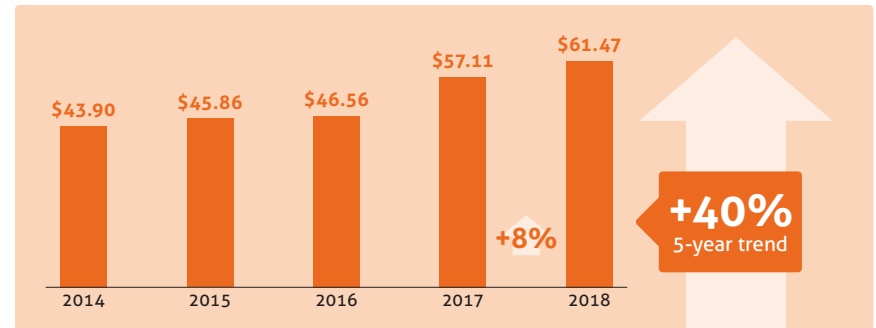
Rank YOY: No. 14 to No. 9
PMPM YOY: \$0.47 to \$0.84



Rank YOY: No. 8 to No. 6
PMPM YOY: \$0.70 to \$1.05

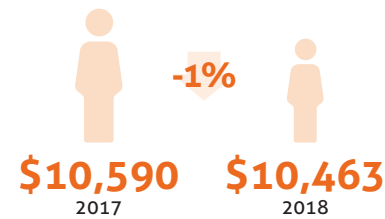
MEDICARE

PMPM TREND



ANNUAL COST PER PATIENT

Top 10 Drugs

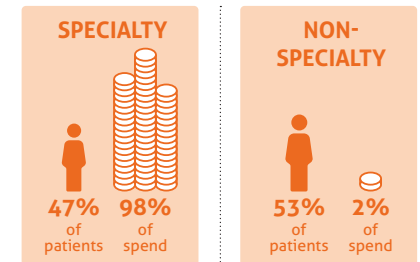


2018 CATEGORY TRENDS

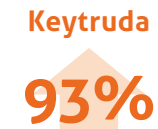
Oncology and oncology support accounted for:



2018 MEDICAL DRUG SPEND



2018 TOP DRUG TRENDS



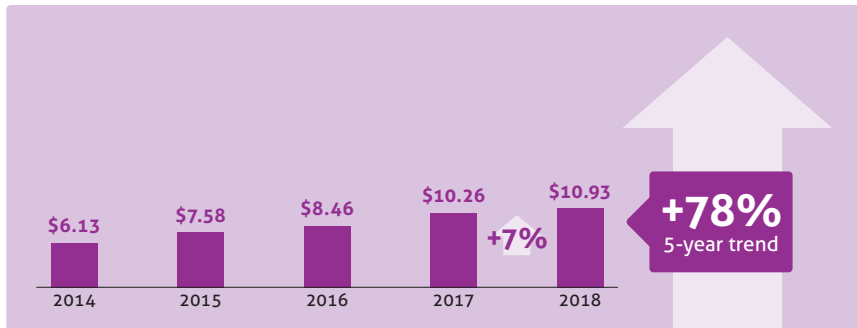
Rank YOY: No. 9 to No. 2
PMPM YOY: \$2.12 to \$4.09



Rank YOY: No. 29 to No. 24
PMPM YOY: \$0.40 to \$0.61

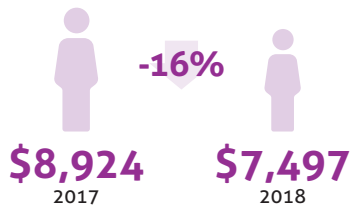
MEDICAID

PMPM TREND



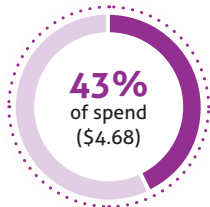
ANNUAL COST PER PATIENT

Top 10 Drugs

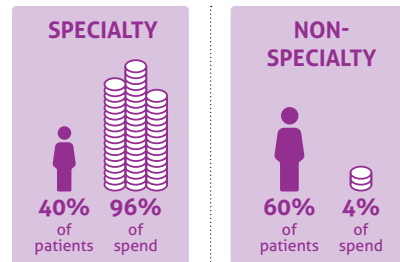


2018 CATEGORY TRENDS

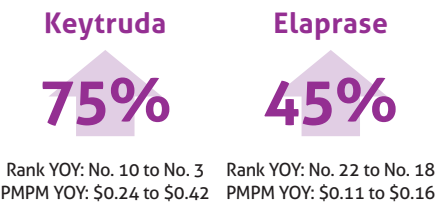
Oncology and oncology support accounted for:



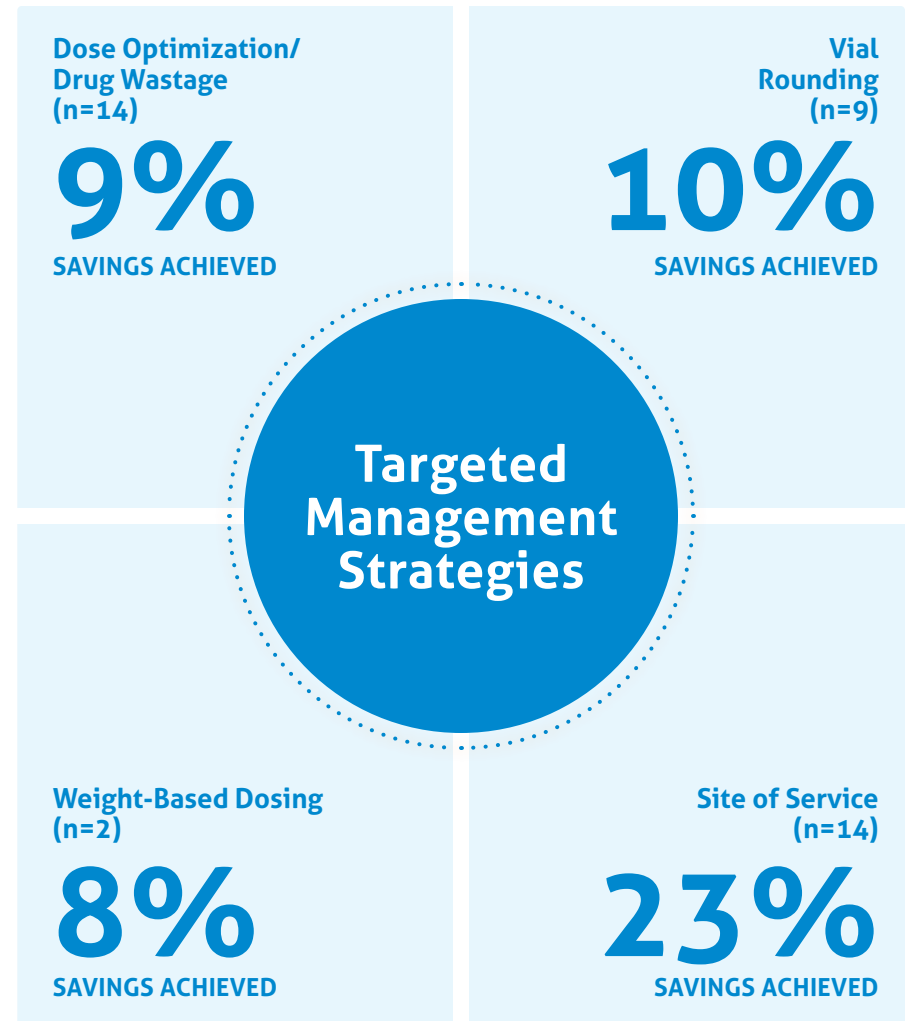
2018 MEDICAL DRUG SPEND



2018 TOP DRUG TRENDS



MANAGEMENT TRENDS†

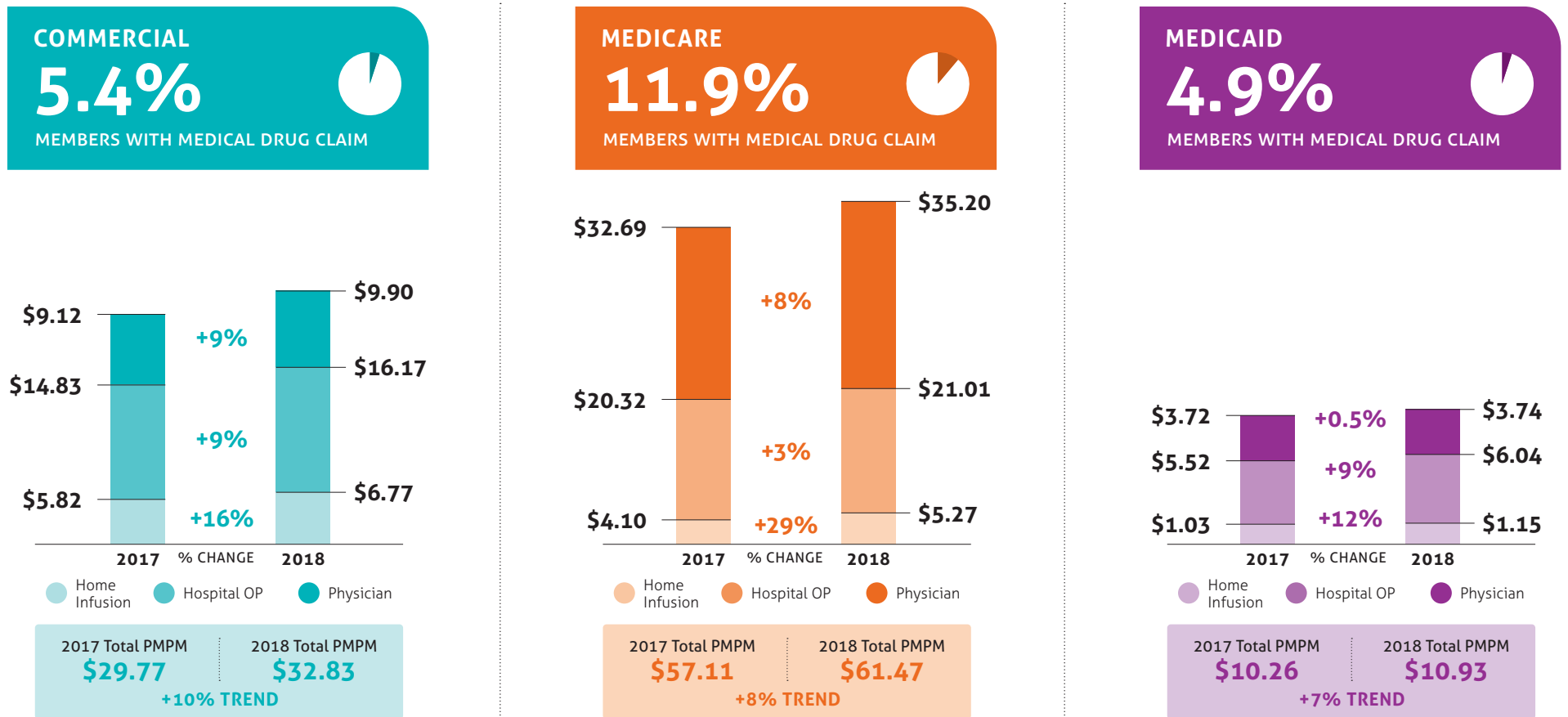


†Savings self-reported.

MEDICAL PHARMACY OVERVIEW

Medical pharmacy is a low-volume, high-cost business. In 2018, across all lines of business, less than 12% of members had a medical drug claim; Medicare saw more than twice the number of claims that commercial or Medicaid saw; and commercial medical pharmacy trend was at its **lowest in three years**, at 10%. The decrease comes from a slowdown in utilization compared to previous years. Payers are also using more sophisticated medical pharmacy management strategies. Medicare trend lowered from 23% in 2017 to 8% in 2018. Medicaid followed suit with a 7% trend in 2018, down from 21% in 2017. Commercial and Medicaid spend were focused in the hospital outpatient (OP) setting, at more than 50% of the spend, while Medicare spend was concentrated in the physician office, at close to 60% of the spend. This is largely due to differences in reimbursement methodologies in the hospital outpatient setting. In Medicare, reimbursement is based on ASP, whereas in commercial and Medicaid, it is largely based on percentage of billed charges (**see figure 1**). Higher growth in home infusion may have been due to more plans implementing site of service programs for high-cost medical pharmacy drugs.

FIGURE 1: MEDICAL PHARMACY ALLOWED AMOUNT PMPM 2017-2018



MEDICAL PHARMACY TREND DRIVERS

Commercial, Medicare, and Medicaid trends were primarily driven by unit costs (allowed per unit) resulting from a 5% or greater increase in inflation or increased costs of drugs on the medical benefit (see figures 2, 3, and 4). ASP index or reimbursement rates remained largely unchanged from the previous year. Unit volume, although not the main contributor, had an influence on trend too, based on increased prevalence (number of claims) year over year. The number of units used or prescribed per patient slightly decreased in commercial but was relatively flat in Medicare and Medicaid. Interestingly, unit volume had a double-digit influence in the previous report, representing a shift of cost versus utilization driving the trend for 2018.

Across commercial, Medicare, and Medicaid, there were more than 50 categories of medical benefit drugs. Of those, the top 10 categories made up the majority of spend, accounting for more than 70% of PMPM spend across all lines of business (see figures 5, 6, and 7). In Medicare Advantage, members per 1,000 was significantly higher due to an overall higher number of utilizers, especially in categories such as oncology, ophthalmic injections, and asthma/COPD — each of which had at least eight members per 1,000. Not surprisingly, the single category with the highest growth across all lines of business — although it was not in the top 10 for commercial or Medicare — was CNS agents for rare diseases, which contains drugs such as Exondys and Spinraza.

For the 2018 data, more than 280 medical benefit drugs were included in our analysis. Of those drugs, the top 25 drugs alone accounted for close to — if not more than — two-thirds of medical pharmacy spend (see figures 8, 9, and 10). That percent of total spend jumps to 75% in commercial, 84% in Medicare, and 78% in Medicaid for the top 50 drugs. Cost per patient for the top 25 is almost double in Medicaid, due to higher utilization of more costly rare-disease drugs such as Exondys, Elaprase, and Spinraza.

COMMERCIAL

FIGURE 2: 2018 TREND CONTRIBUTORS

Unit Volume	4.6% Total	6.2% Prevalence	-1.6% Unit per Patient
Allowed per Unit	5.7% Total	6.5% Inflation	-0.9% ASP Index
Overall PMPM Trend	10.3%		

FIGURE 5: 2018 TOP 10 DISEASE STATES OR DRUG CATEGORIES

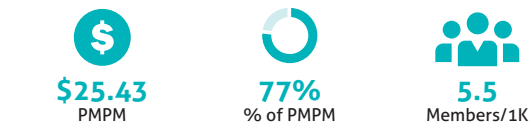
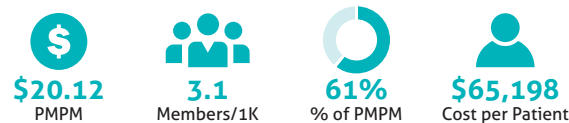


FIGURE 8: 2018 TOP 25 PHARMACY DRUGS



MEDICARE

FIGURE 3: 2018 TREND CONTRIBUTORS

Unit Volume	3% Total	3.2% Prevalence	-0.2% Unit per Patient
Allowed per Unit	4.7% Total	5.3% Inflation	-0.6% ASP Index
Overall PMPM Trend	7.6%		

FIGURE 6: 2018 TOP 10 DISEASE STATES OR DRUG CATEGORIES

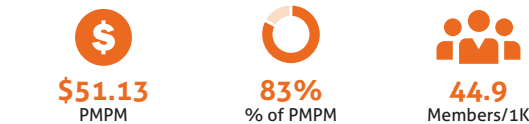
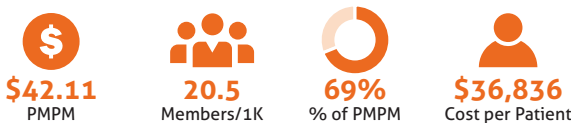


FIGURE 9: 2018 TOP 25 PHARMACY DRUGS



MEDICAID

FIGURE 4: 2018 TREND CONTRIBUTORS

Unit Volume	2.7% Total	2.7% Prevalence	0% Unit per Patient
Allowed per Unit	3.9% Total	4.5% Inflation	-0.7% ASP Index
Overall PMPM Trend	6.5%		

FIGURE 7: TOP 10 DISEASE STATES OR DRUG CATEGORIES

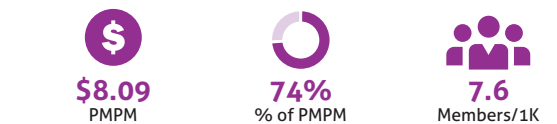
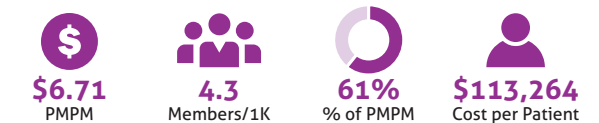


FIGURE 10: 2018 TOP 25 PHARMACY DRUGS



COMMERCIAL

Commercial oncology and oncology support accounted for 43%, or \$14.15, of allowed amount PMPM. In total, Biologic Drugs for Autoimmune Disorders (BDAIDs) were the second-highest spend category, accounting for 16% of PMPM, or \$5.33.

The category with the highest growth was CNS: rare diseases, with Exondys and Spinraza, which also led to the highest annual cost per claim at \$38,000 (see figure 63).

For the 10th year in a row, the top five commercial drugs were Remicade, Neulasta, Rituxan, Herceptin, and Avastin. Remicade saw decreases in PMPM due to the introduction of biosimilars Renflexis and Inflectra. We may see similar trends in upcoming data, since all of these top 5 agents now have marketed biosimilars.

Ocrevus made a strong impact after a full year on the market at No. 8 and contributed to MS's category growth of 73% — the overall second-highest category growth.

Opdivo and Keytruda both continued strong with 50% and 79% increases in spend, respectively.

HIGHEST-COST DRUGS

The 10 most expensive commercial medical benefit drugs (see figure 69)

\$521,515
Average Per Patient Per Year

\$1.00
Total PMPM

FIGURE 11: COMMERCIAL UNCLASSIFIED CODE AND SAMPLE DRUGS BY ALLOWED AMOUNT PMPM

Unclassified codes were in the **top 20** for commercial.

J3490	Bridion, Cinvanti, Gattex, Radicava	\$0.22
J3590	Brineura, Fasenna, Hemlibra	\$0.09
J9999	Imfinzi, Poteligeo, Sylatron, Vyxeos	\$0.07
C9399	Aliqopa, Bridion	\$0.02

FIGURE 12: TOP 10 COMMERCIAL DISEASE STATES OR DRUG CATEGORIES BY PMPM SPEND 2018

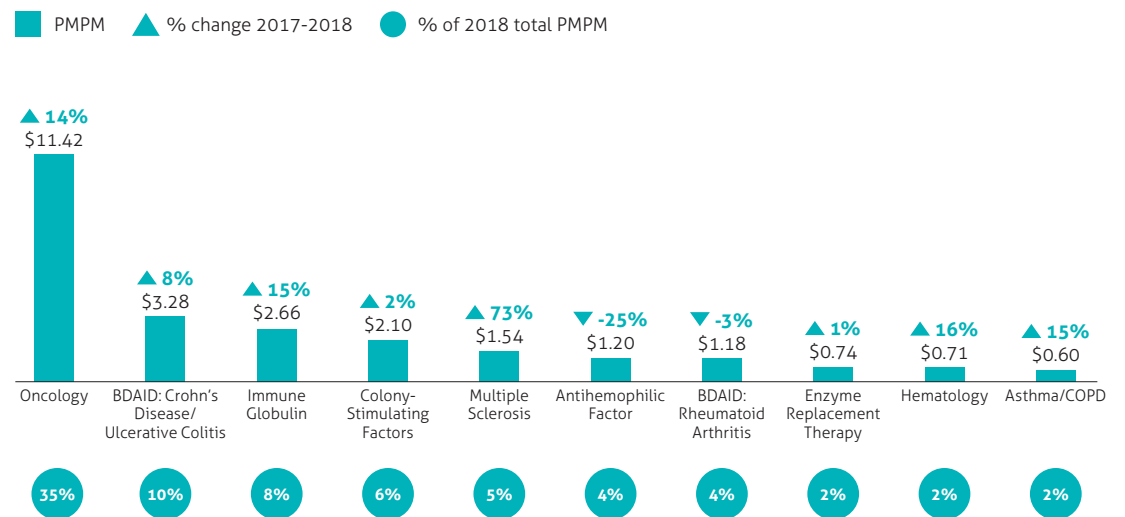
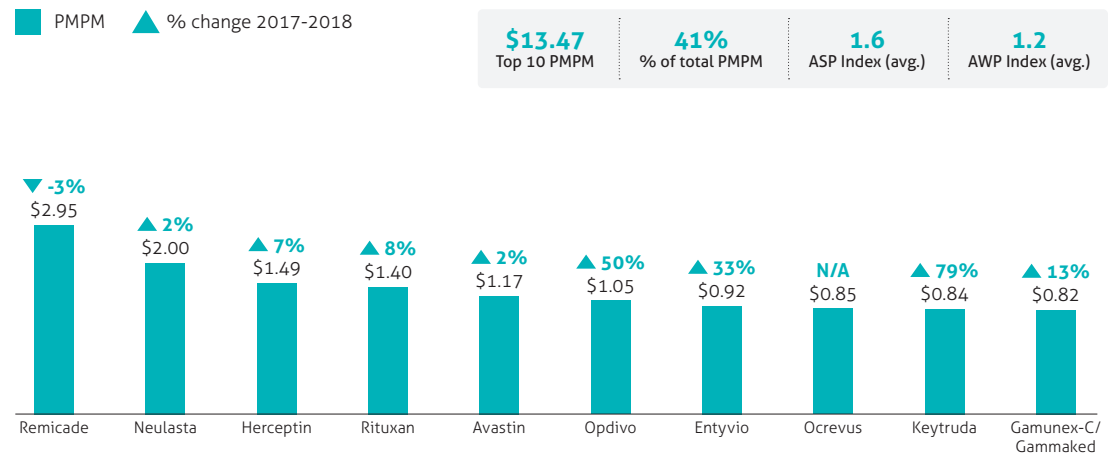


FIGURE 13: 2018 TOP 10 COMMERCIAL MEDICAL BENEFIT DRUGS BY SPEND*



*Due to rounding, totals may not add up exactly.

MEDICARE

Over the past few years, Medicare has experienced record PMPM growth, likely related to increased patient volume, as well as an influx of novel, high-cost oncology treatments.

Medicare oncology and oncology support accounted for 55%, or \$33.95, of allowed amount PMPM — a 6% increase year over year.

Ophthalmic injections continue to be the second-highest spend category, accounting for 13% of PMPM, or \$7.89.

- » **Eylea took over** the No. 1 spot by PMPM spend with a 14% increase, overtaking Neulasta and Rituxan, while Lucentis came in as the sixth highest spend drug.
- » **Avastin** remains the most cost-effective option in the category.

BDAIDs are still a factor in Medicare spend, with the category accounting for 6% of total PMPM spend, or \$3.93.

Opdivo maintained its spot at No. 3 on the medical benefit, while Keytruda (No. 2) surpassed Opdivo, almost doubling spend to \$4.09 PMPM, a 93% increase from the previous year. Increased utilization due to FDA approval of additional indications drove this trend.

HIGHEST-COST DRUGS
The 10 most expensive Medicare medical benefit drugs (see figure 70)

\$300,856 Average Per Patient Per Year	\$1.67 Total PMPM
--	-----------------------------

FIGURE 14: MEDICARE UNCLASSIFIED CODE AND SAMPLE DRUGS BY ALLOWED AMOUNT PMPM

Unclassified codes were in the **top 20** for Medicare.

J3490	Cinvanti, Durolane, Radicava, Sufentanil	\$0.28
J9999	Besponsa, Imfinzi	\$0.21
J3590	Fasenra	\$0.05
C9399	Aliqopa, Bridion	\$0.01

FIGURE 15: TOP 10 MEDICARE DISEASE STATES OR DRUG CATEGORIES BY PMPM SPEND 2018

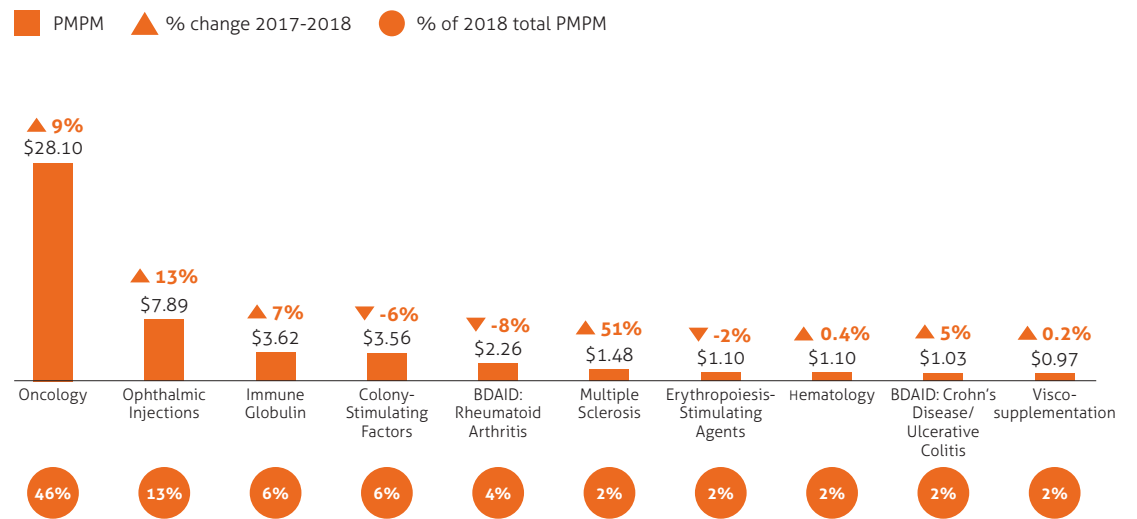
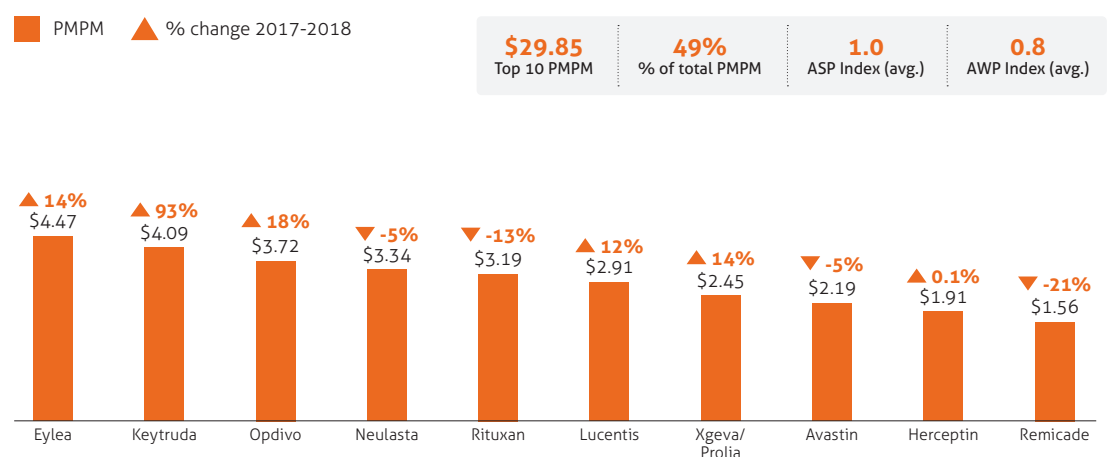


FIGURE 16: 2018 TOP 10 MEDICARE MEDICAL BENEFIT DRUGS BY SPEND*



*Due to rounding, totals may not add up exactly.

MEDICAID

Medicaid saw a **7% increase in PMPM spend**, with oncology being the highest-cost category. In Medicaid, oncology and oncology support accounted for 43%, or \$4.68, of allowed amount PMPM.

Top drugs are comparable to commercial, with Remicade, Neulasta, and Avastin in the top five. However, as with Medicare, Opdivo broke into the top five in last year's report and maintained its spot in 2018. Keytruda (No. 3) again had the largest growth in spend, with a 75% increase in spend year over year.

With Medicaid having a younger population, the highest-cost drugs in terms of allowed amount per patient were for a variety of rare diseases, as evidenced by Spinraza and Exondys making the top 10 for this line of business.

HIGHEST-COST DRUGS

The 10 most expensive Medicaid medical benefit drugs (see figure 71)

\$330,606
Average Per Patient Per Year

\$1.29
PMPM

FIGURE 17: MEDICAID UNCLASSIFIED CODE AND SAMPLE DRUGS BY ALLOWED AMOUNT PMPM

Unclassified codes were in the **top 25** for Medicaid.

J9999	Besponsa , Imfinzi	\$0.04
J3490	Cinvanti, Durolane, Radicava	\$0.02
J3590	Fasenra	\$0.01

FIGURE 18: TOP 10 MEDICAID DISEASE STATES OR DRUG CATEGORIES BY PMPM SPEND 2018

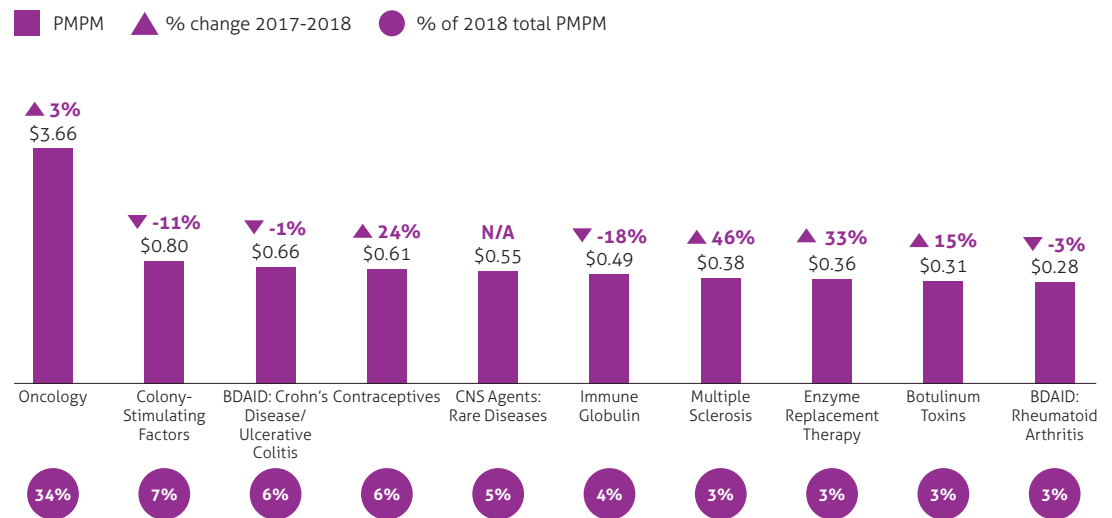
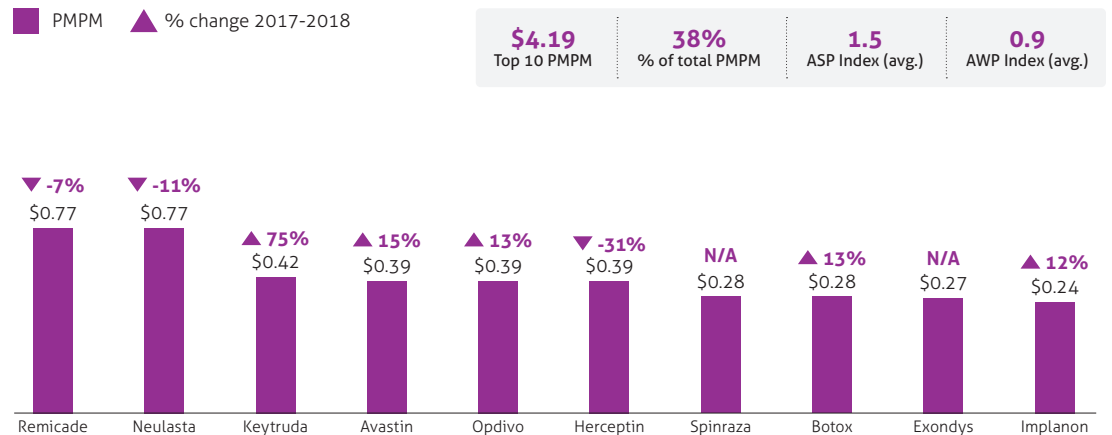


FIGURE 19: 2018 TOP 10 MEDICAID MEDICAL BENEFIT DRUGS BY SPEND*



*Due to rounding, totals may not add up exactly.

MEDICAL PHARMACY TRENDS

Administrative Code Reimbursement

The administration costs of medical benefit drugs were also a factor in the overall spend of these drugs. Site of administration continued to make an impact on total drug costs. Not surprisingly, the cost of administering chemotherapy in the hospital outpatient setting was double and sometimes triple that of administration in a physician's office (**see figure 20**).

Commercial administrative code spend reflected the administration of chemotherapy agents as the highest cost. Medicare administrative code spend paralleled top drugs, with the highest-spend categories involving chemotherapy administration and ophthalmic injections. Medicaid administrative code spend included chemotherapy treatment but was mainly general intravenous administration.

FIGURE 20: 2018 TOP FIVE ADMINISTRATIVE CODES BY TOTAL PMPM FOR HOSPITAL OUTPATIENT AND PHYSICIAN OFFICE

COMMERCIAL

CPT Code & Description	Physician	Hospital	Total PMPM
96413 Chemotherapy administration, intravenous infusion technique; up to 1 hour, single or initial substance/drug	\$0.23	\$0.61	\$0.84
95165 Supervision of preparation and provision of antigens for allergen immunotherapy; single or multiple antigens (specify number of doses)	\$0.34	\$0.01	\$0.35
96365 Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); initial, up to 1 hour	\$0.07	\$0.25	\$0.32
20610 Under general introduction or removal procedures on the musculoskeletal system	\$0.29	\$0.03	\$0.32
96372 Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); subcutaneous or intramuscular	\$0.23	\$0.08	\$0.31

MEDICARE

CPT Code & Description	Physician	Hospital	Total PMPM
96413 Chemotherapy administration, intravenous infusion technique; up to 1 hour, single or initial substance/drug	\$0.49	\$1.12	\$1.61
67028 Intravitreal injection of a pharmacologic agent (separate procedure)	\$0.70	\$0.06	\$0.76
20610 General introduction or removal procedures on the musculoskeletal system	\$0.60	\$0.08	\$0.68
96365 Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); initial, up to 1 hour	\$0.15	\$0.48	\$0.63
96374 Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); intravenous push, single or initial substance/drug	\$0.02	\$0.60	\$0.62

MEDICAID

CPT Code & Description	Physician	Hospital	Total PMPM
96372 Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); subcutaneous or intramuscular	\$0.13	\$0.06	\$0.19
96413 Chemotherapy administration, intravenous infusion technique; up to 1 hour, single or initial substance/drug	\$0.03	\$0.11	\$0.14
96374 Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); intravenous push, single or initial substance/drug	\$0.00	\$0.13	\$0.13
96361 Intravenous infusion, hydration	\$0.00	\$0.09	\$0.09
96365 Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); initial, up to 1 hour	\$0.01	\$0.07	\$0.08

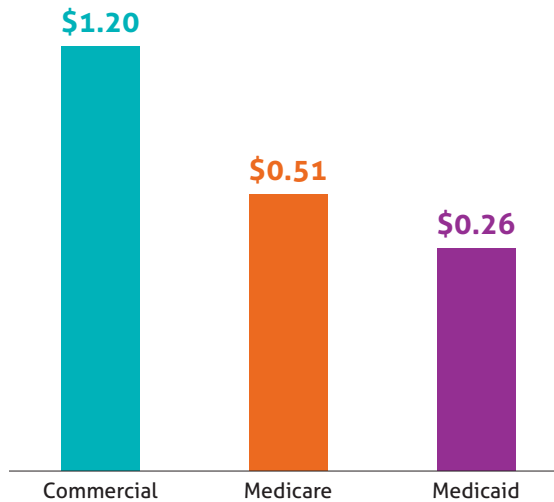
MEDICAL PHARMACY THERAPY CATEGORIES

Antihemophilic Factors

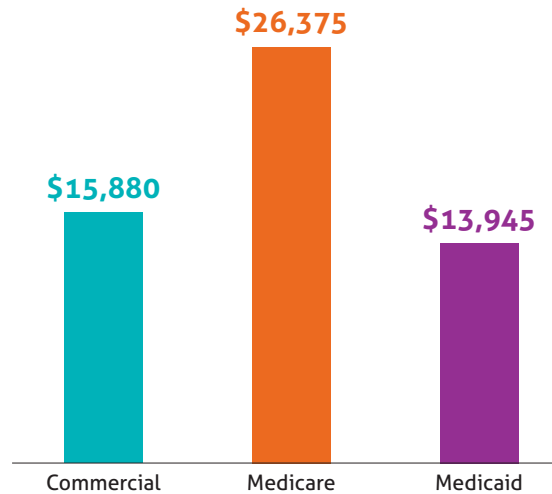
Antihemophilic factor drugs have generally been a lower-volume category, averaging 0.01 members per 1,000. However, the average cost per claim is one of the highest, averaging close to \$14,000 or more, and the average annual cost per patient is greater than \$80,000 across all lines of business. Antihemophilic factor drugs were most frequently administered at home in both commercial and Medicare — 79% and 64%, respectively. In Medicaid, treatment was most frequently administered in the hospital outpatient setting; however, costs here can be much higher than when administered in the home.

The pipeline is strong for this category, due to the emergence of gene therapy, where several agents under development are anticipated to be curative and reduce overall medical cost of care for this category by reducing hospitalizations and individual bleed events.

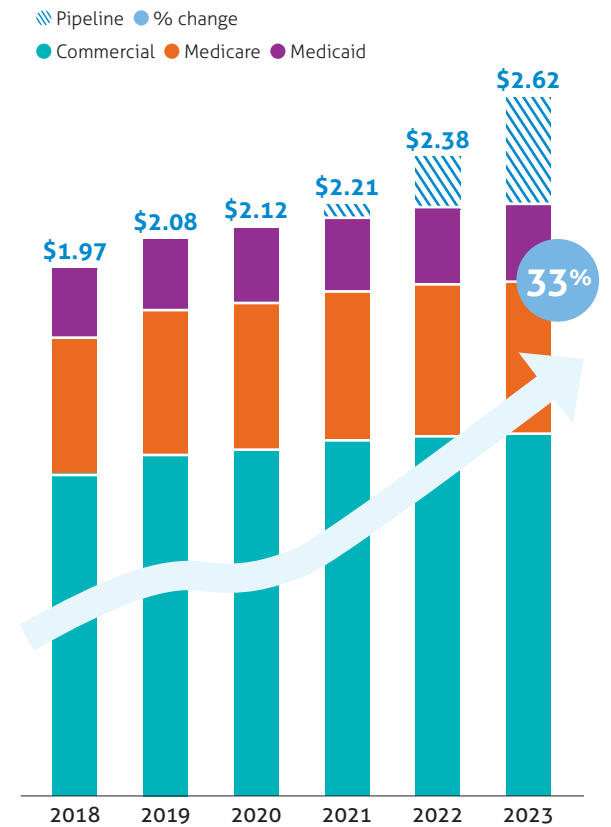
2018 CATEGORY PMPM



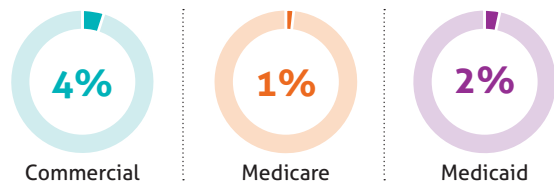
2018 AVERAGE COST PER CLAIM



FORECAST



2018 % OF MEDICAL DRUG SPEND



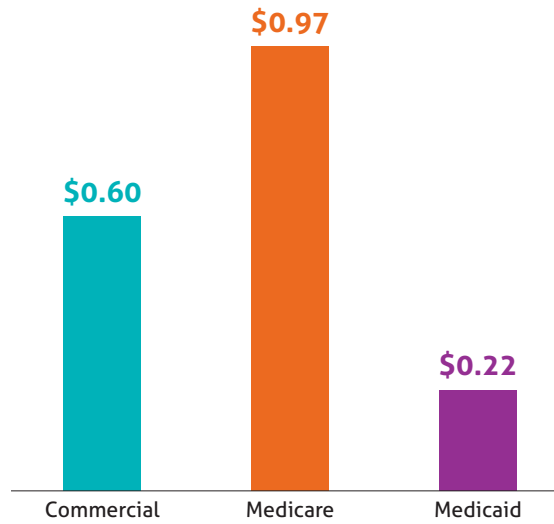
— COMMERCIAL COST PER CLAIM: FACTOR VIII —

\$17,437	\$33,486
HOME INFUSION	HOSPITAL OP

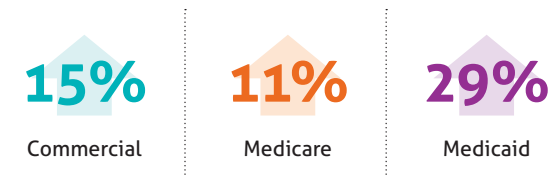
Asthma/COPD

Asthma/COPD was a high-volume category with double-digit increases in trend across all lines of business. Xolair has the highest market share in commercial and Medicaid, while Pulmicort has the highest market share in Medicare (**see Appendix figures 75, 76, and 77**). Newer agents such as Cinqair and Nucala, although still outside of the top 25 drugs by spend, continue to gain market share, with Nucala having the second-highest market share in the category. Fasentra is another new agent gaining market share. Although volume of members was highest in Medicare, commercial costs per claim were higher, reflecting a larger population in Medicare utilizing lower-cost drugs.

2018 CATEGORY PMPM



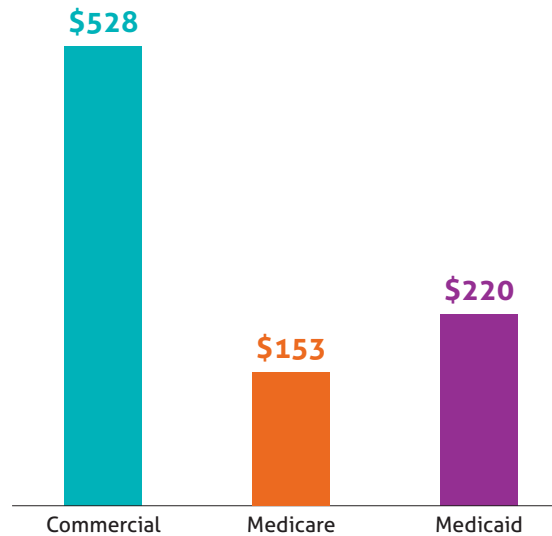
2017-2018 CATEGORY PMPM TREND



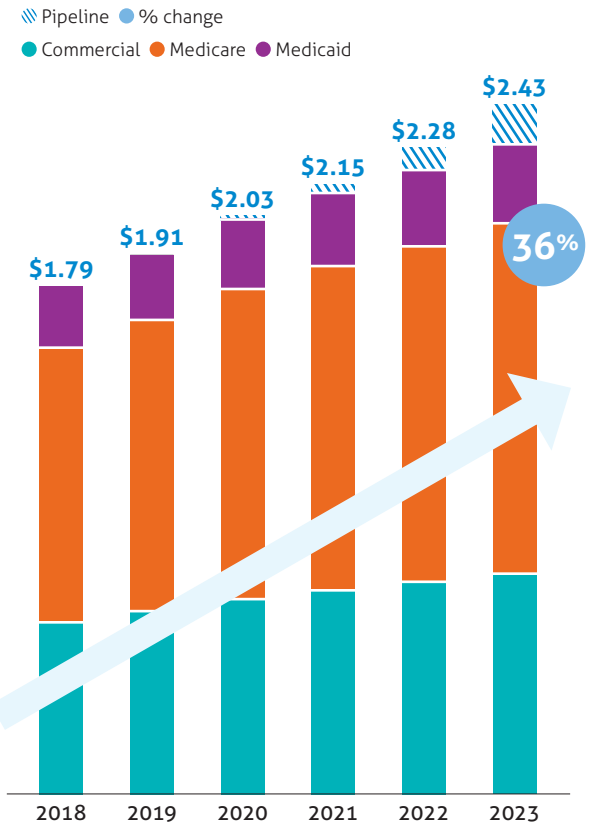
2018 MEMBERS PER 1,000



2018 AVERAGE COST PER CLAIM



FORECAST

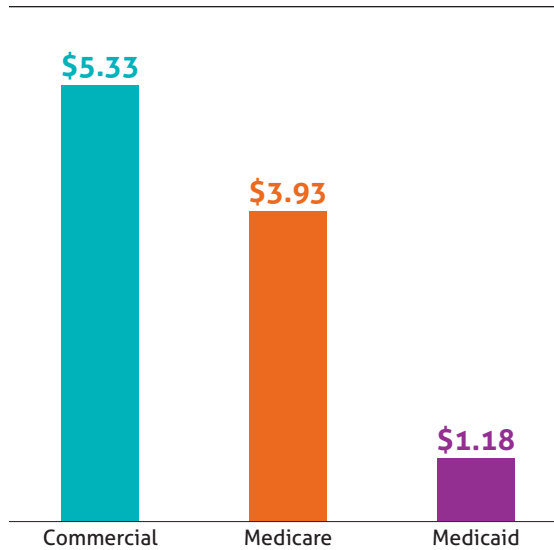


MEDICAL PHARMACY THERAPY CATEGORIES

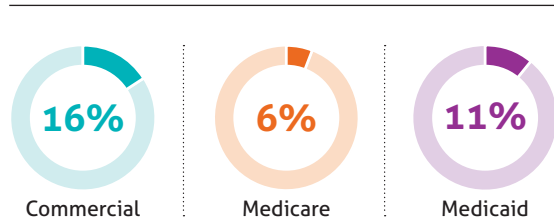
Biologic Drugs for Autoimmune Disorders (BDAIDs)

BDAIDs include the categories of Ankylosing Spondylitis (AS), Crohn's Disease/Ulcerative Colitis (Crohn's/UC), Psoriasis/Psoriatic Arthritis, Rare Autoinflammatory Conditions (RAC), Rheumatoid Arthritis (RA), and Systemic Lupus Erythematosus (SLE). BDAID spend continues to be highest in Crohn's disease for commercial and Medicaid, while RA is the category leader in Medicare. Remicade is the leading drug across all three lines of business. Although not a market share leader (**see Appendix figures 78, 79, and 80**), Stelara saw claims lean toward the 45-unit dose across all lines of business, comprising 56% of commercial, 43% of Medicaid, and 67% of Medicare claims. Trend remained relatively flat in this category as Remicade market share decreased, with biosimilars Renflexis and Inflectra beginning to gain market share.

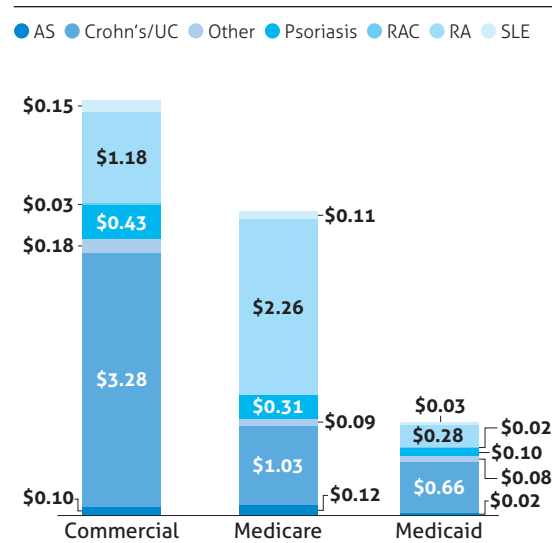
2018 CATEGORY PMPM



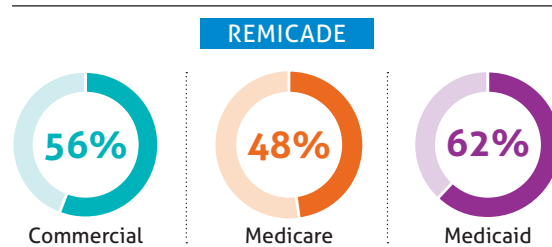
2018 % OF MEDICAL DRUG SPEND



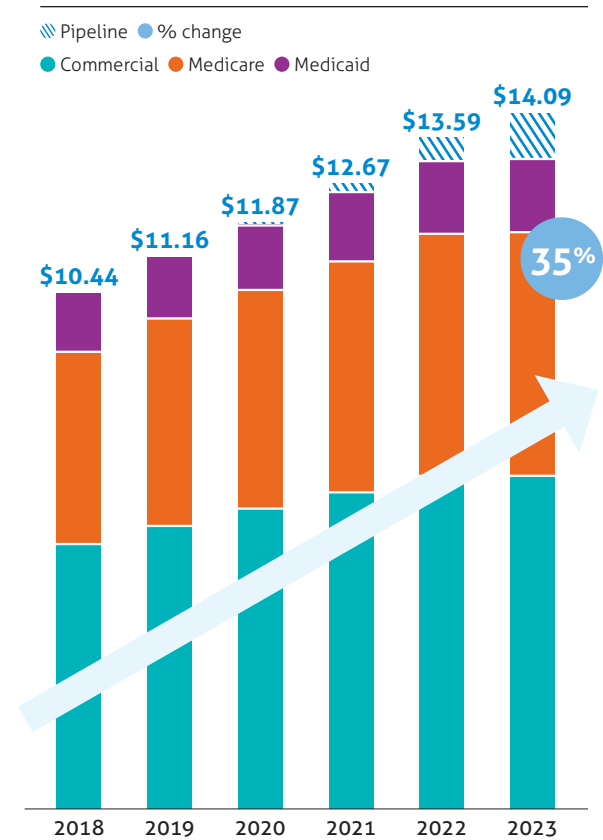
BDAIDS SPEND BY CATEGORY



BRAND WITH HIGHEST MARKET SHARE



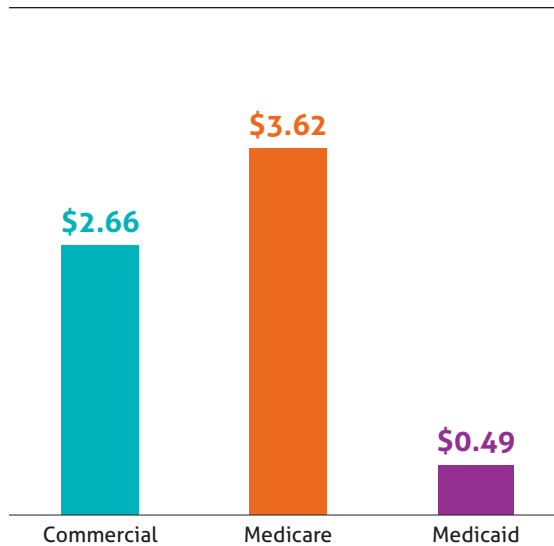
FORECAST



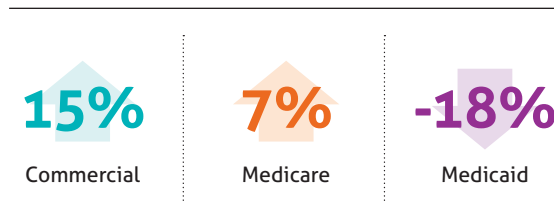
Immune Globulin (IG)

Immune Globulin remained the third-highest-spend category in commercial and Medicare and the sixth in Medicaid. Shifts in sites of service (SOS) were seen in this category as commercial and Medicare drug administration shifted from home and hospital outpatient sites of care, respectively, into the physician office. New products to market, such as Panzyga, are spreading the competition and will affect market share in the coming year. Opportunities may exist for SOS programs in Medicaid where administration is mostly in the hospital outpatient setting. Movement into the home infusion site of service may reduce drug spend across all lines of business.

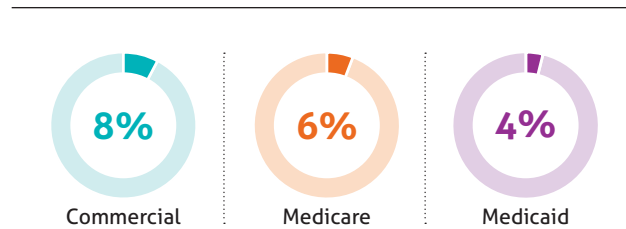
2018 CATEGORY PMPM



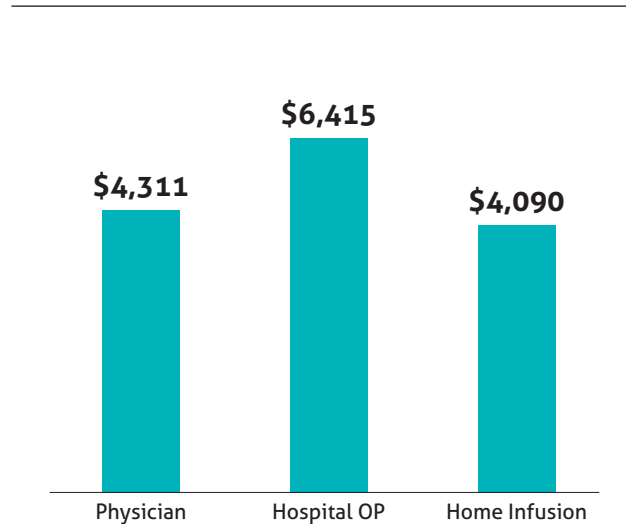
2017-2018 CATEGORY PMPM TREND



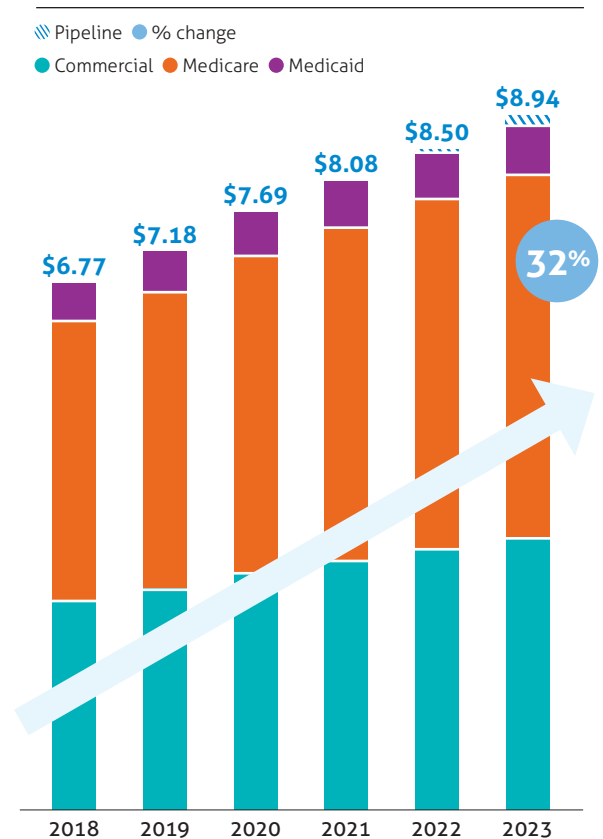
2018 % OF MEDICAL DRUG SPEND



COMMERCIAL COST PER CLAIM: GAMUNEX-C/GAMMAKED



FORECAST

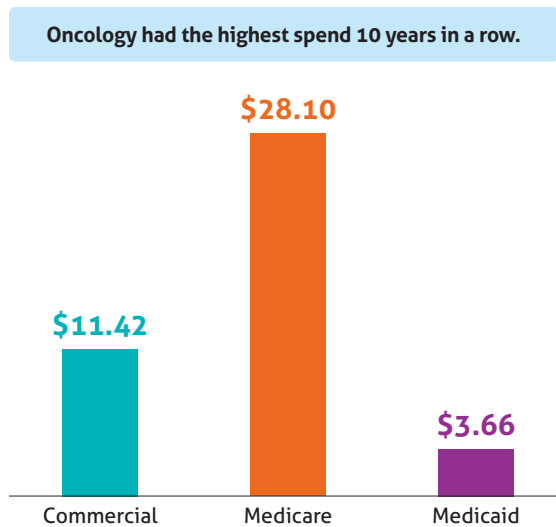


MEDICAL PHARMACY THERAPY CATEGORIES

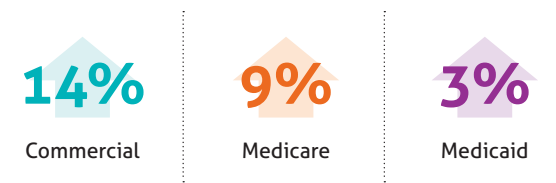
Oncology

Oncology remained the highest-cost category across all lines of business (LOB). Oncology spend makes up at least one-third of total medical drug spending across all LOBs and is approaching 50% of total spend in Medicare. Keytruda and Opdivo have experienced rapidly increasing utilization and spend, with Keytruda almost doubling in PMPM in Medicare. Medicare also has more than four times as many members when compared with commercial. As previously mentioned, oncology spend is a concern for payers, and oncology immunotherapies and gene therapy will continue to contribute to this spend. Many opportunities for savings are anticipated with the biosimilars for Avastin, Herceptin, and Rituxan. The gene therapy and biosimilar pipeline is robust in oncology, with upward of 700 drugs currently in clinical trials. In Medicare alone, the 2023 pipeline is projected to be worth \$10.72 PMPM.

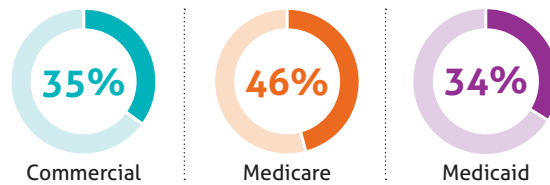
2018 CATEGORY PMPM



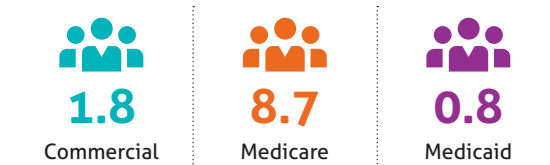
2017-2018 CATEGORY PMPM TREND



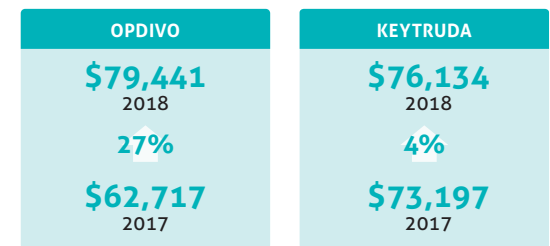
2018 % OF MEDICAL DRUG SPEND



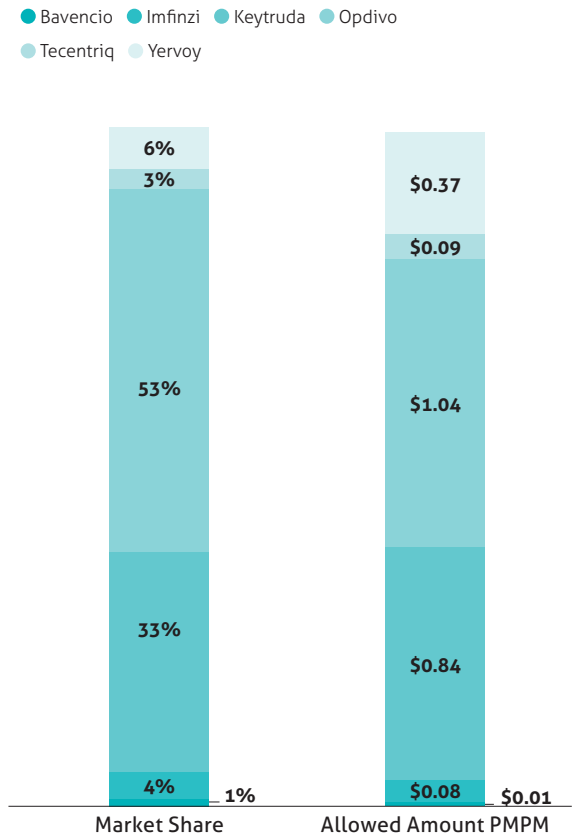
2018 MEMBERS PER 1,000



2018 COMMERCIAL AVERAGE COST PER PATIENT



COMMERCIAL MARKET SHARE AND PMPM: ONCOLOGY IMMUNOTHERAPIES



Oncology Management Strategies

Based on forecasting, growth in oncology is projected to soar 69%, due to slight increases in utilization of current therapies — potentially with expanded indications — and, more dramatically, due to new pipeline approvals. The high cost of oncology therapy has urged healthcare stakeholders to explore cost-containment strategies while maintaining quality. Payers were open to cost-saving management strategies when appropriate. When efficacy and safety are equal but there is a cost disparity for oncology treatment regimens, 69% of payers would support removing criteria other than diagnosis/indication for the lower-cost option. In addition, 76% of payers were willing to restrict specified regimens based on the patient’s performance status (see figure 21).

FORECAST

▬ Pipeline ● % change
● Commercial ● Medicare ● Medicaid

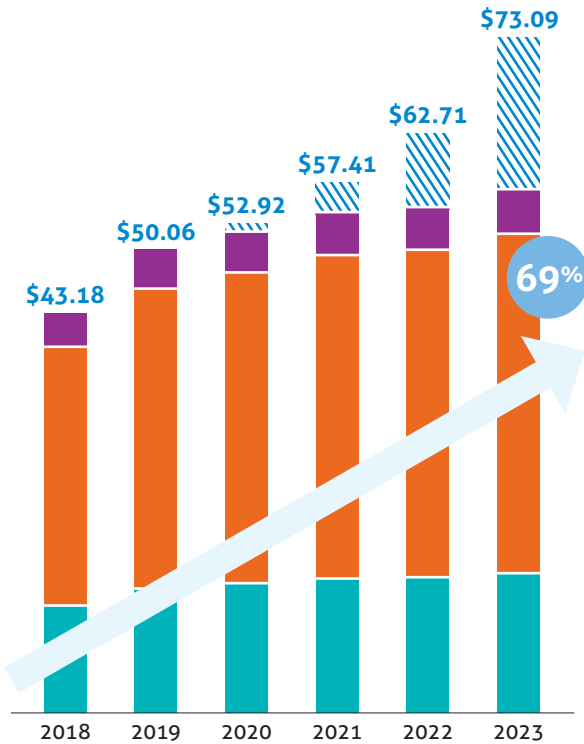
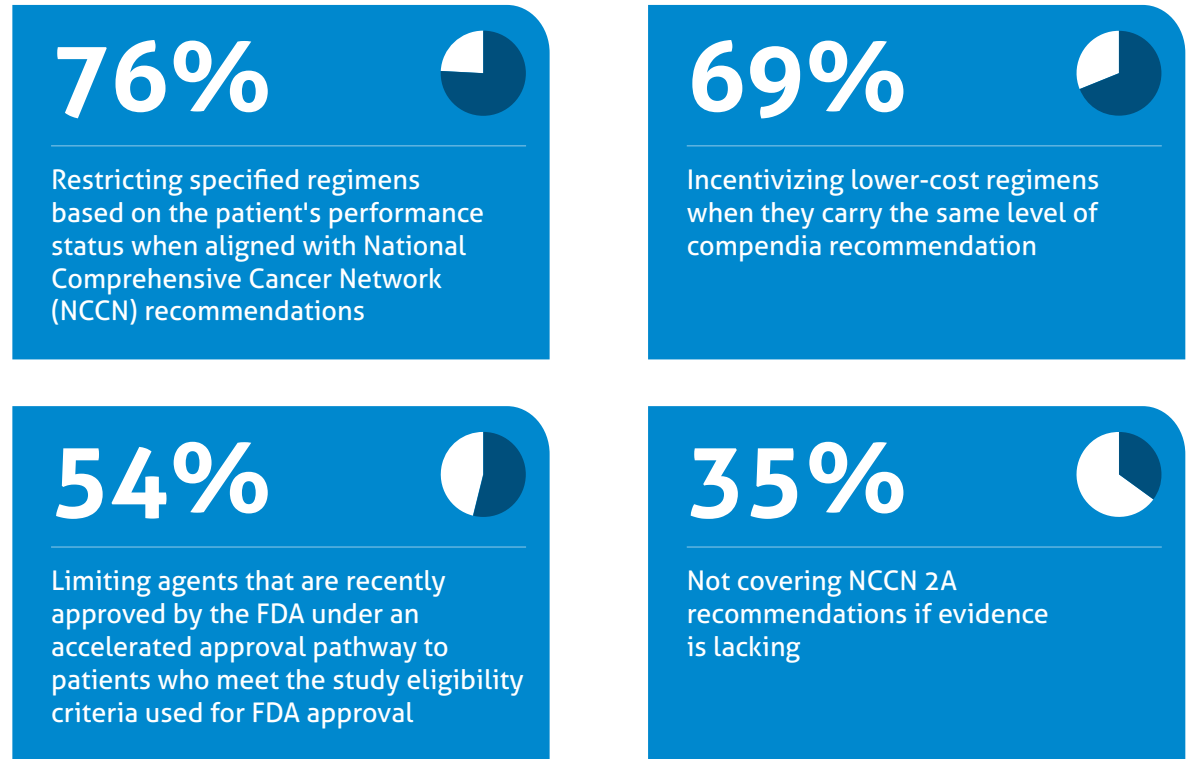


FIGURE 21: PAYERS' PREFERRED ONCOLOGY MANAGEMENT STRATEGIES

% of payers (n=54)

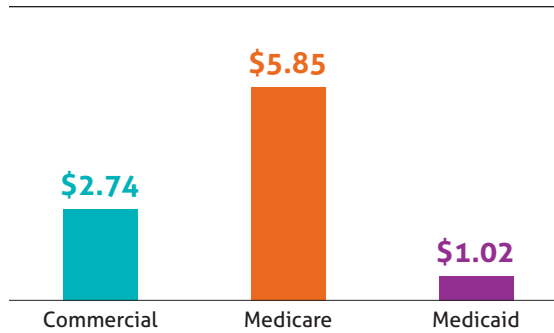


MEDICAL PHARMACY THERAPY CATEGORIES

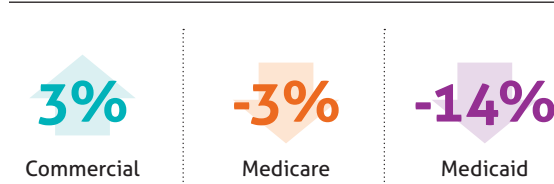
Oncology Support

Oncology support includes antiemetics for chemotherapy-induced nausea and vomiting, colony-stimulating factors (CSFs), erythropoiesis-stimulating agents (ESAs) for anemia due to chemotherapy, and gastrointestinal: chemoprotectant/hormonal. The oncology support category remained approximately 10% of total medical drug spend. The majority of spend was from CSFs. CSFs saw a marginal increase in spend in the past year, yet still comprised 74%, 58%, and 76% of the category spend for commercial, Medicare, and Medicaid, respectively. As a combined category, oncology support represented the third-highest spend in commercial and Medicare and the second-highest spend in Medicaid. There are currently several biosimilars on the market in this category for the long- and short-acting CSFs and the ESAs. The predicted negative forecast growth illustrates their impact. Specifically, Neulasta biosimilars are now on the market, with Fulphila and Udenyca gaining market share.

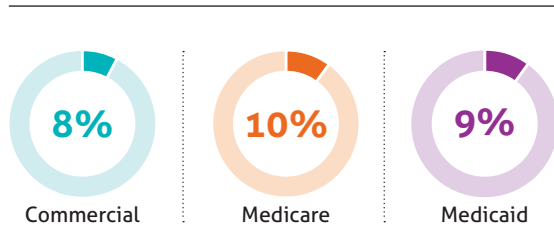
2018 CATEGORY PMPM



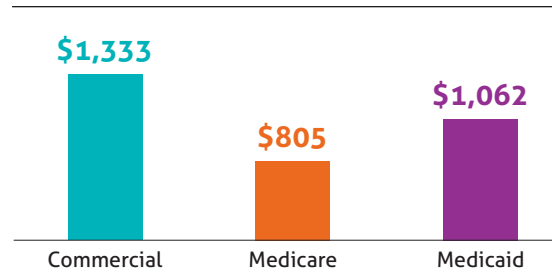
2017-2018 CATEGORY PMPM TREND



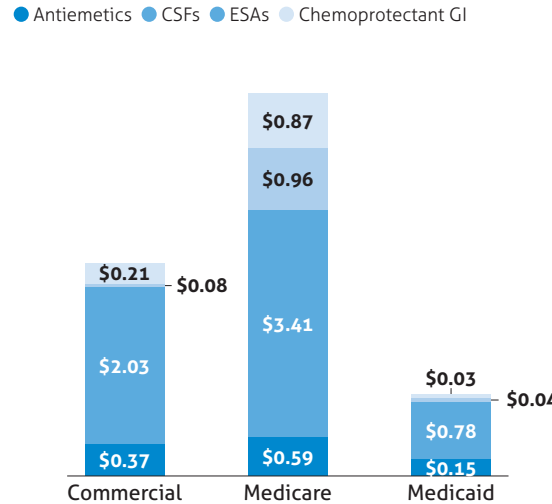
2018 % OF MEDICAL DRUG SPEND



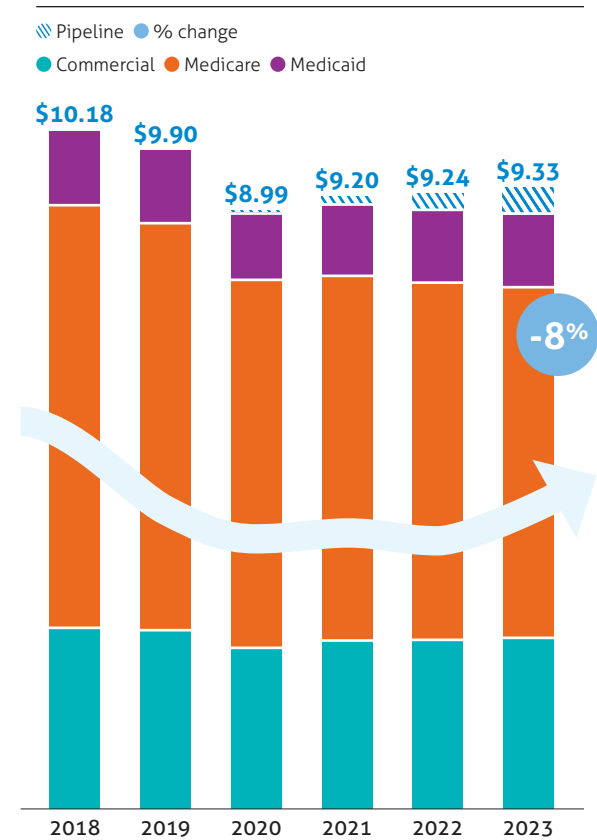
2018 AVERAGE COST PER CLAIM



ONCOLOGY SUPPORT SPEND BY CATEGORY



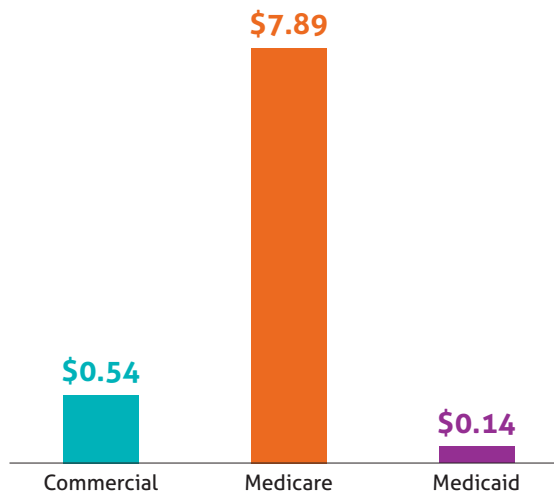
FORECAST



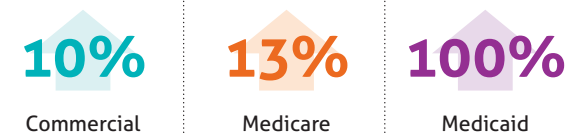
Ophthalmic Injections

Ophthalmic injections had the greatest impact in Medicare as the second-highest-spend category and with Eylea being the highest-cost agent. In Medicare, eight members per 1,000 had an ophthalmic injection claim, compared to less than 0.5 per 1,000 in both commercial and Medicaid. With 2019's approval of Beovu, there may be a shift in this category over the next few years. However, Avastin remained the most cost-effective therapy in this category, at more than 20 times less costly.

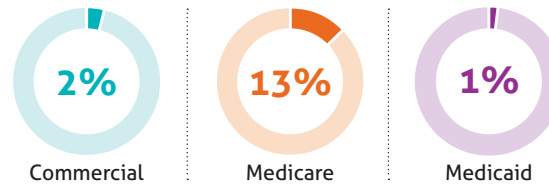
2018 CATEGORY PMPM



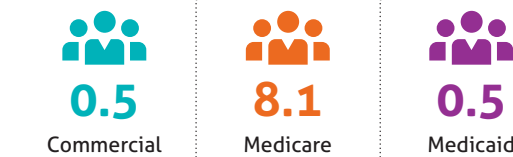
2017-2018 CATEGORY PMPM TREND



2018 % OF MEDICAL DRUG SPEND



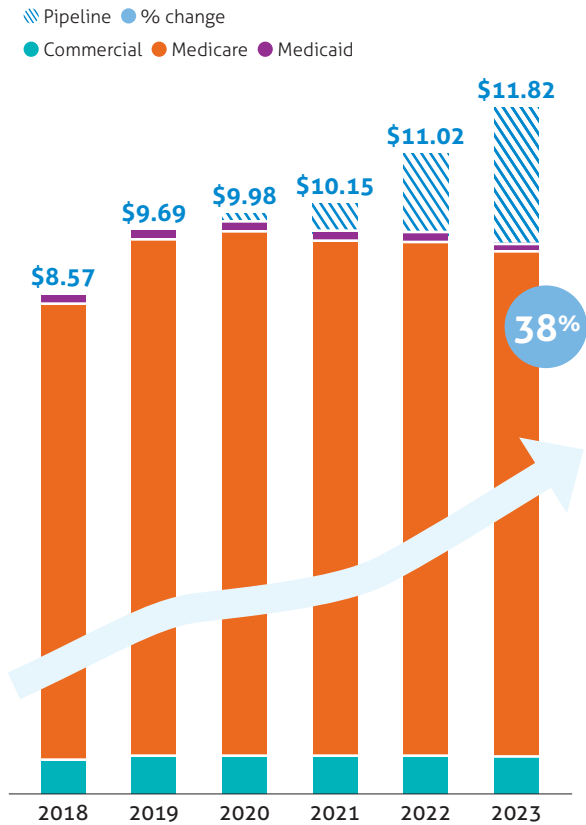
2018 MEMBERS PER 1,000



COMMERCIAL EYLEA VS. AVASTIN

	2018 MARKET SHARE		2018 COST PER PATIENT
EYLEA	40%	3%	\$11,204
AVASTIN	34%	1%	\$558 20x less costly

FORECAST



MEDICAL PHARMACY MANAGEMENT

Top Management Trends

Medical pharmacy management requires an ever-evolving balance of serving increasing populations and managing novel agents introduced to the market. We asked payers about their top concerns when thinking about drugs on the medical benefit. Most payers were concerned with the foundational issue of **medical pharmacy spend**, while the emergence of gene therapies was the next-highest concern (see figure 22).

Innovative management strategies such as site of service, weight-based dosing, vial rounding, and dose optimization are vital to help bend the trend. Payers are experiencing real savings from these programs. Plans were also utilizing unique medical benefit strategies such as using Institute for Clinical and Economic Review (ICER) guidelines to structure management programs and taking advantage of 340B pricing (see figure 23).

In addition, payers have created targeted management programs such as:

- » Biosimilar and site of service mandates
- » Bringing members back to plan-owned clinics when appropriate
- » Rebates in medical pharmacy
- » Performing clinical pharmacist review for some high-cost infusible drugs prior to initiation of therapy
- » Eliminating provider buy and bill

FIGURE 22: TOP CONCERNS ABOUT MEDICAL PHARMACY

% of payers (n=54)

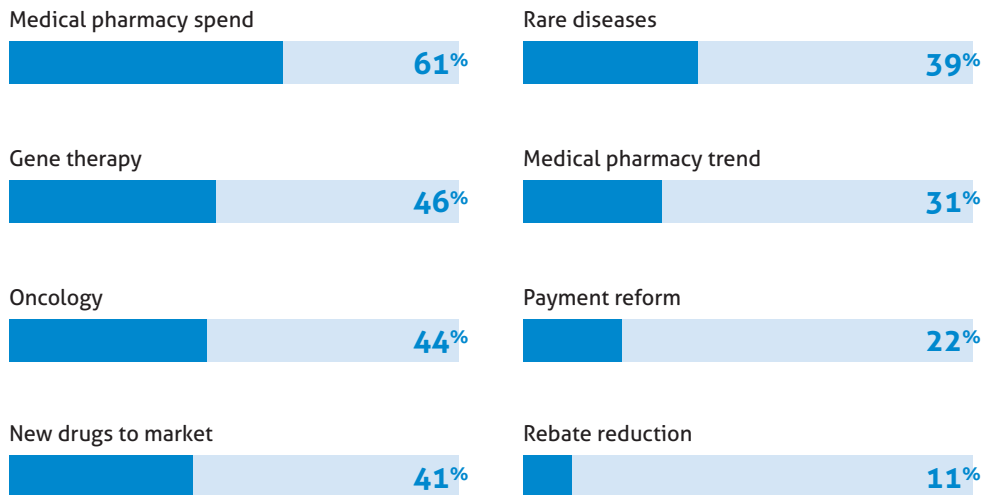
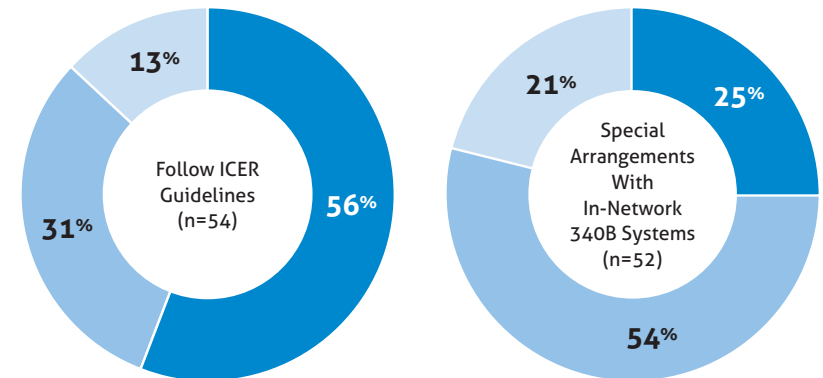


FIGURE 23: MEDICAL PHARMACY STRATEGIES

● Yes ● No ● Don't know



Utilization Management

Payers preferred medical benefit drugs where multiple agents were available. Payers needed, on average, at least a 21% discount on a drug in order to preference that drug (see figure 24). Even so, payers are still managing medical pharmacy through utilization management tools, mainly prior authorization (PA) at 98% and post-service claim edits (PSCE) at 50% (see figure 25). Payers reported average denial rates of 18% and overturn rates of 23% (see figure 26). Payers with post-service claim edits had denial rates of 9% and appeal rates of 10% but a low overturn rate of 4% (see figure 27).

FIGURE 24: VALUABLE DISCOUNT

Valuable Discount to Prefer Medical Benefit Drug

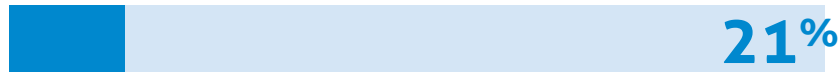


FIGURE 25: UTILIZATION MANAGEMENT TOOLS

% of payers (n=54)

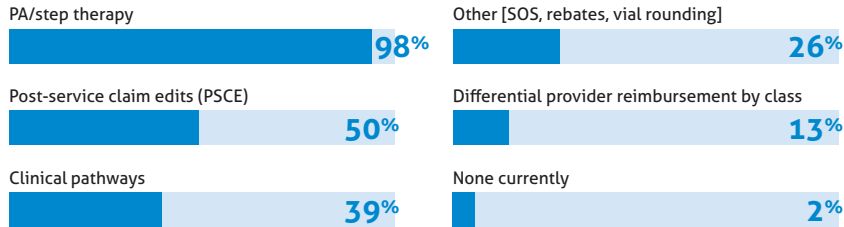


FIGURE 26: PA DETERMINATION RATES

Weighted Rates (n=53)

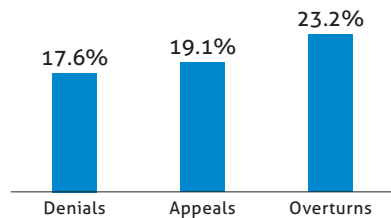
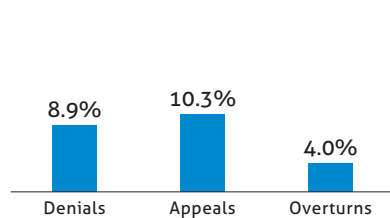


FIGURE 27: PSCE DETERMINATION RATES

Weighted Rates (n=27)



Management: Unclassified Medical Pharmacy

New specialty drugs are managed similarly to existing specialty drugs, with PA and PSCE being implemented within three months of approval for three-quarters of the plans (see figures 28 and 29).

FIGURE 28: PA FOR NEWLY RELEASED MEDICAL BENEFIT DRUGS

% of payers (n=48)

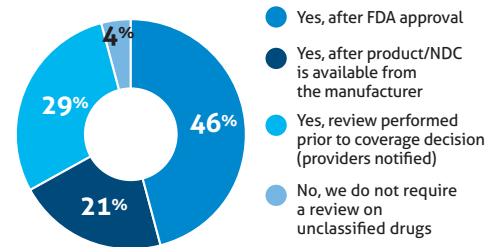
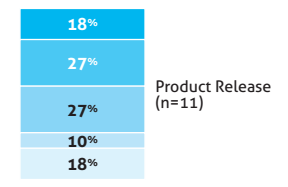
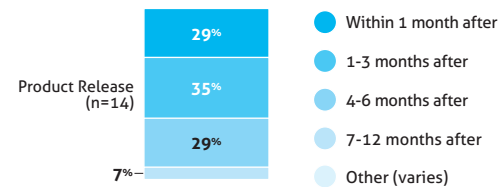
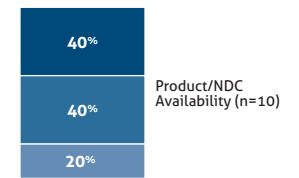
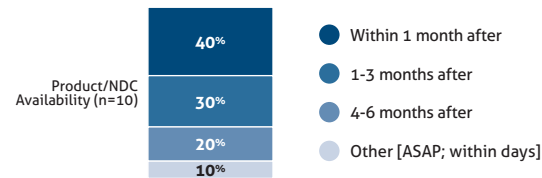
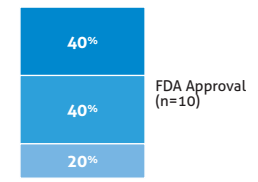
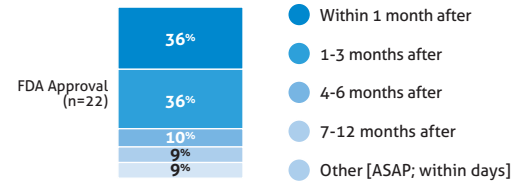
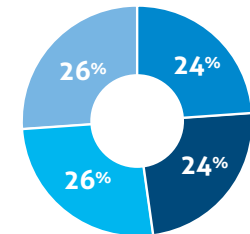


FIGURE 29: PSCE FOR NEWLY RELEASED MEDICAL BENEFIT DRUGS

% of payers (n=42)



MEDICAL PHARMACY MANAGEMENT

Utilization Management: Category Specific

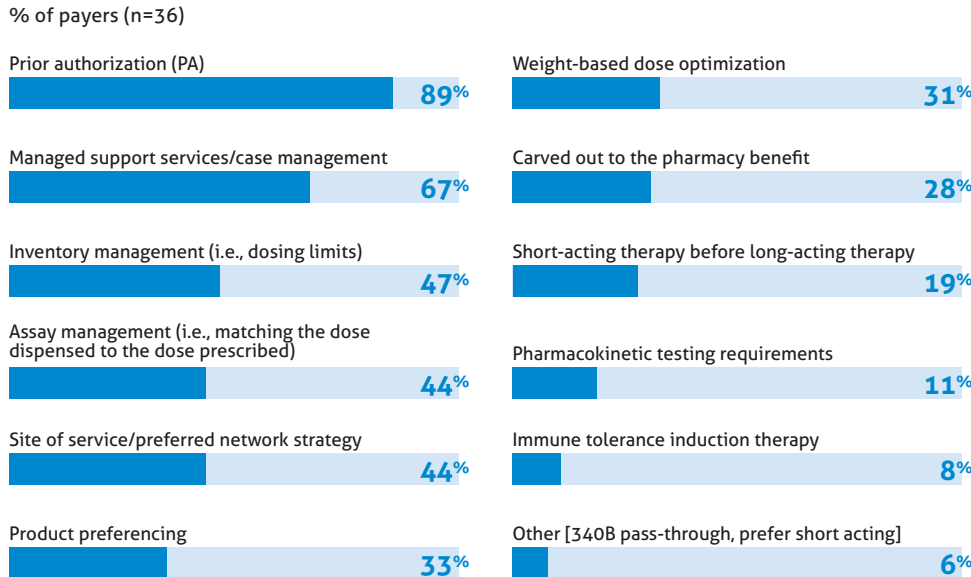
We inquired about management strategies for hemophilia, oncology immunotherapies, and CAR-T cell therapies, since those were impactful categories in 2018 and 2019. We found that 67% of payers had a hemophilia strategy, of which 89% implemented a PA, 67% managed through some kind of support services such as case management, and 47% had some form of inventory management such as dosing limits (see figure 30). For oncology immunotherapies, 85% of payers used PA, while 35% used PSCE and 33% used a clinical pathway. Even so, 76% were not preferencing agents with shared indications representing potential opportunity. Since gene therapy was a concern for payers, 76% implemented a PA and 30% implemented outcomes-based payments, but more surprisingly, 19% did not know their gene therapy strategy (see figure 31). Rare disease management was mainly implemented through PA (93%) and case management (69%) (see figure 32).

HEMOPHILIA

67% of payers had a hemophilia strategy (n=54)

72% of payers **without** a hemophilia strategy are concerned about future spend (n=18)

FIGURE 30: HEMOPHILIA MANAGEMENT STRATEGY



ONCOLOGY IMMUNOTHERAPY MANAGEMENT

% of payers (n=54)

85% of payers used **PA** to manage checkpoint inhibitors

33% of payers used a **clinical pathway** to manage checkpoint inhibitors

35% of payers used **PSCE** to manage checkpoint inhibitors

76% of payers are **not preferencing** agents with shared indications

FIGURE 31: GENE THERAPY MANAGEMENT STRATEGY

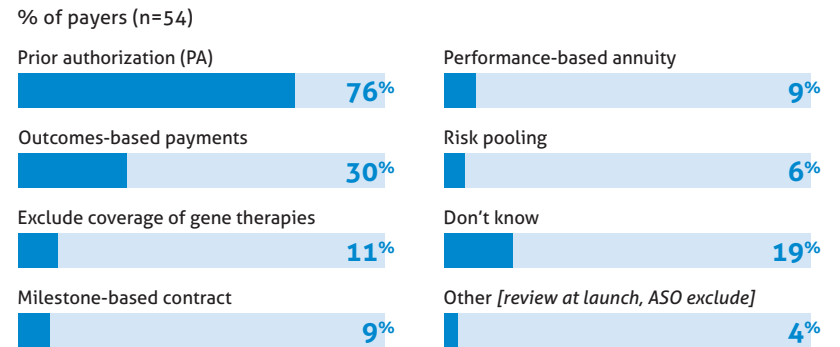
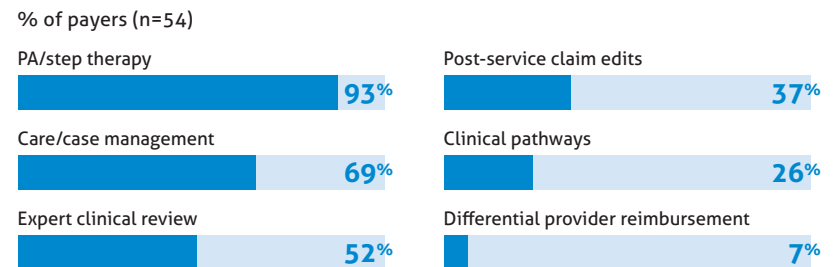


FIGURE 32: RARE DISEASE MANAGEMENT STRATEGY



CAR-T THERAPY

More and more providers utilized CAR-T therapies, and more payers tracked outcomes related to CAR-T therapies, both as a component of value-based agreements in place with some manufacturers and as a way of independently assessing the outcomes they are seeing in their populations receiving treatment with CAR-T therapies. Although typically requiring an inpatient stay, 78% of payers had a management strategy for both inpatient and outpatient therapy, while 46% did not require approval for that inpatient hospital stay (see figures 33 and 34). For CAR-T response rates, 40% of payers had less than a 50% response rate when it comes to CAR-T therapy (see figure 35). Even with these strategies and outcomes data, 21% of payers were not aware of their organization's CAR-T reimbursement (see figure 36).

FIGURE 33: CAR-T THERAPY MANAGEMENT: PA REVIEW

(n=54)

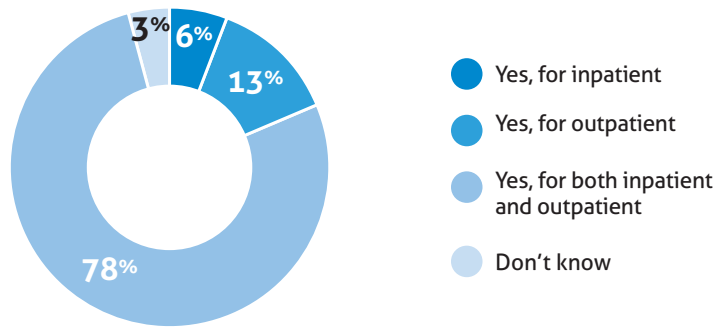


FIGURE 34: CAR-T THERAPY MANAGEMENT: REVIEW STRATEGY

● Yes ● No ● Don't know

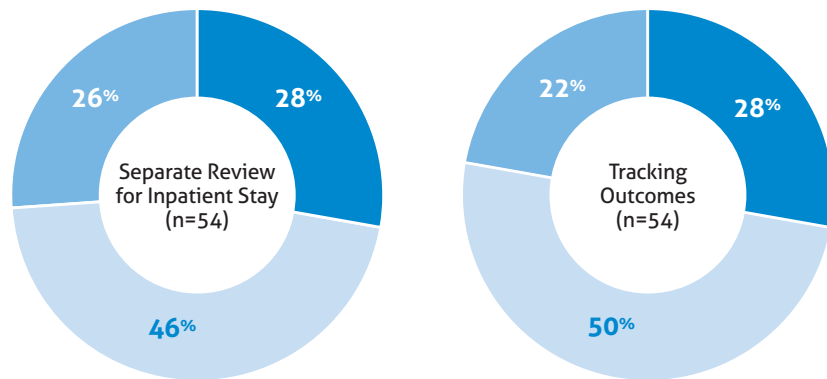


FIGURE 35: CAR-T OUTCOME RESPONSE RATES

(n=15)

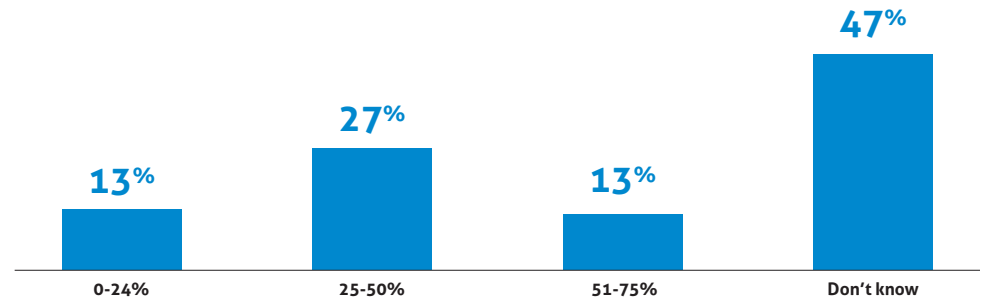
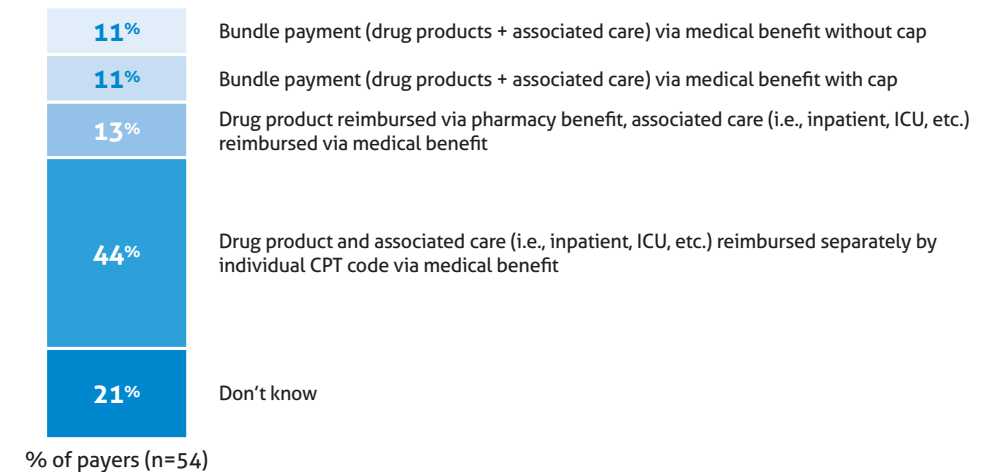


FIGURE 36: 2019 CAR-T REIMBURSEMENT

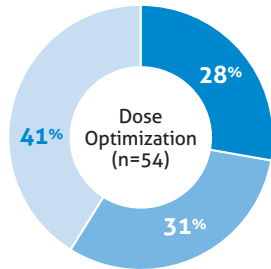


Utilization Management Programs

Unique strategies are key components of a medical drug management program, and these programs are growing in popularity. In 2019, 59% of payers had dose optimization, 46% had vial rounding, and only 31% had weight-based dosing in place for oncology immunotherapies (see figures 37, 38, and 39).

FIGURE 37: 2019 DOSE OPTIMIZATION PROGRAM

● Yes, it's mandatory ● Yes, it's voluntary ● No



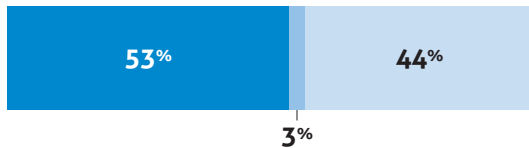
84%
Immune
Globulin
(n=32)

53%
Antihemophilic
Factor
(n=32)

47%
BDAIDs
(n=32)

● Yes ● No ● Don't know

Dose Optimization Savings (n=32)

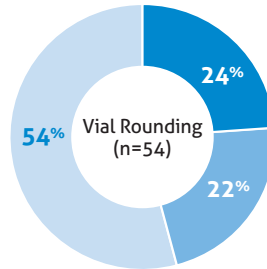


9%
Average Savings (n=14)[†]



FIGURE 38: 2019 VIAL ROUNDING

● Yes, it's mandatory ● Yes, it's voluntary ● No



72%
Immune
Globulin
(n=25)

64%
BDAIDs
(n=25)

52%
Oncology
(n=25)

● Yes ● No ● Don't know

Vial Rounding Limits (n=25)



Vial Rounding Savings (n=25)

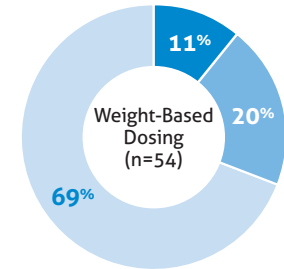


10%
Average Savings (n=9)[†]



FIGURE 39: 2019 WEIGHT-BASED DOSING

● Yes, it's mandatory ● Yes, it's voluntary ● No



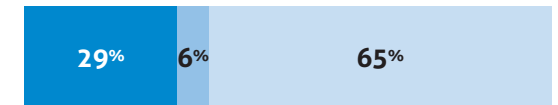
82%
Keytruda
(n=17)

76%
Opdivo
(n=17)

12%
Other
(n=17)

● Yes ● No ● Don't know

Savings from Weight-Based Dosing (n=17)



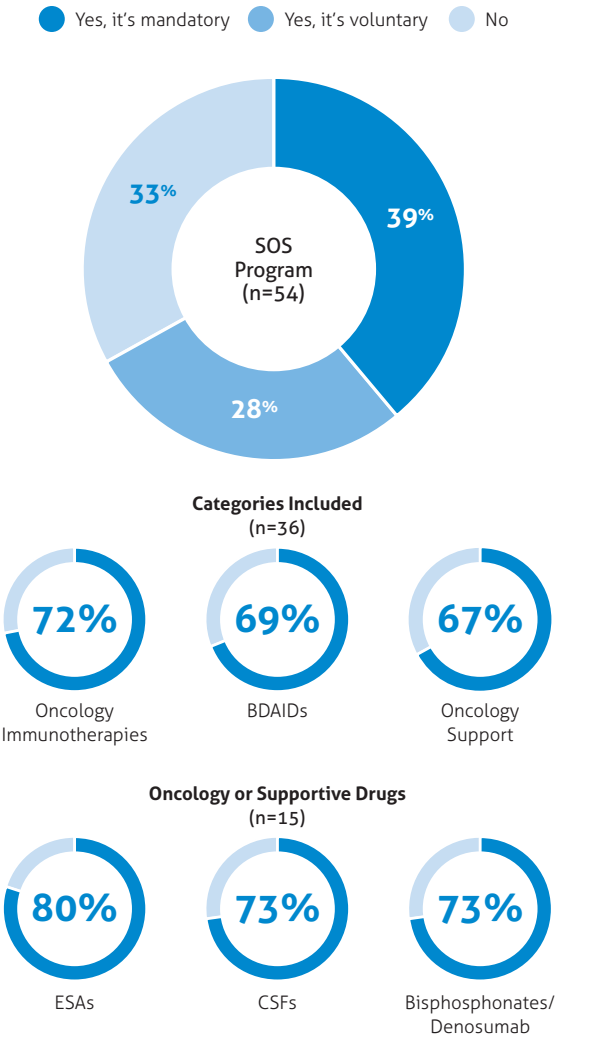
8%
Average Savings (n=2)[†]



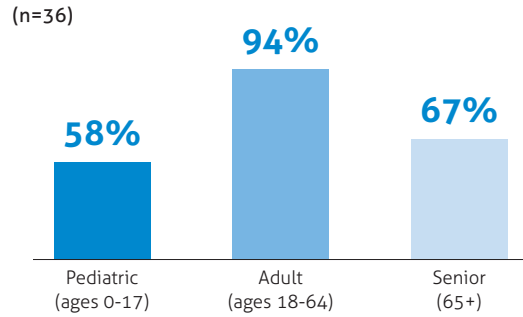
[†]Savings self-reported.

2019 Site-of-Service (SOS) Program

FIGURE 40: 2019 SOS PROGRAM



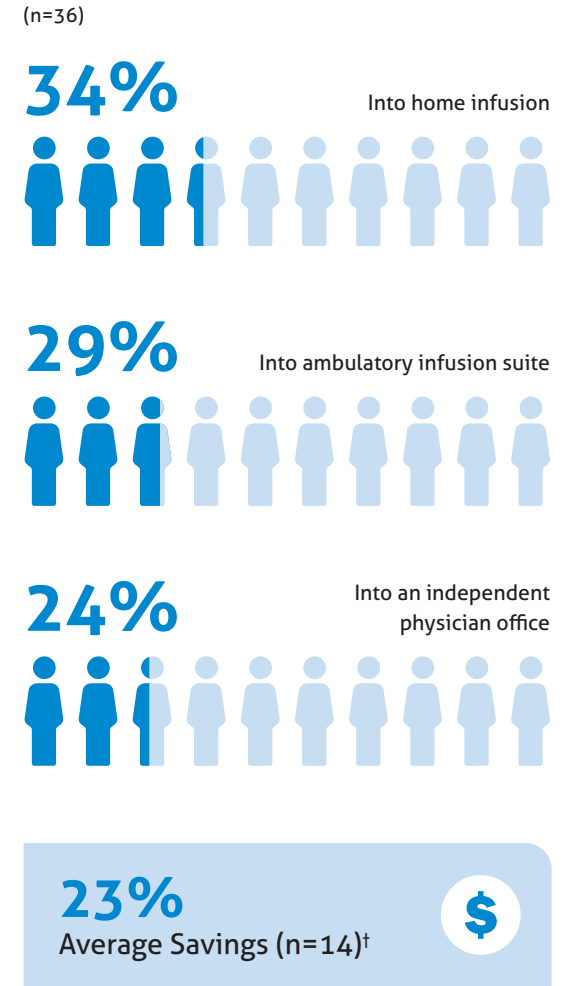
SOS PROGRAM POPULATION



ADMINISTRATION OF SOS PROGRAM



MEMBERS SHIFTED INTO SOS PROGRAM



[†]Savings self-reported.

Biosimilar Strategies

As of publication of this report (early March 2020), there were 26 FDA-approved biosimilar products across three different therapeutic categories, of which 15 have been launched. Thirteen of those were oncology/oncology support agents.

The biosimilars currently on the market proved to have an impact on medical pharmacy strategy, as 40% of payers, based on number of lives, reported they were currently reimbursing based on a maximum allowable cost (equivalent reimbursement for reference and biosimilar) (see figure 42). Only 23% of payers, based on lives, reimbursed based on the Medicare model, an 11-percentage-point decline from last year. At the time of our survey (summer 2019), there were no oncology biosimilar products on the market, but payers were planning to utilize the same formulary strategies for the oncology biosimilars, including step therapy.

More than half of payers, 63%, implemented a biosimilar step therapy program (see figure 44), most often for Remicade and Neupogen (see figure 46). Not surprisingly, 91% of payers stated significant cost differential as the No. 1 criterion for implementing a step for reference products, with an average savings of 29% to warrant the step therapy (see figures 41 and 45).

FIGURE 41: 2019 BIOSIMILAR MANAGEMENT

(n=54)

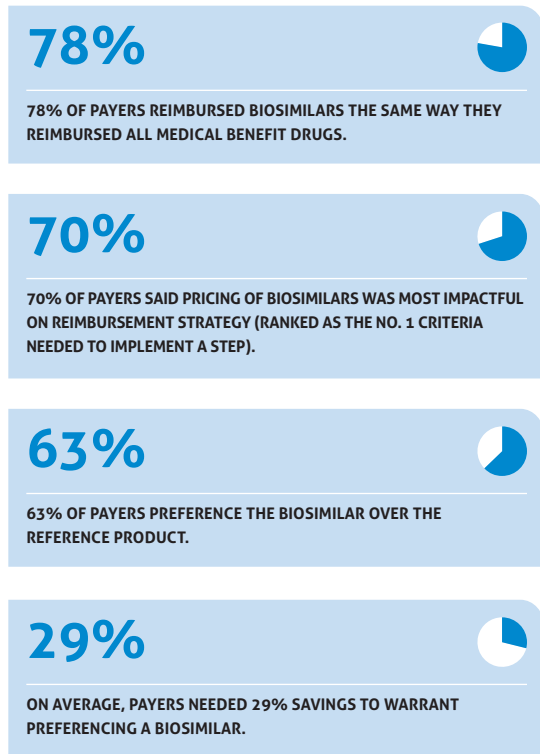


FIGURE 42: BIOSIMILAR REIMBURSEMENT STRATEGY

% of lives (n=190 million)

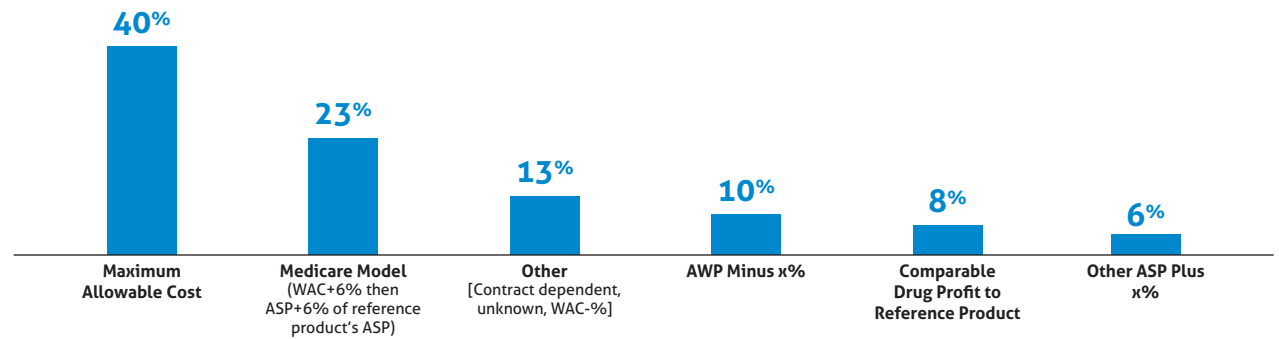
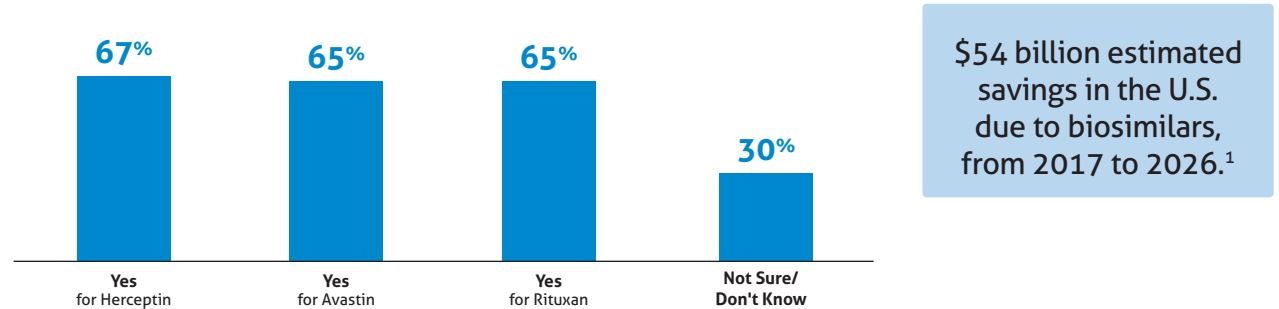


FIGURE 43: 2019 SAME FORMULARY BIOSIMILAR STRATEGY FOR ONCOLOGY

% of payers (n=54)



¹Mulcahy, Andrew W. et al. "Biosimilar Cost Savings in the United States: Initial Experience and Future Potential." Rand Health Quarterly, 2018, <https://www.rand.org/pubs/periodicals/health-quarterly/issues/v7/n4/03.html>.

FIGURE 44: 2019 BIOSIMILAR STEP THERAPY PROTOCOL

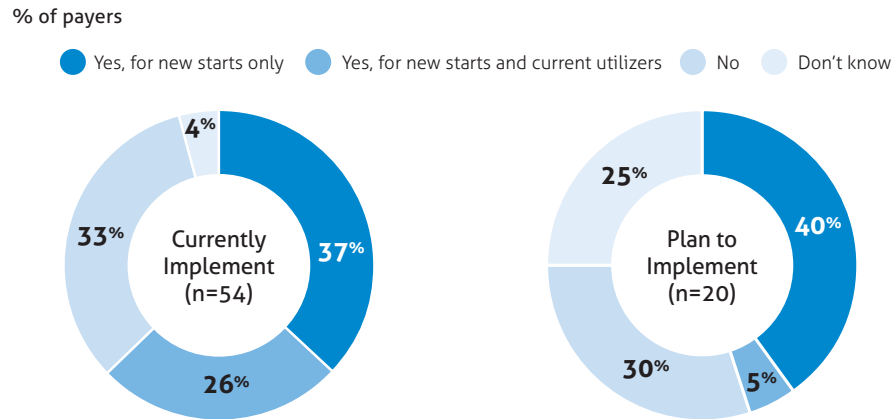


FIGURE 45: 2019 BIOSIMILAR STEP-THERAPY CRITERIA

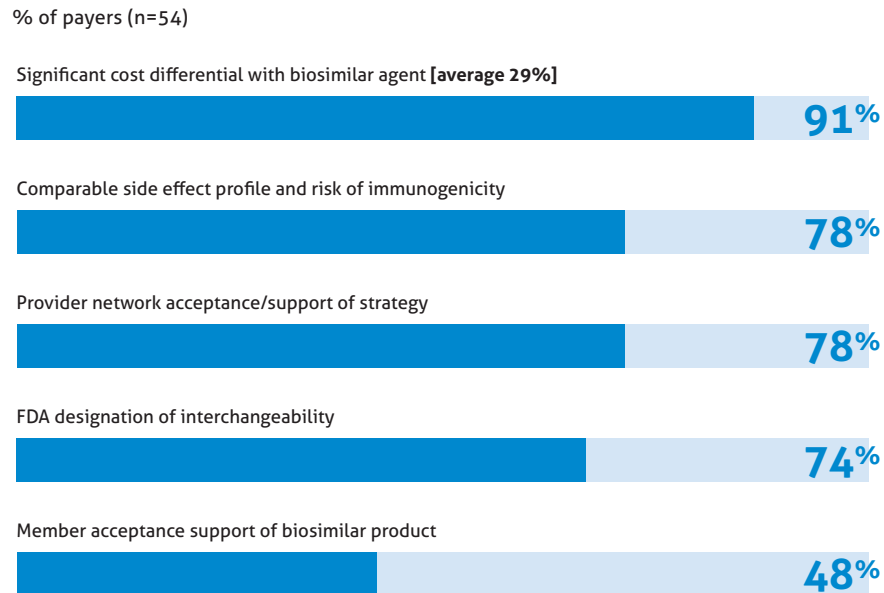
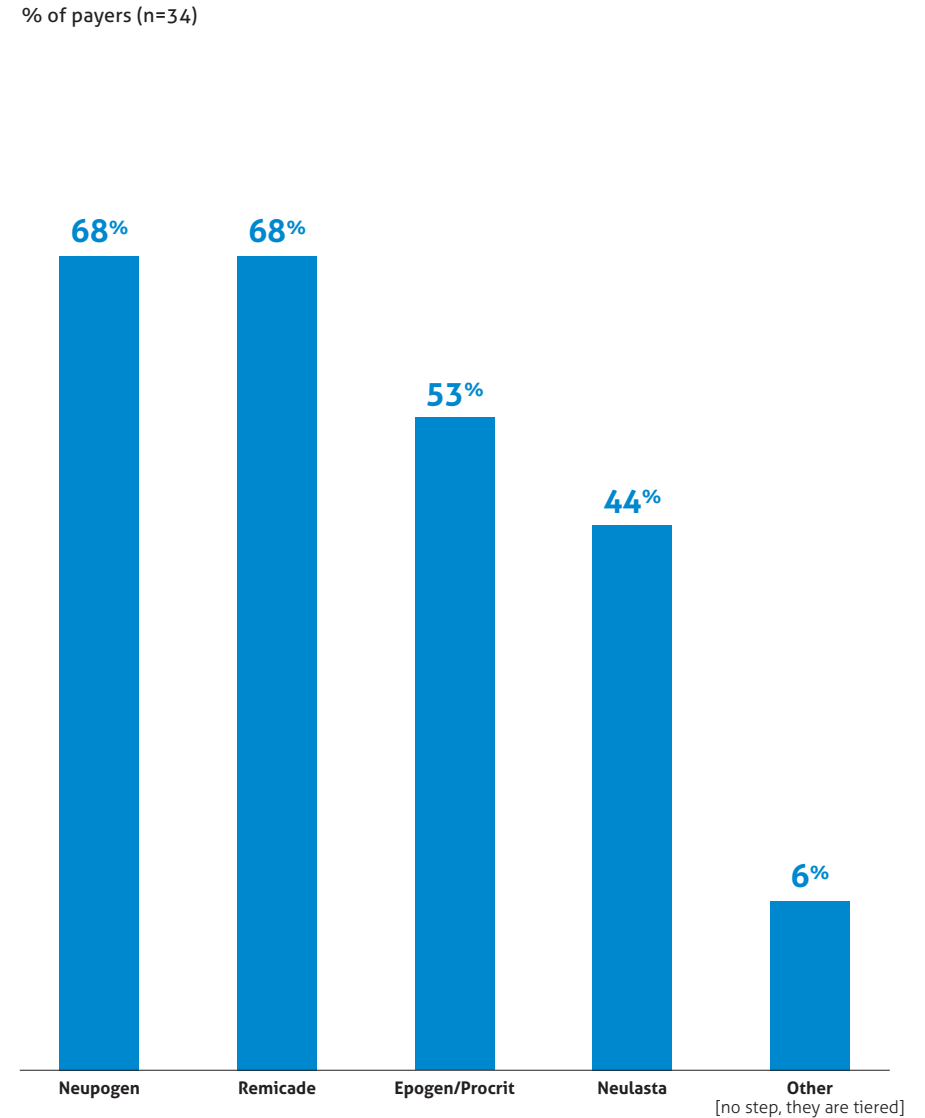


FIGURE 46: 2019 REFERENCE PRODUCTS OVER WHICH BIOSIMILARS ARE PREFERRED



MEDICAL PHARMACY MANAGEMENT

Medical Benefit Drug Cost Share‡

In medical pharmacy, payer cost burden was at 96% or greater across all lines of business. In terms of members, Medicare had the highest cost share, at 4.2% (see figure 47). Commercial and Medicare cost shares were collected through coinsurance; surprisingly, 25% of commercial and 19% of Medicare required no cost share (see figure 48).

FIGURE 47: MEDICAL BENEFIT DRUG COST SHARE

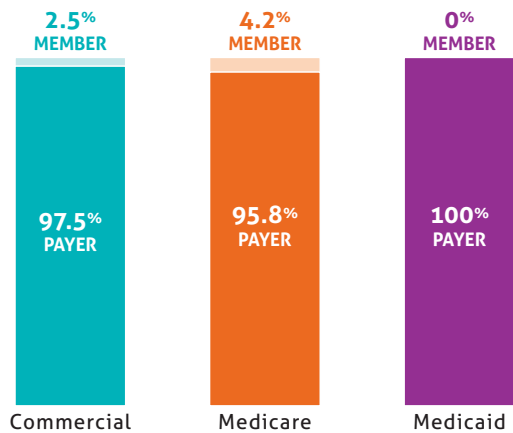
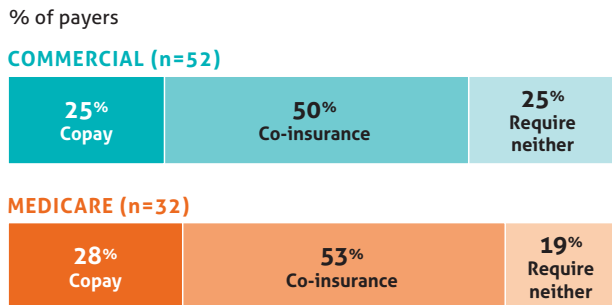


FIGURE 48: MEDICAL BENEFIT DRUG MEMBER COST SHARE TYPE



A minority of payers varied cost share by drug or indication — 13% and 2%, respectively. Although still a small percentage, almost one-third (29%) were varying cost share by site of service (SOS). Forty percent of plans varying cost share by SOS saw outcomes including cost savings and member satisfaction (see figures 49, 50, and 51).

FIGURE 49: VARYING COST SHARE BY DRUG

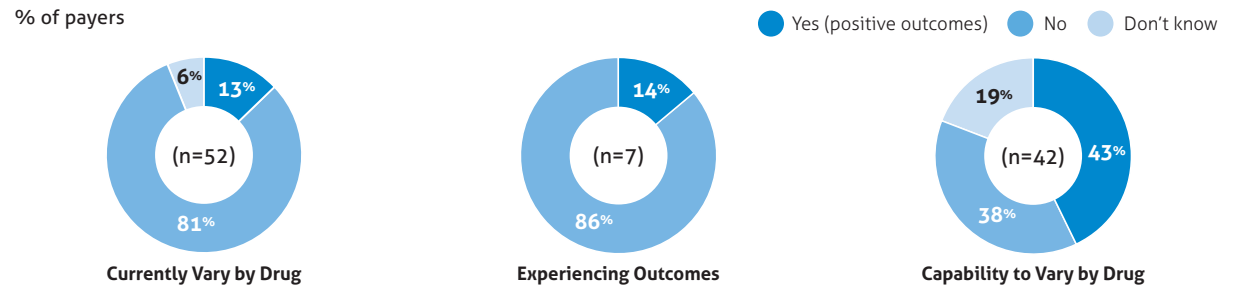


FIGURE 50: VARYING COST SHARE BY SOS

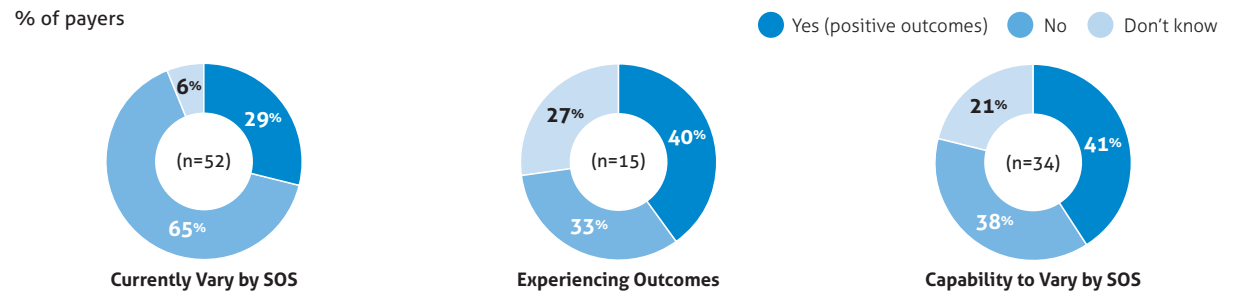
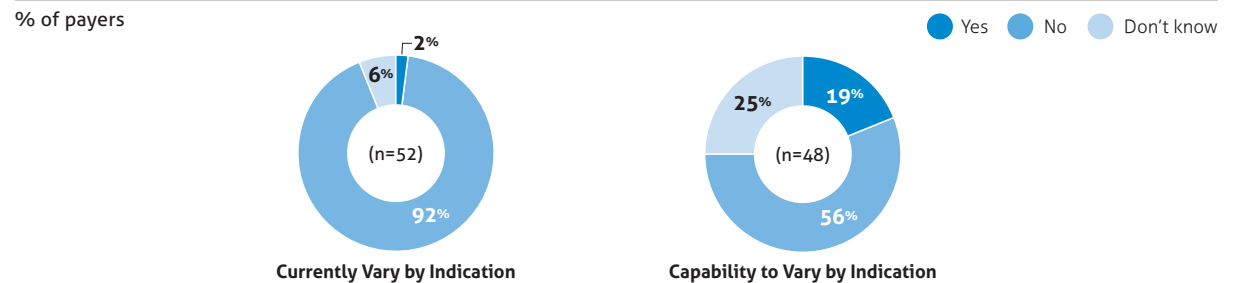


FIGURE 51: VARYING COST SHARE BY INDICATION



‡ Includes deductible, copay, and coinsurance

Health Information Data

60%
of payers are currently collecting
NDC data (n=52)

70%
of payers use forecasting data across both
medical and pharmacy benefit drugs (n=43)

25%
of payers have their providers collect and
share quality outcomes data (n=52)

FIGURE 52: 2019 ABILITY TO USE NDC DATA

(n=31)

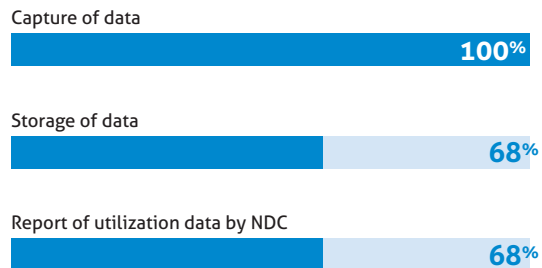


FIGURE 53: 2019 NDC DATA COLLECTION USE

(n=31)

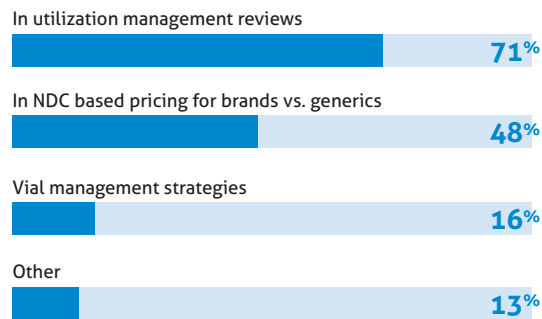


FIGURE 54: USE OF FORECASTING DATA

(n=54)

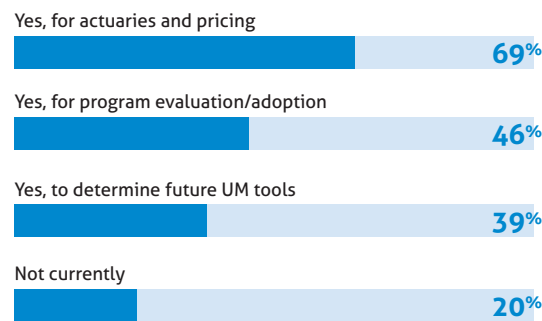


FIGURE 55: FREQUENCY OF FORECASTING DATA USAGE

(n=42)

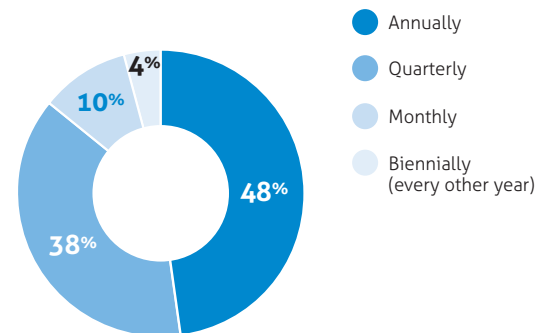


FIGURE 56: PROVIDERS COLLECTING AND REPORTING OUTCOMES DATA

(n=52)

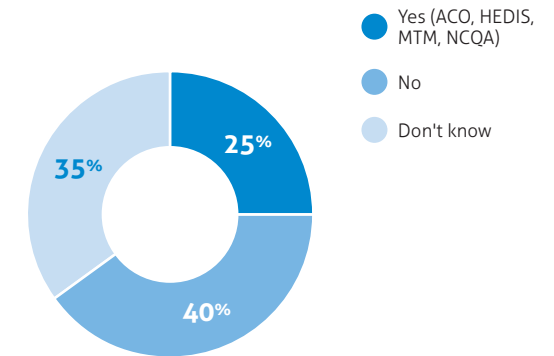
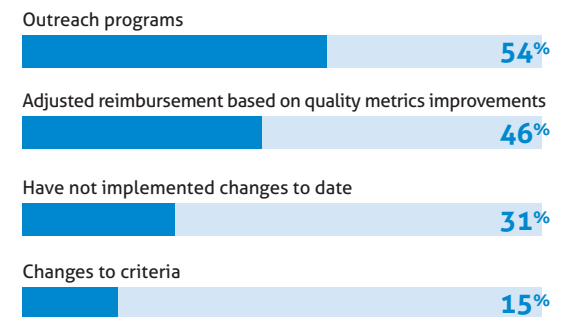


FIGURE 57: MANAGEMENT CHANGES BASED ON QUALITY AND OUTCOMES DATA COLLECTION

(n=13)



Congress Moves Forward on Drug Pricing but Finds It Difficult to Reach Agreement

Both houses of the U.S. Congress were extremely active in drug-pricing policy issues throughout 2019, and the Trump administration and Congress are expected to continue aggressively pursuing policy changes in this area throughout 2021 and beyond. In the spring of 2019, the House passed legislation designed to prevent delay tactics and to improve competition by increasing market access for generics. That legislation still awaits Senate action.² In the summer of 2019, all major Senate committees advanced major drug pricing legislation. The various bills included:

- » establishing an inflation rebate for Medicare Part D drugs
- » limiting consumer out-of-pocket expenses
- » eliminating the manufacturer coverage discount program
- » changing the financial responsibilities between government and insurers in the catastrophic phase
- » incentivizing increased use of biosimilars
- » requiring pass-through of all PBM rebates and discounts
- » eliminating spread pricing in both commercial and government markets
- » requiring increased public transparency through reporting of PBM costs, fees, and rebate information to plan sponsors and government advisory committees.

By the end of the year, these committee bills had yet to be combined and brought to the Senate floor for a vote.³ The House of Representatives took up HR3, its major drug-pricing bill, in the fall of 2019. That bill included direct government negotiation of the top 250 high-cost drugs that had little or no competition. Prices would be capped at the upper limit of 120% of an average international pricing index for drugs in six major countries. The bill also included establishing an inflation rebate in the Medicare program and limiting consumer out-of-pocket costs.⁴ Together, these House and Senate bills highlighted the broad range of drug-pricing issues policymakers were grappling with across the drug supply chain over the past year and are indicative of the momentum behind efforts to increase competition, limit consumer costs, and lower drug prices in this country through legislative action. It is expected that these policy issues will continue to be debated throughout the remainder of the 116th Congress.

Trump Administration Moves Forward on Drug Pricing but Finds Hurdles Along the Way

The Trump administration has also moved aggressively on drug-pricing issues in 2019 through the regulatory process, but it has run into numerous hurdles over the course of the year. As part of its May 2018 Blueprint to Lower Drug Prices and Reduce Out-of-Pocket Costs, the administration proposed to require that all rebates in government programs be passed back to consumers at the point of sale. Given that Medicare premiums would rise, since rebate dollars are used to reduce premiums, and the estimated cost of this proposed rule was substantial, the administration pulled the rebate rule in July 2019.⁵ The Trump administration also proposed a rule in late 2018 that would require drug manufacturers to list the cost of a 30-day supply of drugs in its direct-to-consumer advertisements. The final rule was to take effect in July 2019, but a federal court struck down the rule a week before it was to take effect.⁶ The administration also issued an advance notice of proposed rule-making that intended to create a national demonstration model to test for paying Part B drugs through an international pricing model based on prices from select countries. The White House, in announcing this national demonstration, stated that it hoped to issue a proposed rule in spring 2019 with a program start date in spring 2020. The proposed rule has been under review at the Office of Management and Budget since June 2019.⁷ Despite these obstacles, it is clear from the actions taken throughout the year that the administration remains committed to addressing drug-pricing issues through use of its regulatory authority in all aspects of the drug supply chain.

HHS and FDA Release Drug Importation Regulations

On Dec. 18, 2019, the U.S. Department of Health and Human Services (HHS) and the U.S. Food and Drug Administration (FDA) released proposed regulations and guidance aimed at facilitating the importation of certain drugs from Canada and, potentially, other foreign countries. This proposal (which builds on the FDA's Safe Importation Action Plan released summer 2019) identifies a number of potential pathways for the importation of lower-cost prescription drugs. The public comment period closed March 9, 2020.

²HR987 passed U.S. House of Representatives on May 16, 2019, 234-183.

³S1895 passed Senate Health Education Labor Pensions Committee on June 26, 2019; S1416, S440, S1224, and S1227 passed Senate Judiciary Committee on June 28, 2019; S2543 passed Senate Finance Committee on July 25, 2019.

⁴HR3 passed Energy and Commerce Committee on Oct. 17, 2019; passed Education and Labor Committee on Oct. 17, 2019; passed Ways and Means Committee on Oct. 23, 2019.

⁵Abutaleb, Yasmeen et al. "Trump Kills Key Drug Price Proposal He Once Embraced." Washington Post, July 11, 2019, https://www.washingtonpost.com/business/economy/white-house-kills-key-drug-pricing-rule-to-eliminate-hidden-rebates/2019/07/11/ff595192-a3de-11e9-bd56-eac6bb02d01d_story.html

⁶Thomas, Katie, and Katie Rogers. "Judge Blocks Trump Rule Requiring Drug Companies to List Prices in TV Ads." New York Times, July 8, 2019, <https://www.nytimes.com/2019/07/08/health/drug-prices-tv-ads-trump.html>

⁷Cohrs, Rachel, "Azar says Trump wants more aggressive international drug-pricing demo." Modern Healthcare, Nov. 13, 2019, <https://www.modernhealthcare.com/policy/azar-says-trump-wants-more-aggressive-international-drug-pricing-demo>.

2019 saw a significant number of specialty drug approvals at 54 total — 31 of them new molecular entities, according to the FDA. Almost 60% of the total specialty drugs approved were on the medical benefit, further emphasizing the need for strong management strategies in medical pharmacy. The pipeline drug outlook provides a high-level outline of drugs with anticipated FDA approval through 2021 and the impact that specialty drugs will have on the industry in the upcoming one to two years (see figure 58). The segment of pipeline drugs anticipated to have \$1 billion in spend is expected to increase 15%, from 33 drugs in 2018 to 38 in 2024 (see figure 59).

For more detailed drug pipeline information, visit magellanrx.com/pipeline.

FIGURE 58: PIPELINE DRUG OUTLOOK THROUGH 2021⁸

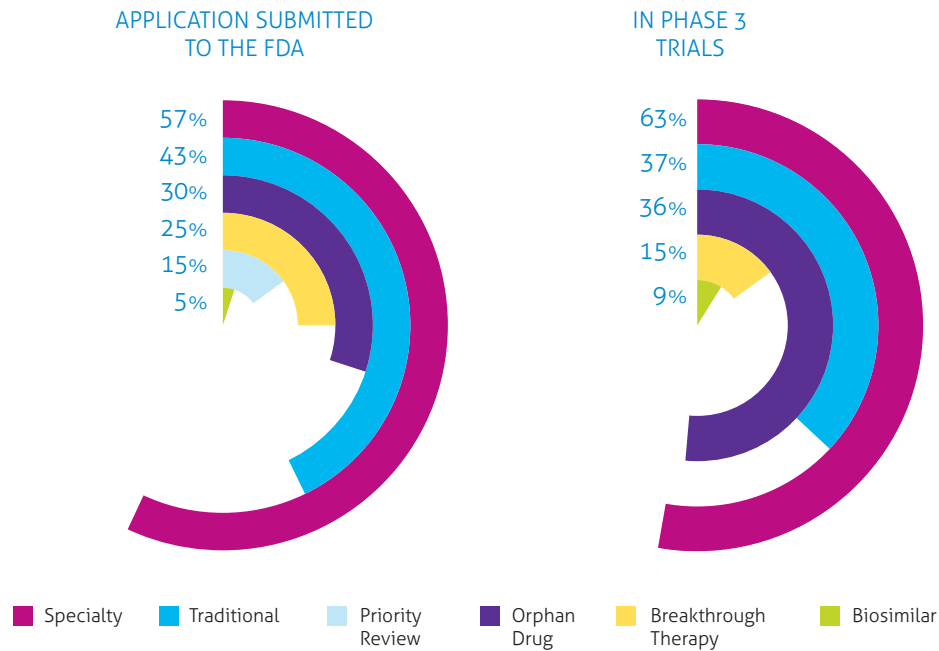
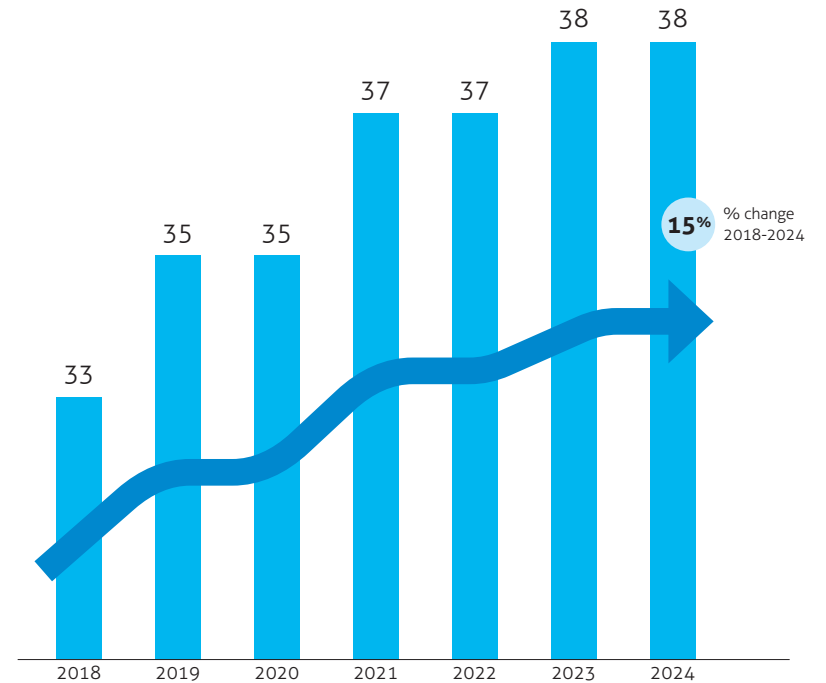


FIGURE 59: BILLION-DOLLAR DRUGS FORECAST⁹



⁸MRx Pipeline Report January 2020. <https://www1.magellanrx.com/publications/mrx-pipeline/>. Accessed February 2020.

⁹Data provided by Evaluate Ltd. EvaluatePharma®.

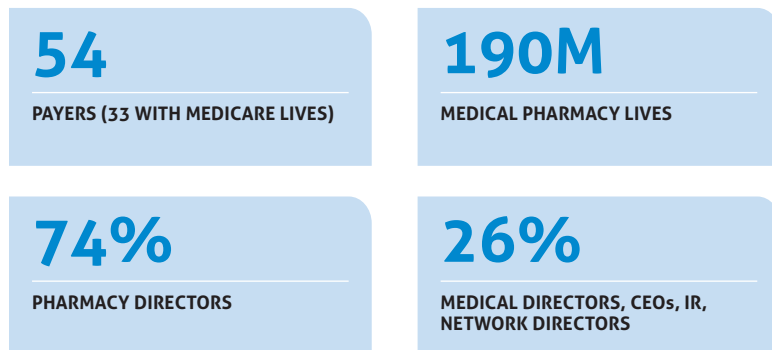
2019 REPORT METHODOLOGY AND DEMOGRAPHICS

The methodology for the 10th edition of the Magellan Rx Management Medical Pharmacy Trend Report™ was developed with original guidance from our payer advisory board, as well as reader feedback on our previous trend reports.

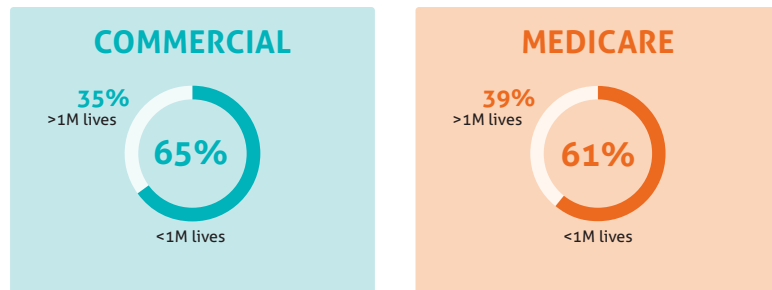
This report includes a combination of primary and secondary research methodologies to deliver a comprehensive view of payer perceptions and health plan actions related to provider-administered infused or injected drugs paid under the medical benefit, also referred to as medical pharmacy or medical benefit drugs. These medical benefit drugs are commonly used to treat diseases such as cancer, autoimmune disorders, and immunodeficiencies.

Payer Survey

RESPONDENT SAMPLE



RESPONDENT PLAN SIZE



Health Plan Claims Data

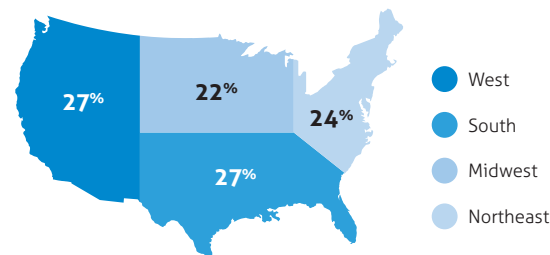
Medical benefit drug utilization and trend data were collected through secondary analyses of commercial, Medicare, and Medicaid health plan medical paid claims data for the most recent calendar years. Claims data were analyzed for medical pharmacy utilization across 941 HCPCS codes and several outpatient sites of service. Vaccines and radiopharmaceuticals were excluded from the analyses. Year over year, shifts in claims data have occurred due to adjustments. Administration codes were analyzed separately in only one analysis; their utilization was not included in any other analyses. Most analyses compared calendar years 2017 and 2018. In some cases, the past five years were analyzed to show a longer period of year-over-year spend and trend. Year over year, shifts in claims data information have occurred due to adjustments.

FIGURE 60: MEDICAL BENEFIT DRUG EXAMPLES FOR THERAPEUTIC CLASSES IN PAYER SURVEY

Drug Category	Example Drugs
Antihemophilic Factors	Advate, Alphanate, Benefix, Novoseven, Recombinate, Xyntha
Asthma	Cinqair, Fasenna, Nucala, Xolair
Biologic Drugs for Autoimmune Disorders	Actemra, Cimzia, Entyvio, Orenicia, Remicade, Simponi ARIA, Stelara
Botulinum Toxins	Botox, Dysport, Myobloc, Xeomin
Immune Globulin	Gammagard Subcutaneous (SQ), Gamunex, Hizentra, HyQvia
Multiple Sclerosis (Infusion Only)	Lemtrada, Ocrevus, Tysabri
Oncology	Avastin, Cyramza, Erbitux, Herceptin, Rituxan, Vectibix
Oncology Immunotherapy	Bavencio, Imfinzi, Keytruda, Libtayo, Opdivo, Tecentriq
Oncology Support	antiemetics, CSFs, ESAs, folic acids, octreotide/Sandostatin
Ophthalmic Injections	bevacizumab, Eylea, Lucentis, Macugen
Viscosupplementation	Euflexxa, Gel-One, Hyalgan, Monovisc, Orthovisc, Supartz, Synvisc

FIGURE 61: REGIONAL PLANS: GEOGRAPHIC DISPERSION OF LIVES

(n=45; 35 million covered lives)



Forecasting powered by
 MRxPredict

Data provided by Evaluate Ltd. EvaluatePharma®.

APPENDIX

FIGURE 62: MEDICAL PHARMACY ALLOWED AMOUNT PMPM 2014-2018*

	2014	2014-2015 % Change	2015	2015-2016 % Change	2016	2016-2017 % Change	2017	2017-2018 % Change	2018
COMMERCIAL									
Home Infusion	\$3.06	▲ 20%	\$3.66	▲ 15%	\$4.22	▲ 38%	\$5.82	▲ 16%	\$6.77
Hospital OP	\$10.41	▲ 3%	\$10.70	▲ 22%	\$13.02	▲ 14%	\$14.83	▲ 9%	\$16.17
Physician Office	\$6.47	▲ 13%	\$7.31	▲ 13%	\$8.25	▲ 11%	\$9.12	▲ 9%	\$9.90
Total	\$19.94	▲ 9%	\$21.68	▲ 18%	\$25.49	▲ 17%	\$29.77	▲ 10%	\$32.83
MEDICARE									
Home Infusion	\$4.04	▼ -23%	\$3.12	▼ -1%	\$3.10	▲ 32%	\$4.10	▲ 29%	\$5.27
Hospital OP	\$19.39	▼ -5%	\$18.49	▲ 2%	\$18.79	▲ 8%	\$20.32	▲ 3%	\$21.01
Physician Office	\$20.48	▲ 18%	\$24.24	▲ 2%	\$24.67	▲ 33%	\$32.69	▲ 8%	\$35.20
Total	\$43.90	▲ 4%	\$45.86	▲ 2%	\$46.56	▲ 23%	\$57.11	▲ 8%	\$61.47
MEDICAID									
Home Infusion	\$1.10	▼ -6%	\$1.03	▼ -0.1%	\$1.02	▲ 0.1%	\$1.03	▲ 12%	\$1.15
Hospital OP	\$2.62	▲ 50%	\$3.93	▲ 5%	\$4.11	▲ 34%	\$5.52	▲ 9%	\$6.04
Physician Office	\$2.41	▲ 9%	\$2.62	▲ 27%	\$3.33	▲ 12%	\$3.72	▲ 0.5%	\$3.74
Total	\$6.13	▲ 24%	\$7.58	▲ 12%	\$8.46	▲ 21%	\$10.26	▲ 7%	\$10.93

*Due to rounding, column totals may not add up exactly.

APPENDIX

FIGURE 63: 2018 COMMERCIAL COST TRENDS BY DISEASE STATE OF DRUG CATEGORY*

Rank	Therapy	2017 PMPM	2018 PMPM	2017-2018 % Change	% of Total PMPM	Cost per Claim	Members per 1,000	% of Members	ASP Index	AWP Index
1	Oncology	\$10.06	\$11.42	14%	35%	\$2,738.13	1.84	1.7%	1.70	1.26
2	BDAID: Crohn's Disease/Ulcerative Colitis	\$3.05	\$3.28	8%	10%	\$7,314.92	0.38	0.3%	1.67	1.03
3	Immune Globulin	\$2.31	\$2.66	15%	8%	\$3,990.37	0.15	0.1%	1.73	0.87
4	Colony-Stimulating Factors	\$2.06	\$2.10	2%	6%	\$5,032.12	0.42	0.4%	1.69	0.98
5	Multiple Sclerosis	\$0.89	\$1.54	73%	5%	\$16,897.00	0.10	0.1%	1.61	1.27
6	Antihemophilic Factor	\$1.61	\$1.20	-25%	4%	\$15,880.46	0.01	0.0%	1.97	1.25
7	BDAID: Rheumatoid Arthritis	\$1.23	\$1.18	-4%	4%	\$4,964.41	0.18	0.2%	1.35	0.94
8	Enzyme Replacement Therapy	\$0.73	\$0.74	1%	2%	\$19,514.94	0.01	0.0%	1.71	1.22
9	Hematology	\$0.61	\$0.71	16%	2%	\$10,694.09	0.02	0.0%	1.50	1.23
10	Asthma/COPD	\$0.52	\$0.60	15%	2%	\$527.61	2.39	2.2%	1.54	1.01
11	Ophthalmic Injections	\$0.49	\$0.54	10%	2%	\$1,145.95	0.49	0.5%	1.21	0.85
12	Other	\$0.40	\$0.52	30%	2%	\$141.42	8.48	7.9%	2.07	1.20
13	Infectious Disease	\$0.49	\$0.51	4%	2%	\$91.41	9.37	8.7%	2.36	0.84
14	Botulinum Toxins	\$0.37	\$0.44	19%	1%	\$1,088.53	0.63	0.6%	1.24	0.99
15	Antiemetics	\$0.40	\$0.43	8%	1%	\$124.72	8.85	8.2%	2.56	1.38
16	Contraceptives	\$0.38	\$0.43	13%	1%	\$612.72	2.49	2.3%	25.56	0.89
17	BDAID: Psoriasis/Psoriatic Arthritis	\$0.54	\$0.43	-20%	1%	\$7,377.39	0.05	0.0%	1.39	0.82
18	Unclassified	\$0.62	\$0.41	-34%	1%	\$235.08	2.88	2.7%	-	-
19	CNS Agents: Rare Diseases	\$0.02	\$0.33	1975%	1%	\$37,679.26	0.00	0.0%	-	0.72
20	Iron, Intravenous	\$0.27	\$0.32	19%	1%	\$663.44	0.73	0.7%	2.13	1.19
21	Pain Management	\$0.28	\$0.32	14%	1%	\$38.63	14.83	13.8%	3.37	2.01
22	Gastrointestinal: Chemoprotectant	\$0.23	\$0.28	22%	1%	\$7,847.37	0.03	0.0%	1.68	1.27
23	Hereditary Angioedema	\$0.20	\$0.24	20%	1%	\$32,269.81	0.00	0.0%	1.61	0.90
24	Viscosupplementation	\$0.23	\$0.23	0%	1%	\$350.69	0.93	0.9%	1.36	0.45
25	Fluids	\$0.09	\$0.18	0%	1%	\$48.77	8.04	7.5%	14.70	3.93
26	BDAID: Other	\$0.15	\$0.18	20%	1%	\$6,745.93	0.03	0.0%	1.86	1.04
27	BDAID: Systemic Lupus Erythematosus	\$0.21	\$0.15	-29%	0%	\$3,689.46	0.02	0.0%	1.40	1.13
28	Alpha-1 Proteinase Inhibitor	\$0.11	\$0.15	36%	0%	\$4,862.31	0.00	0.0%	0.91	0.61
29	Sedatives/Anesthesia	\$0.09	\$0.15	67%	0%	\$39.15	10.09	9.4%	18.19	5.17
30	Corticosteroids	\$0.12	\$0.15	25%	0%	\$13.84	27.47	25.5%	1.96	1.38

*Due to rounding, column totals may not add up exactly.

FIGURE 64: 2018 MEDICARE COST TRENDS BY DISEASE STATE OF DRUG CATEGORY*

Rank	Therapy	2017 PMPM	2018 PMPM	2017-2018 % Change	% of Total PMPM	Cost per Claim	Members per 1,000	% of Members	ASP Index	AWP Index
1	Oncology	\$25.83	\$28.10	9%	45.7%	\$1,704.35	8.67	4.8%	1.03	0.75
2	Ophthalmic Injections	\$6.97	\$7.89	13%	12.8%	\$948.55	8.09	4.5%	1.03	0.82
3	Immune Globulin	\$3.38	\$3.62	7%	5.9%	\$2,798.63	0.40	0.2%	1.09	0.54
4	Colony-Stimulating Factors	\$3.77	\$3.56	-6%	5.8%	\$2,580.79	1.64	0.7%	1.04	0.61
5	BDAID: Rheumatoid Arthritis	\$2.45	\$2.26	-8%	3.7%	\$3,370.21	0.59	0.3%	0.93	0.65
6	Multiple Sclerosis	\$0.98	\$1.48	51%	2.4%	\$10,012.94	0.14	0.1%	0.96	0.76
7	Erythropoiesis-Stimulating Agents	\$1.12	\$1.10	-2%	1.8%	\$618.43	1.17	0.6%	1.09	0.52
8	Hematology	\$1.10	\$1.10	0%	1.8%	\$4,953.04	0.07	0.0%	1.01	0.79
9	Other	\$0.83	\$1.09	31%	1.8%	\$81.04	23.95	13.2%	1.00	0.62
10	BDAID: Crohn's Disease/Ulcerative Colitis	\$0.98	\$1.03	5%	1.7%	\$4,478.61	0.21	0.1%	1.01	0.64
11	Viscosupplementation	\$0.97	\$0.97	0%	1.6%	\$275.22	5.78	3.2%	1.08	0.37
12	Asthma/COPD	\$0.87	\$0.97	11%	1.6%	\$153.14	8.01	4.4%	0.83	0.34
13	Gastrointestinal: Chemoprotectant	\$0.73	\$0.94	29%	1.5%	\$4,987.88	0.11	0.1%	1.01	0.76
14	Pulmonary Arterial Hypertension	\$0.23	\$0.85	264%	1.4%	\$8,828.78	0.12	0.0%	0.83	0.66
15	Bone Resorption Inhibitors (Osteoporosis)	\$0.67	\$0.82	22%	1.3%	\$838.31	3.34	1.8%	1.01	0.69
16	Botulinum Toxins	\$0.50	\$0.66	32%	1.1%	\$820.29	1.49	0.8%	1.02	0.82
17	Antiemetics	\$0.64	\$0.60	-6%	1.0%	\$132.93	4.85	2.7%	1.13	0.60
18	Unclassified	\$0.74	\$0.59	-20%	1.0%	\$450.79	2.03	1.1%	0.00	0.00
19	Iron, Intravenous	\$0.54	\$0.56	4%	0.9%	\$346.59	2.08	1.2%	1.06	0.58
20	Infectious Disease	\$0.65	\$0.54	-17%	0.9%	\$65.46	12.54	6.9%	1.37	0.44
21	Antihemophilic Factor	\$1.12	\$0.51	-54%	0.8%	\$26,375.05	0.01	0.0%	4.86	3.30
22	Corticosteroids	\$0.31	\$0.33	6%	0.5%	\$11.28	63.48	35.1%	1.08	0.79
23	BDAID: Psoriasis/Psoriatic Arthritis	\$0.29	\$0.31	7%	0.5%	\$4,554.83	0.07	0.0%	0.89	0.52
24	Alpha-1 Proteinase Inhibitor	\$0.21	\$0.22	5%	0.4%	\$2,717.71	0.01	0.0%	0.43	0.28
25	Cardiovascular Agent	\$0.33	\$0.20	-39%	0.3%	\$73.54	4.04	2.2%	1.18	0.81
26	Enzyme Replacement Therapy	\$0.04	\$0.14	269%	0.2%	\$12,841.61	0.00	0.0%	0.78	0.63
27	BDAID: Ankylosing Spondylitis	\$0.14	\$0.12	-14%	0.2%	\$3,991.26	0.04	0.0%	0.97	0.55
28	BDAID: Systemic Lupus Erythematosus	\$0.09	\$0.11	22%	0.2%	\$2,582.94	0.02	0.0%	1.03	0.83
29	Transplant	\$0.02	\$0.09	419%	0.2%	\$49.63	0.43	0.2%	0.33	0.10
30	BDAID: Other	\$0.12	\$0.09	-25%	0.1%	\$3,846.42	0.04	0.0%	1.05	0.59

*Due to rounding, column totals may not add up exactly.

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FIGURE 65: 2018 MEDICAID COST TRENDS BY DISEASE STATE OF DRUG CATEGORY*

Rank	Therapy	2017 PMPM	2018 PMPM	2017-2018 % Change	% of Total PMPM	Cost per Claim	Members per 1,000	% of Members	ASP Index	AWP Index
1	Oncology	\$3.57	\$3.66	3%	33.5%	\$1,838.63	0.80	1.1%	1.15	0.86
2	Colony-Stimulating Factors	\$0.90	\$0.80	-11%	7.3%	\$4,188.00	0.19	0.3%	1.40	0.82
3	BDAID: Crohn's Disease/Ulcerative Colitis	\$0.67	\$0.66	-1%	6.0%	\$6,150.26	0.11	0.2%	1.54	0.92
4	Contraceptives	\$0.49	\$0.61	24%	5.6%	\$362.81	5.77	7.8%	8.73	0.87
5	CNS Agents: Rare Diseases	-	\$0.55	-	5.0%	\$43,162.48	0.01	0.0%	-	0.80
6	Immune Globulin	\$0.60	\$0.49	-18%	4.5%	\$2,870.01	0.06	0.1%	1.54	0.79
7	Multiple Sclerosis	\$0.26	\$0.38	46%	3.4%	\$9,270.59	0.04	0.1%	1.20	0.93
8	Enzyme Replacement Therapy	\$0.27	\$0.36	33%	3.3%	\$13,596.51	0.01	0.0%	0.56	0.43
9	Botulinum Toxins	\$0.27	\$0.31	15%	2.8%	\$1,152.24	0.51	0.7%	1.16	0.93
10	BDAID: Rheumatoid Arthritis	\$0.29	\$0.28	-3%	2.5%	\$3,583.28	0.06	0.1%	1.14	0.77
11	Hematology	\$0.22	\$0.28	27%	2.5%	\$4,974.88	0.01	0.0%	1.16	0.95
12	Antihemophilic Factor	\$0.15	\$0.26	73%	2.4%	\$13,945.15	0.01	0.0%	1.12	0.71
13	Infectious Disease	\$0.25	\$0.23	-8%	2.1%	\$50.35	8.35	11.2%	1.46	0.48
14	Asthma/COPD	\$0.17	\$0.22	29%	2.0%	\$220.13	3.54	4.8%	1.27	0.90
15	Antiemetics	\$0.25	\$0.19	-24%	1.7%	\$71.49	6.14	8.3%	2.15	1.18
16	Other	\$0.12	\$0.15	25%	1.3%	\$55.70	5.31	7.2%	1.13	0.72
17	Ophthalmic Injections	\$0.07	\$0.14	100%	1.2%	\$575.77	0.46	0.5%	0.92	0.74
18	Corticosteroids	\$0.13	\$0.13	0%	1.2%	\$16.38	21.33	28.7%	1.39	1.02
19	Iron, Intravenous	\$0.12	\$0.13	8%	1.2%	\$553.21	0.40	0.5%	1.43	0.79
20	Hereditary Angioedema	\$0.09	\$0.12	33%	1.1%	\$10,783.23	0.00	0.0%	1.09	0.84
21	Progestins	\$0.35	\$0.10	-71%	0.9%	\$925.86	0.10	0.1%	-	0.87
22	BDAID: Psoriasis/Psoriatic Arthritis	\$0.08	\$0.10	25%	0.9%	\$6,873.11	0.02	0.0%	1.41	0.83
23	Unclassified	\$0.22	\$0.09	-59%	0.8%	\$475.86	0.49	0.7%	-	-
24	CNS: Skeletal Muscle Relaxants	\$0.07	\$0.08	14%	0.8%	\$482.37	0.47	0.6%	1.62	1.07
25	BDAID: Other	\$0.08	\$0.08	0%	0.7%	\$5,198.09	0.02	0.0%	1.57	0.87
26	Viscosupplementation	\$0.05	\$0.08	60%	0.7%	\$277.10	0.51	0.7%	1.21	0.42
27	Pain Management	\$0.07	\$0.06	-14%	0.6%	\$15.59	9.10	12.3%	1.63	0.96
28	Cardiovascular Agent	\$0.07	\$0.05	-29%	0.5%	\$65.19	1.33	1.8%	1.58	1.15
29	Erythropoiesis-Stimulating Agents	\$0.07	\$0.05	-29%	0.4%	\$719.44	0.08	0.1%	1.53	0.72
30	Gastrointestinal: Chemoprotectant	\$0.05	\$0.04	-20%	0.4%	\$4,062.14	0.01	0.0%	1.05	0.79

*Due to rounding, column totals may not add up exactly.

FIGURE 66: COMMERCIAL TOP 25 DRUGS COST TRENDS 2017-2018

Rank	Change in rank	HCPCS	Brand	PMPM			COST PER PATIENT			COST PER CLAIM			MEMBERS PER 1,000	ASP INDEX	AWP INDEX
				2017	2018	% Change	2017	2018	% Change	2017	2018	% Change			
1	▶	J1745	Remicade	\$3.05	\$2.95	-3.4%	\$42,073	\$35,572	-15.5%	\$6,880	\$6,603	-4.0%	0.37	1.7	0.9
2	▶	J2505	Neulasta	\$1.96	\$2.00	2.1%	\$28,505	\$29,465	3.4%	\$6,879	\$7,336	6.6%	0.34	1.7	1.0
3	▲	J9355	Herceptin	\$1.39	\$1.49	7.3%	\$60,738	\$63,454	4.5%	\$5,360	\$5,351	-0.2%	0.12	1.6	1.3
4	▼	J9310	Rituxan	\$1.52	\$1.40	-7.8%	\$42,189	\$39,388	-6.6%	\$10,037	\$9,996	-0.4%	0.18	1.5	1.2
5	▶	J9035	Avastin	\$1.14	\$1.17	2.3%	\$27,982	\$28,011	0.1%	\$4,277	\$4,646	8.6%	0.21	1.7	1.3
6	▲	J9299	Opdivo	\$0.70	\$1.05	50%	\$62,717	\$79,441	26.7%	\$6,356	\$9,663	52.0%	0.07	1.6	1.3
7	▲	J3380	Entyvio	\$0.69	\$0.92	32.6%	\$40,045	\$39,117	-2.3%	\$7,946	\$8,055	1.4%	0.10	1.5	1.1
8	▲	J2350	Ocrevus	-	\$0.85	-	-	\$77,935	-	-	\$37,929	-	0.05	1.6	1.3
9	▲	J9271	Keytruda	\$0.47	\$0.84	78.9%	\$73,197	\$76,134	4.0%	\$13,081	\$12,895	-1.4%	0.06	1.5	1.2
10	▼	J1561	Gamunex-C/Gammaked	\$0.73	\$0.82	12.7%	\$64,384	\$53,589	-16.8%	\$4,890	\$4,838	-1.1%	0.05	1.9	1.1
11	▲	J9306	Perjeta	\$0.55	\$0.69	27.4%	\$53,267	\$58,611	10.0%	\$7,622	\$7,845	2.9%	0.07	1.6	1.2
12	▼	J1569	Gammagard Liquid	\$0.57	\$0.64	12.0%	\$46,594	\$41,407	-11.1%	\$4,469	\$4,751	6.3%	0.05	1.7	0.8
13	▶	J1300	Soliris	\$0.48	\$0.58	20.6%	\$490,550	\$489,172	-0.3%	\$34,165	\$33,056	-3.2%	0.00	1.5	1.2
14	▼	J2323	Tysabri	\$0.71	\$0.57	-19.3%	\$71,747	\$65,965	-8.1%	\$8,499	\$8,757	3.0%	0.04	1.6	1.2
15	▶	J0897	Xgeva/Prolia	\$0.46	\$0.50	8.7%	\$5,439	\$5,369	-1.3%	\$2,469	\$2,431	-1.6%	0.41	1.6	1.2
16	▶	J2357	Xolair	\$0.44	\$0.46	5.8%	\$20,425	\$20,342	-0.4%	\$1,048	\$1,094	4.4%	0.08	1.2	1.0
17	▲	J0585	Botox	\$0.36	\$0.42	17.0%	\$2,928	\$3,031	3.5%	\$15,827	\$16,743	5.8%	0.59	1.2	1.0
18	▼	J7192	Factor VIII (Recombinant)	\$0.56	\$0.40	-28.8%	\$229,554	\$159,733	-30.4%	\$4,406	\$4,308	-2.2%	0.01	2.0	1.4
19	▲	J1459	Privigen	\$0.27	\$0.39	44.8%	\$48,806	\$42,589	-12.7%	\$47,599	\$29,815	-37.4%	0.03	1.8	0.8
20	▼	J9228	Yervoy	\$0.36	\$0.36	0%	\$184,736	\$110,246	-40.3%	\$17,859	\$18,638	4.4%	0.02	1.5	1.2
21	▼	J3357	Stelara	\$0.42	\$0.35	-15.7%	\$49,102	\$43,411	-11.6%	\$1,592	\$1,693	6.4%	0.03	1.5	1.0
22	▲	J1559	Hizentra	\$0.21	\$0.34	57.4%	\$55,011	\$43,517	-20.9%	\$2,226	\$2,215	-0.5%	0.02	1.6	0.7
23	▼	J0178	Eylea	\$0.31	\$0.32	4.5%	\$11,805	\$11,165	-5.4%	\$6,959	\$6,851	-1.6%	0.14	1.1	0.9
24	▼	J9305	Alimta	\$0.28	\$0.32	11.9%	\$38,750	\$41,642	7.5%	\$4,383	\$4,505	2.8%	0.05	1.5	1.2
25	▼	J0129	Orencia	\$0.29	\$0.30	3.9%	\$32,435	\$31,469	-3.0%	\$2,193	\$2,430	10.8%	0.05	1.2	1.1

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FIGURE 67: MEDICARE TOP 25 DRUGS COST TRENDS 2017-2018

Rank	Change in rank	HCPCS	Brand	PMPM			COST PER PATIENT			COST PER CLAIM			MEMBERS PER 1,000	ASP INDEX	AWP INDEX
				2017	2018	% Change	2017	2018	% Change	2017	2018	% Change			
1	▲	J0178	Eylea	\$3.91	\$4.47	14.3%	\$9,832	\$9,185	-6.6%	\$1,878	\$1,910	1.7%	2.36	0.9	0.8
2	▲	J9271	Keytruda	\$2.12	\$4.09	92.9%	\$43,561	\$53,470	22.7%	\$8,204	\$9,017	9.9%	0.45	1.0	0.8
3	▶	J9299	Opdivo	\$3.16	\$3.72	17.7%	\$47,097	\$53,516	13.6%	\$4,416	\$6,262	41.8%	0.42	1.0	0.8
4	▼	J2505	Neulasta	\$3.52	\$3.34	-5.1%	\$14,635	\$16,414	12.2%	\$4,125	\$4,466	8.3%	1.24	1.0	0.6
5	▼	J9310	Rituxan	\$3.68	\$3.19	-13.3%	\$23,996	\$23,699	-1.2%	\$5,206	\$5,825	11.9%	0.61	0.9	0.8
6	▼	J2778	Lucentis	\$2.61	\$2.91	11.5%	\$10,164	\$9,690	-4.7%	\$1,774	\$1,820	2.6%	1.46	1.0	0.8
7	▲	J0897	Xgeva/Prolia	\$2.14	\$2.45	14.5%	\$2,814	\$2,223	-21.0%	\$1,324	\$1,364	3.0%	3.78	1.1	0.8
8	▼	J9035	Avastin	\$2.32	\$2.19	-5.5%	\$3,303	\$2,597	-21.4%	\$696	\$633	-9.0%	5.11	0.9	0.8
9	▼	J9355	Herceptin	\$1.91	\$1.91	0%	\$38,433	\$42,005	9.3%	\$3,164	\$3,162	-0.1%	0.28	1.0	0.8
10	▼	J1745	Remicade	\$1.98	\$1.56	-21.2%	\$21,102	\$17,573	-16.7%	\$3,650	\$3,694	1.2%	0.40	0.9	0.6
11	▶	J1569	Gammagard Liquid	\$1.18	\$1.37	16.1%	\$29,507	\$29,546	0.1%	\$3,191	\$3,441	7.9%	0.17	1.1	0.5
12	▲	J9305	Alimta	\$1.04	\$0.99	-4.8%	\$23,685	\$24,038	1.5%	\$3,780	\$3,948	4.4%	0.25	1.0	0.8
13	▲	J1561	Gamunex-C/Gammaked	\$0.74	\$0.95	28.3%	\$33,367	\$29,909	-10.4%	\$2,735	\$3,224	17.9%	0.12	1.1	0.6
14	▼	J9041	Velcade	\$1.05	\$0.95	-9.5%	\$21,586	\$19,661	-8.9%	\$924	\$975	5.5%	0.29	1.0	0.8
15	▲	J9145	Darzalex	\$0.80	\$0.94	17.5%	\$56,034	\$56,733	1.2%	\$4,362	\$4,339	-0.5%	0.10	1.0	0.8
16	▶	J2353	Sandostatin	\$0.73	\$0.93	27.3%	\$34,917	\$40,480	15.9%	\$4,640	\$5,301	14.2%	0.10	1.0	0.8
17	▲	J1300	Soliris	\$0.59	\$0.81	37.2%	\$331,127	\$285,026	-13.9%	\$20,695	\$21,698	4.8%	0.01	0.9	0.8
18	▼	J2350	Ocrevus	-	\$0.77	-	-	\$40,017	-	-	\$22,182	-	0.08	0.9	0.8
19	▲	J9217	Eligard/Lupron Depot	\$0.64	\$0.70	9.3%	\$1,666	\$1,688	1.3%	\$804	\$817	1.5%	1.92	1.0	0.4
20	▲	J9047	Kyprolis	\$0.52	\$0.69	32.6%	\$38,860	\$57,264	47.4%	\$1,386	\$1,622	17.0%	0.07	1.1	0.8
21	▼	J0129	Orencia	\$0.76	\$0.66	-13.1%	\$22,998	\$20,905	-9.1%	\$3,073	\$3,320	8.0%	0.15	0.9	0.9
22	▼	J9264	Abraxane	\$0.71	\$0.66	-7.0%	\$16,918	\$17,657	4.4%	\$1,448	\$1,563	7.9%	0.23	1.0	0.7
23	▼	J9306	Perjeta	\$0.58	\$0.63	8.6%	\$36,171	\$39,501	9.2%	\$4,802	\$4,938	2.8%	0.10	1.0	0.8
24	▲	J9228	Yervoy	\$0.40	\$0.61	52.5%	\$80,624	\$58,615	-27.3%	\$23,158	\$15,707	-32.2%	0.06	0.9	0.8
25	▼	J0885	Procrit	\$0.59	\$0.59	0%	\$3,963	\$4,097	3.4%	\$465	\$495	6.5%	0.68	1.1	0.7

FIGURE 68: MEDICAID TOP 25 DRUGS COST TRENDS 2017-2018

Rank	Change in rank	HCPCS	Brand	PMPM			COST PER PATIENT			COST PER CLAIM			MEMBERS PER 1,000	ASP INDEX	AWP INDEX
				2017	2018	% Change	2017	2018	% Change	2017	2018	% Change			
1	▲	J1745	Remicade	\$0.83	\$0.77	-7.3%	\$32,391	\$24,581	-24.1%	\$5,809	\$5,651	-2.7%	0.13	1.5	0.9
2	▼	J2505	Neulasta	\$0.87	\$0.77	-11.5%	\$21,509	\$20,367	-5.3%	\$6,021	\$6,059	0.6%	0.16	1.4	0.8
3	▲	J9271	Keytruda	\$0.24	\$0.42	75%	\$51,855	\$49,741	-4.1%	\$10,444	\$9,652	-7.6%	0.05	1.1	0.9
4	▲	J9035	Avastin	\$0.34	\$0.39	14.7%	\$13,162	\$7,193	-45.4%	\$2,534	\$1,761	-30.5%	0.31	1.2	0.9
5	▶	J9299	Opdivo	\$0.34	\$0.39	13.4%	\$49,838	\$41,553	-16.6%	\$5,397	\$6,315	17.0%	0.05	1.1	0.9
6	▼	J9355	Herceptin	\$0.56	\$0.39	-31.2%	\$47,934	\$34,468	-28.1%	\$4,603	\$3,416	-25.8%	0.06	1.1	0.9
7	▼	J2326	Spinraza	-	\$0.28	-	-	\$247,597	-	-	\$92,849	-	0.01	-	0.7
8	▶	J0585	Botox	\$0.24	\$0.28	12.9%	\$3,200	\$2,811	-12.2%	\$1,302	\$1,125	-13.6%	0.48	1.1	0.9
9	▼	J1428	Exondys	-	\$0.27	-	-	\$1,104,165	-	-	\$25,095	-	0.00	-	0.9
10	▲	J7307	Implanon	\$0.21	\$0.24	11.5%	\$982	\$927	-5.6%	\$963	\$915	-4.9%	1.27	-	0.9
11	▲	J1300	Soliris	\$0.18	\$0.24	34.6%	\$242,408	\$236,569	-2.4%	\$24,513	\$27,928	13.9%	0.01	1.2	1.0
12	▼	J2323	Tysabri	\$0.24	\$0.23	-6.0%	\$57,184	\$39,864	-30.3%	\$7,596	\$6,806	-10.4%	0.02	1.2	0.9
13	▼	J1561	Gamunex-C/Gammaked	\$0.25	\$0.22	-9.7%	\$32,422	\$31,386	-3.2%	\$3,383	\$3,077	-9.0%	0.03	1.7	1.0
14	▲	J9310	Rituxan	\$0.19	\$0.21	11.5%	\$17,710	\$15,247	-13.9%	\$4,936	\$4,906	-0.6%	0.08	0.8	0.7
15	▼	J9306	Perjeta	\$0.22	\$0.19	-10.0%	\$40,817	\$35,255	-13.6%	\$6,332	\$5,977	-5.6%	0.03	1.2	1.0
16	▲	J7298	Mirena	\$0.15	\$0.19	26.4%	\$946	\$944	-0.2%	\$912	\$928	1.7%	1.32		0.9
17	▼	J2357	Xolair	\$0.15	\$0.19	20.3%	\$20,812	\$17,753	-14.7%	\$1,942	\$2,059	6.0%	0.07	1.1	0.9
18	▲	J1743	Elaprase	\$0.11	\$0.16	45%	\$346,722	\$451,671	30.3%	\$20,100	\$19,139	-4.8%	0.00	1.2	1.0
19	▲	J7186	Alphanate	-	\$0.16	-	-	\$367,799	-	-	\$61,300	-	0.00	1.1	0.7
20	▼	J2350	Ocrevus	-	\$0.14	-	-	\$41,623	-	-	\$20,630	-	0.01	1.1	0.9
21	▼	J9305	Alimta	\$0.14	\$0.14	0%	\$30,729	\$25,043	-18.5%	\$4,622	\$4,439	-4.0%	0.03	1.1	0.9
22	▼	J0897	Xgeva/Prolia	\$0.15	\$0.13	-9.3%	\$6,027	\$5,506	-8.6%	\$2,133	\$2,170	1.8%	0.10	1.3	0.9
23	▲	J9042	Adcetris	\$0.08	\$0.12	45.1%	\$125,217	\$101,806	-18.7%	\$18,901	\$13,883	-26.5%	0.01	1.1	0.9
24	▲	J3380	Entyvio	\$0.08	\$0.10	22.3%	\$30,416	\$21,358	-29.8%	\$7,604	\$6,346	-16.5%	0.02	1.2	0.9
25	▼	J1569	Gammagard Liquid	\$0.14	\$0.10	-30.1%	\$20,807	\$18,341	-11.9%	\$2,605	\$2,906	11.6%	0.02	1.3	0.6

APPENDIX

FIGURE 69: 2018 COMMERCIAL 10 HIGHEST-COST DRUGS

ANNUAL ALLOWED PER PATIENT

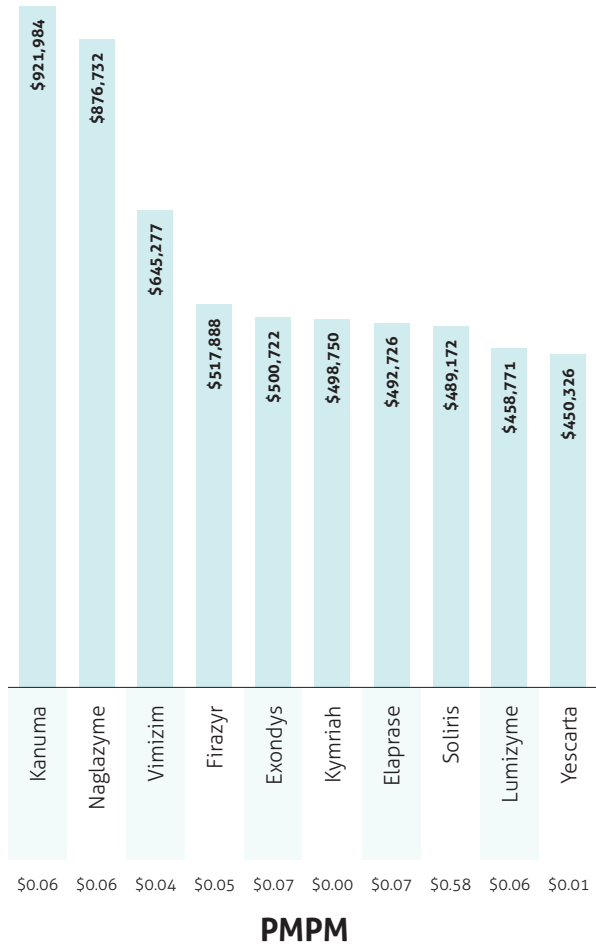


FIGURE 70: 2018 MEDICARE 10 HIGHEST-COST DRUGS

ANNUAL ALLOWED PER PATIENT

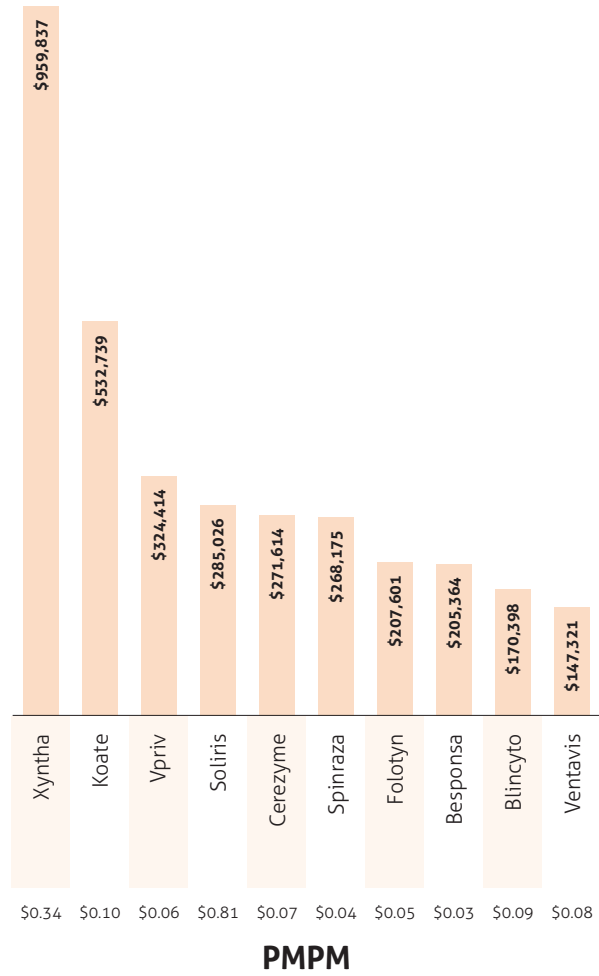
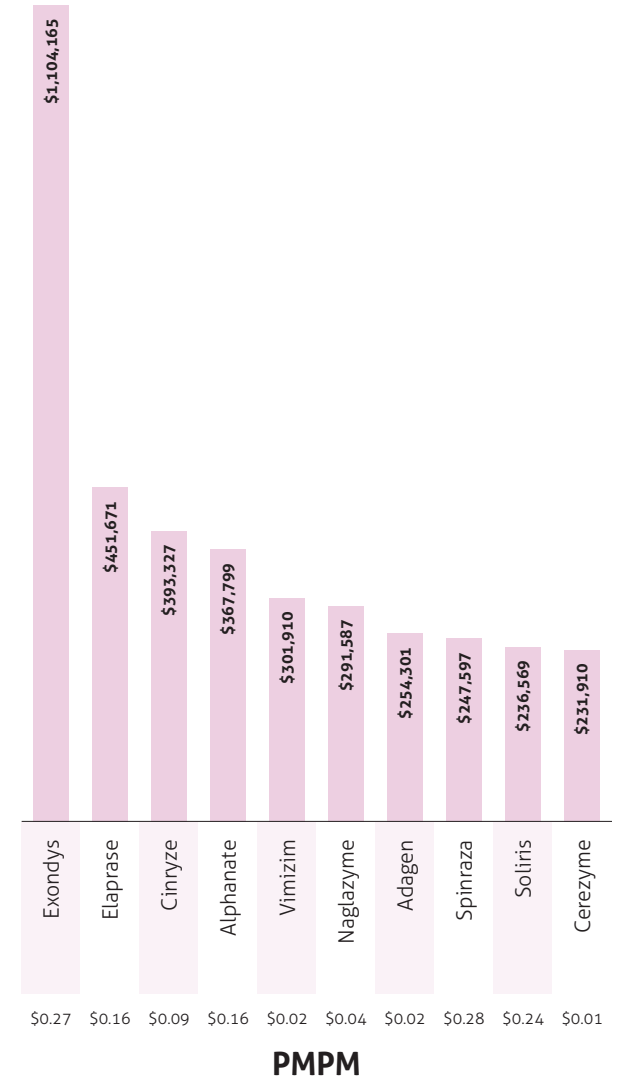


FIGURE 71: 2018 MEDICAID 10 HIGHEST-COST DRUGS

ANNUAL ALLOWED PER PATIENT



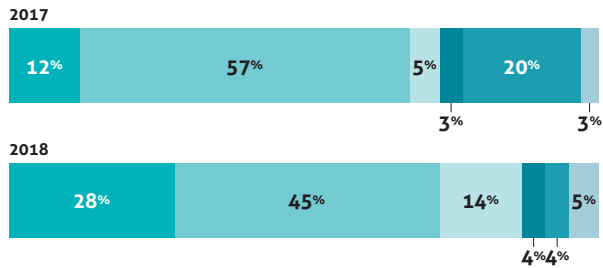
2018 MARKET SHARE TRENDS***

Antihemophilic Factor

Figure 72: Commercial

● BeneFix ● Factor VIII (recombinant) ● Humate-P ● Koate
● NovoSeven ● Xyntha

Market Share



Annual Cost per Patient

Brand	2017	2018
BeneFix	\$465,970	\$217,675
Factor VIII (recombinant)	\$251,008	\$170,749
Humate-P	\$40,083	\$48,545
Koate	\$347,198	\$166,181
NovoSeven	\$884,828	\$101,309
Xyntha	\$313,030	\$199,619

Allowed Amount PMPM

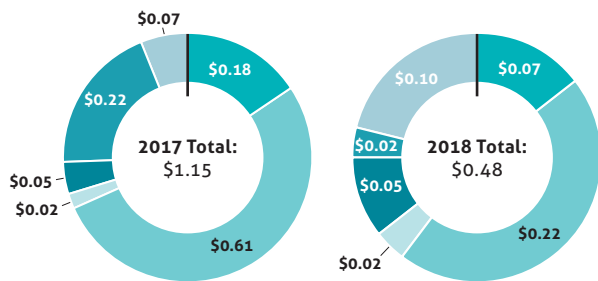
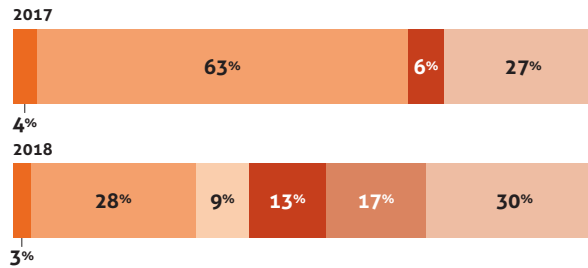


Figure 73: Medicare

● BeneFix ● Factor VIII (recombinant) ● Humate-P ● Koate
● NovoSeven ● Xyntha

Market Share



Annual Cost per Patient

Brand	2017	2018
BeneFix	\$89,062	\$6,800
Factor VIII (recombinant)	\$408,630	\$23,656
Humate-P	\$2,934	\$11,329
Koate	\$511,355	\$532,739
NovoSeven	\$22,972	\$69,568
Xyntha	\$652,981	\$959,837

Allowed Amount PMPM

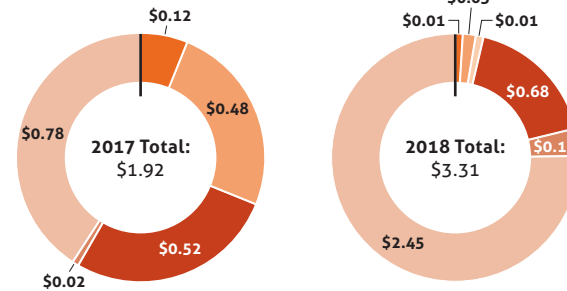
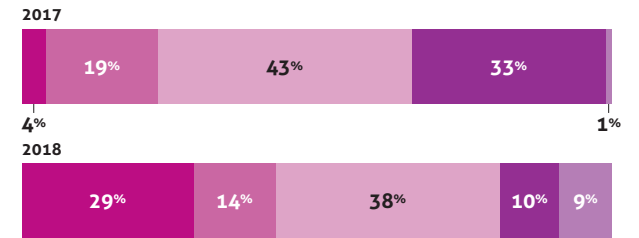


Figure 74: Medicaid

● Alphanate ● BeneFix ● Factor VIII (recombinant)
● Humate-P ● NovoSeven

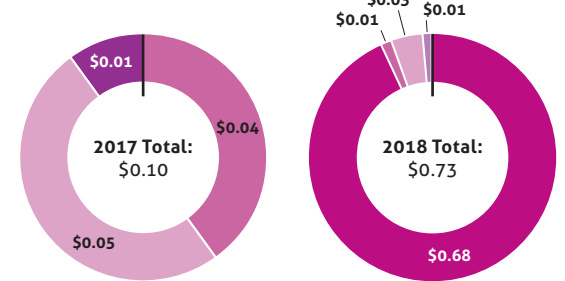
Market Share



Annual Cost per Patient

Brand	2017	2018
Alphanate	--	\$367,799
BeneFix	\$75,079	\$12,970
Factor VIII (recombinant)	\$35,785	\$24,690
Humate-P	\$11,581	\$2,543
NovoSeven	\$2,300	\$29,937

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

APPENDIX

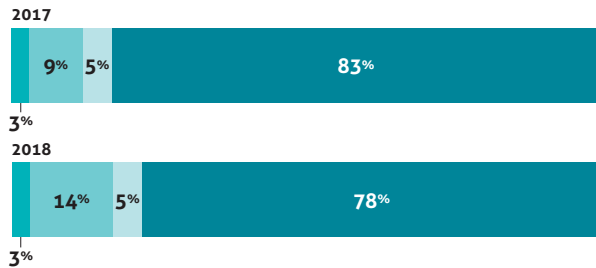
2018 MARKET SHARE TRENDS***

Asthma/COPD

Figure 75: Commercial

● Cinqair ● Nucala ● Pulmicort ● Xolair

Market Share



Annual Cost per Patient

Brand	2017	2018
Cinqair	\$22,799	\$35,061
Nucala	\$18,271	\$22,050
Pulmicort	\$21	\$54
Xolair	\$21,772	\$21,384

Allowed Amount PMPM

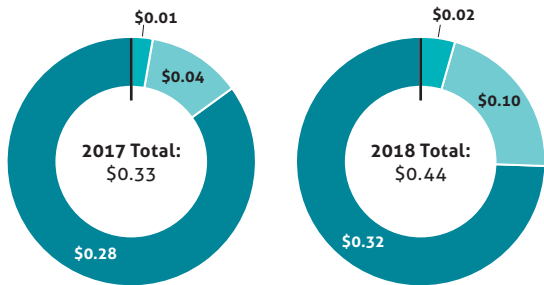
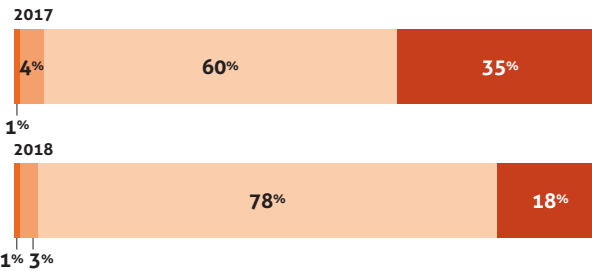


Figure 76: Medicare

● Cinqair ● Nucala ● Pulmicort ● Xolair

Market Share



Annual Cost per Patient

Brand	2017	2018
Cinqair	\$11,645	\$15,421
Nucala	\$15,011	\$14,775
Pulmicort	\$870	\$452
Xolair	\$18,884	\$17,408

Allowed Amount PMPM

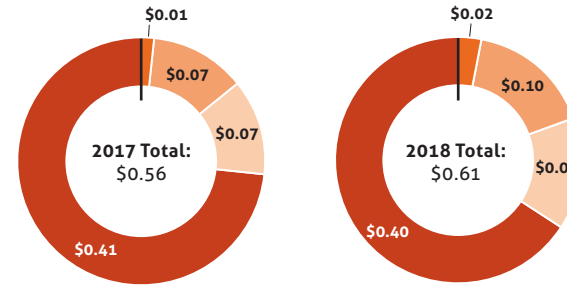
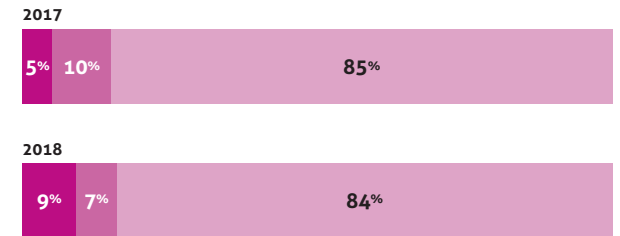


Figure 77: Medicaid

● Nucala ● Pulmicort ● Xolair

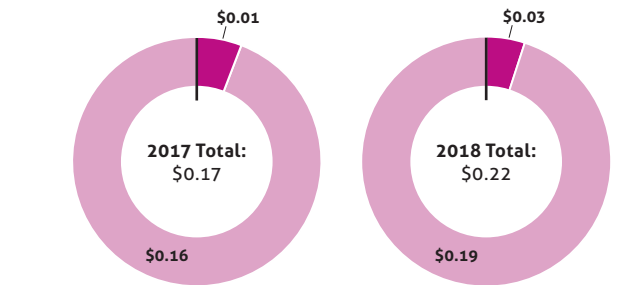
Market Share



Annual Cost per Patient

Brand	2017	2018
Nucala	\$10,075	\$12,431
Pulmicort	\$4	\$13
Xolair	\$20,812	\$17,838

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

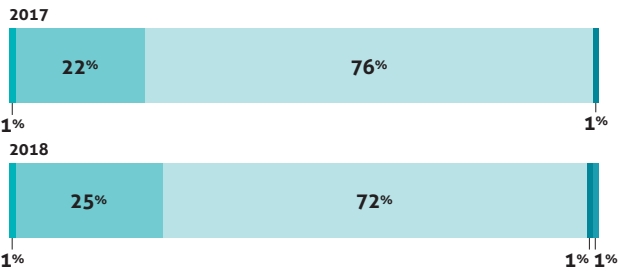
2018 MARKET SHARE TRENDS***

BDAIDs: Crohn's Disease

Figure 78: Commercial

● Cimzia ● Entyvio ● Remicade ● Stelara ● Stelara IV

Market Share



Annual Cost per Patient

Brand	2017	2018
Cimzia	\$23,426	\$25,133
Entyvio	\$42,633	\$41,188
Remicade	\$45,264	\$37,388
Stelara	\$109,409	\$87,609
Stelara IV	--	\$8,367

Allowed Amount PMPM

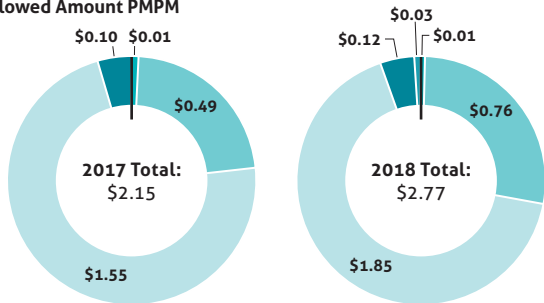
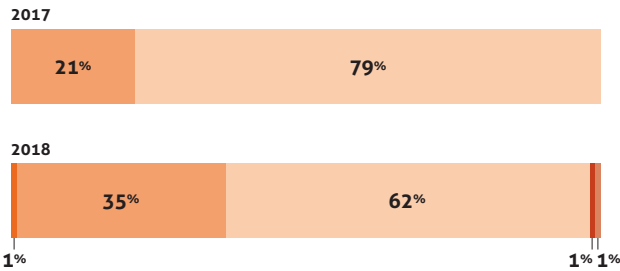


Figure 79: Medicare

● Cimzia ● Entyvio ● Remicade ● Stelara ● Stelara IV

Market Share



Annual Cost per Patient

Brand	2017	2018
Cimzia	\$2,904	\$4,065
Entyvio	\$26,067	\$25,796
Remicade	\$22,112	\$19,823
Stelara	--	\$94,403
Stelara IV	--	\$5,016

Allowed Amount PMPM

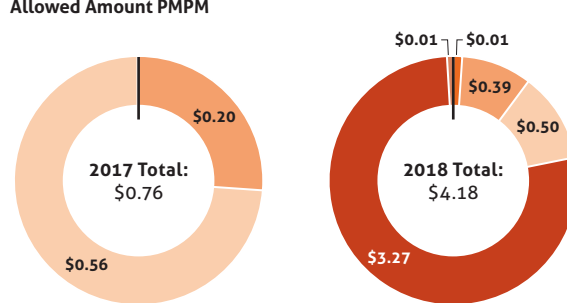
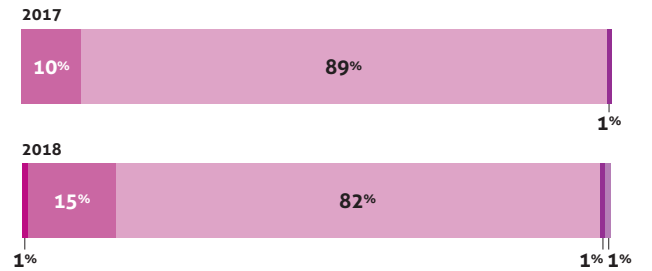


Figure 80: Medicaid

● Cimzia ● Entyvio ● Remicade ● Stelara ● Stelara IV

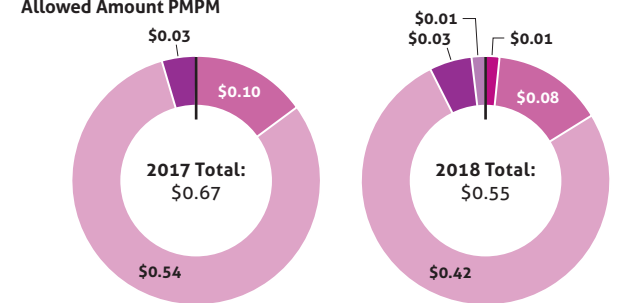
Market Share



Annual Cost per Patient

Brand	2017	2018
Cimzia	--	\$4,310
Entyvio	\$30,416	\$22,453
Remicade	\$32,454	\$25,132
Stelara	--	\$47,158
Stelara IV	--	\$7,161

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

APPENDIX

2018 MARKET SHARE TRENDS***

BDAIDs: Rheumatoid Arthritis

Figure 81: Commercial

● Actemra ● Cimzia ● Orencia ● Remicade
● Rituxan ● Simponi Aria

Market Share
2017



2018



Annual Cost per Patient

Brand	2017	2018
Actemra	\$26,982	\$24,702
Cimzia	\$21,562	\$22,537
Orencia	\$33,715	\$32,093
Remicade	\$35,130	\$30,919
Rituxan	\$36,486	\$36,127
Simponi Aria	\$23,905	\$21,974

Allowed Amount PMPM

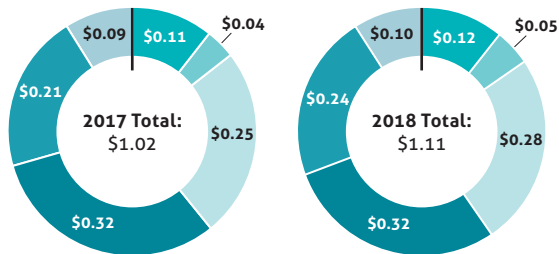


Figure 82: Medicare

● Actemra ● Cimzia ● Orencia ● Remicade
● Rituxan ● Simponi Aria

Market Share
2017



2018



Annual Cost per Patient

Brand	2017	2018
Actemra	\$12,085	\$12,513
Cimzia	\$14,419	\$15,104
Orencia	\$24,342	\$21,579
Remicade	\$19,047	\$15,222
Rituxan	\$19,267	\$21,694
Simponi Aria	\$15,080	\$13,913

Allowed Amount PMPM

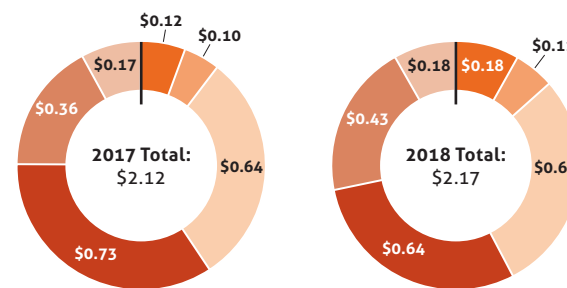
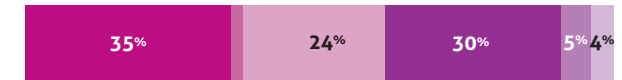


Figure 83: Medicaid

● Actemra ● Cimzia ● Orencia ● Remicade
● Rituxan ● Simponi Aria

Market Share
2017



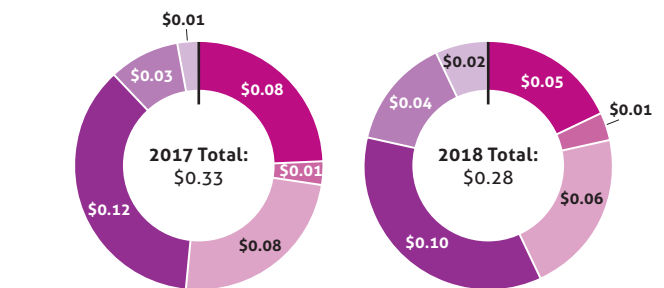
2018



Annual Cost per Patient

Brand	2017	2018
Actemra	\$24,337	\$23,290
Cimzia	\$5,105	\$7,859
Orencia	\$25,773	\$15,682
Remicade	\$27,975	\$23,319
Rituxan	\$16,024	\$18,162
Simponi Aria	\$13,589	\$11,892

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

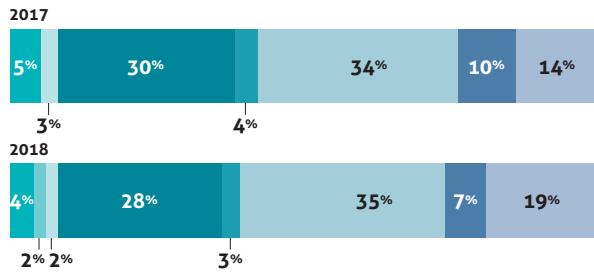
2018 MARKET SHARE TRENDS***

Immune Globulin (IV)

Figure 84: Commercial

- Carimune
- Cuvitru
- Flebogamma
- Gammagard liquid
- Gammaplex
- Gamunex-C/Gammaked
- Octagam
- Privigen

Market Share



Annual Cost per Patient

Brand	2017	2018
Carimune	\$66,568	\$50,375
Cuvitru	--	\$31,444
Flebogamma	\$56,784	\$31,028
Gammagard liquid	\$47,325	\$42,102
Gammaplex	\$50,501	\$56,548
Gamunex-C/Gammaked	\$66,458	\$54,809
Octagam	\$35,504	\$30,003
Privigen	\$50,935	\$43,846

Allowed Amount PMPM

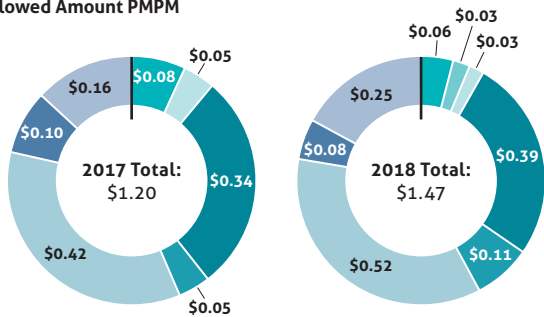
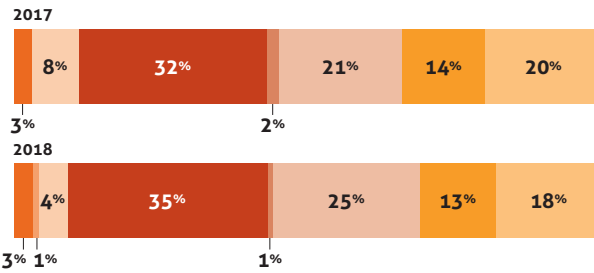


Figure 85: Medicare

- Carimune
- Cuvitru
- Flebogamma
- Gammagard liquid
- Gammaplex
- Gamunex-C/Gammaked
- Octagam
- Privigen

Market Share



Annual Cost per Patient

Brand	2017	2018
Carimune	\$19,151	\$28,681
Cuvitru	--	\$14,256
Flebogamma	\$12,667	\$16,620
Gammagard liquid	\$29,663	\$30,243
Gammaplex	\$14,638	\$13,666
Gamunex-C/Gammaked	\$34,092	\$30,055
Octagam	\$14,640	\$18,263
Privigen	\$38,353	\$32,233

Allowed Amount PMPM

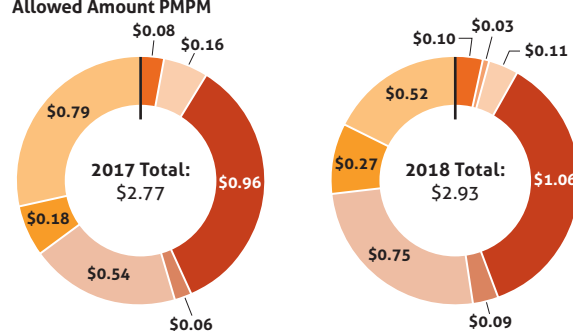
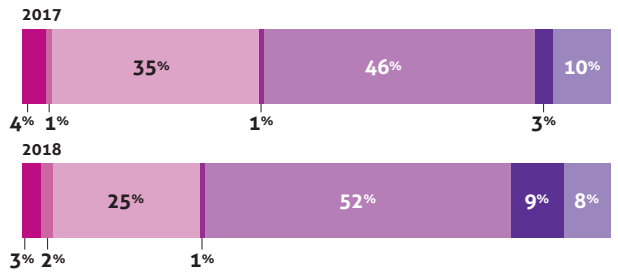


Figure 86: Medicaid

- Carimune
- Flebogamma
- Gammagard liquid
- Gammaplex
- Gamunex-C/Gammaked
- Octagam
- Privigen

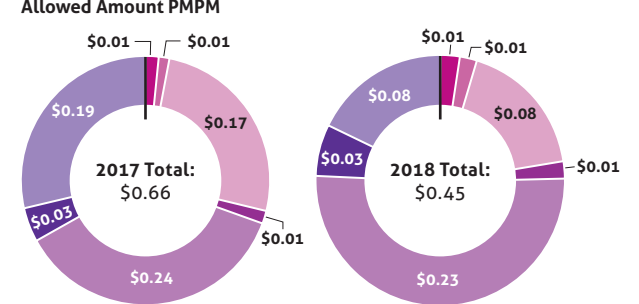
Market Share



Annual Cost per Patient

Brand	2017	2018
Carimune	\$14,509	\$9,574
Flebogamma	\$21,050	\$39,874
Gammagard liquid	\$21,052	\$18,341
Gammaplex	\$34,564	\$47,162
Gamunex-C/Gammaked	\$32,771	\$31,941
Octagam	\$24,868	\$24,226
Privigen	\$66,793	\$38,174

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

APPENDIX

2018 MARKET SHARE TRENDS***

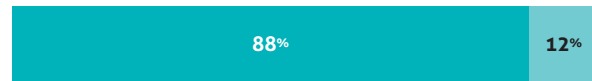
Immune Globulin (SQ)

Figure 87: Commercial

● Hizentra ● Hyqvia

Market Share

2017



2018



Annual Cost per Patient

Brand	2017	2018
Hizentra	\$55,626	\$44,208
Hyqvia	\$72,132	\$65,871

Allowed Amount PMPM

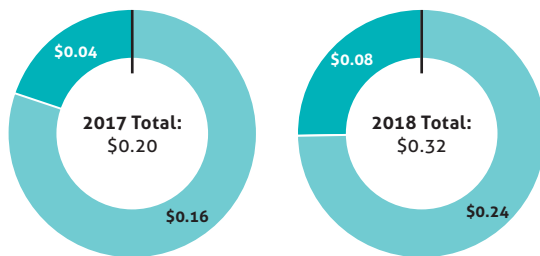


Figure 88: Medicare

● Hizentra ● Hyqvia

Market Share

2017



2018



Annual Cost per Patient

Brand	2017	2018
Hizentra	\$43,612	\$44,043
Hyqvia	\$50,394	\$49,920

Allowed Amount PMPM

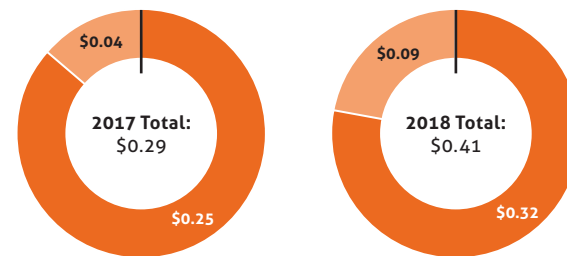


Figure 89: Medicaid

● Hizentra ● Hyqvia

Market Share

2017



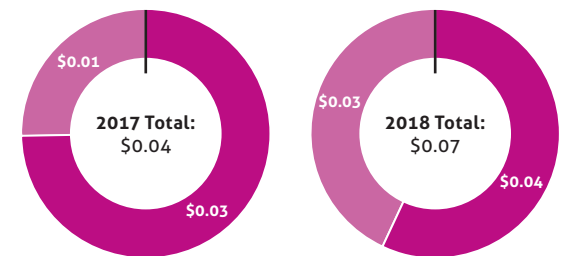
2018



Annual Cost per Patient

Brand	2017	2018
Hizentra	\$18,658	\$16,818
Hyqvia	\$21,447	\$37,376

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

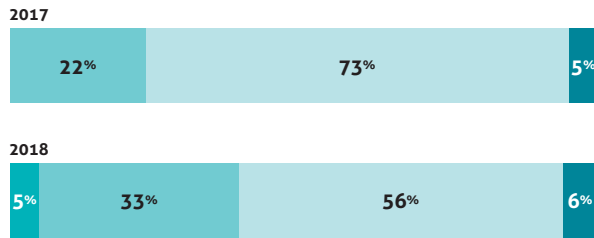
2018 MARKET SHARE TRENDS***

Oncology: Immunotherapy

Figure 90: Commercial

● Imfinzi ● Keytruda ● Opdivo ● Yervoy

Market Share



Annual Cost per Patient

Brand	2017	2018
Imfinzi	\$24,543	\$136,947
Keytruda	\$147,943	\$159,623
Opdivo	\$130,283	\$170,142
Yervoy	\$289,556	\$287,220

Allowed Amount PMPM

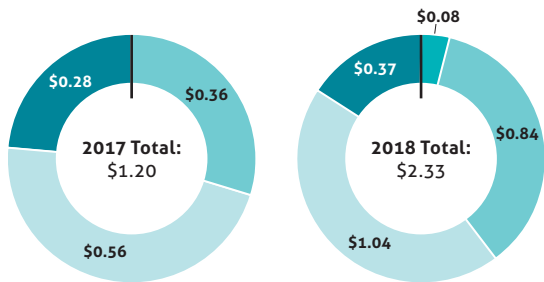
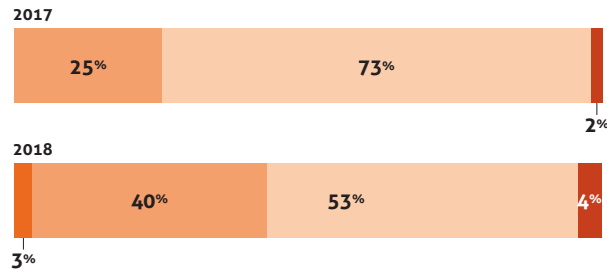


Figure 91: Medicare

● Imfinzi ● Keytruda ● Opdivo ● Yervoy

Market Share



Annual Cost per Patient

Brand	2017	2018
Imfinzi	--	\$70,746
Keytruda	\$145,071	\$112,843
Opdivo	\$111,105	\$117,086
Yervoy	\$142,913	\$205,061

Allowed Amount PMPM

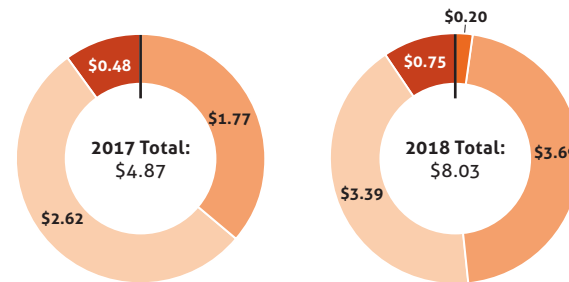
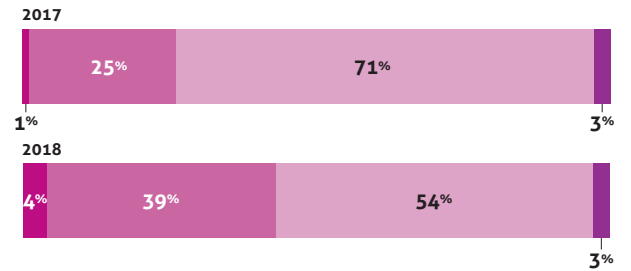


Figure 92: Medicaid

● Imfinzi ● Keytruda ● Opdivo ● Yervoy

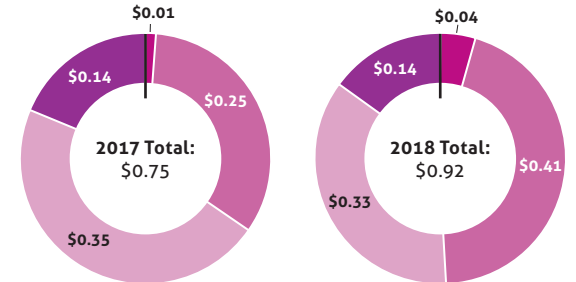
Market Share



Annual Cost per Patient

Brand	2017	2018
Imfinzi	\$58,625	\$70,831
Keytruda	\$96,258	\$95,173
Opdivo	\$95,039	\$81,722
Yervoy	\$253,037	\$161,178

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

APPENDIX

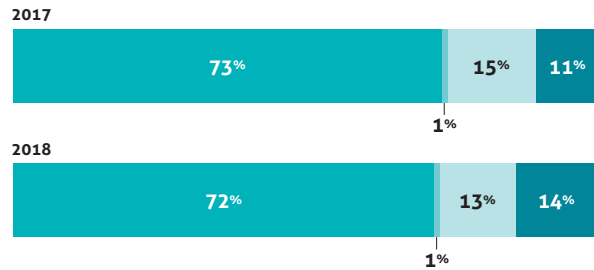
2018 MARKET SHARE TRENDS***

Oncology: Colorectal

Figure 93: Commercial

● Avastin ● Cyramza ● Erbitux ● Vectibix

Market Share



Annual Cost per Patient

Brand	2017	2018
Avastin	\$43,962	\$45,725
Cyramza	\$31,915	\$54,678
Erbitux	\$57,963	\$61,988
Vectibix	\$54,697	\$65,031

Allowed Amount PMPM

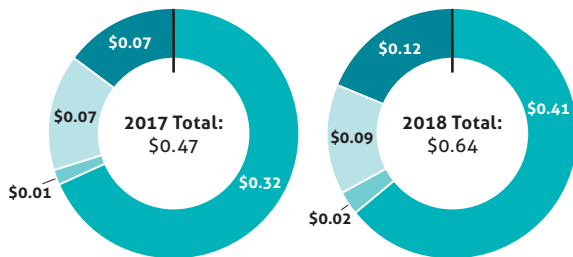
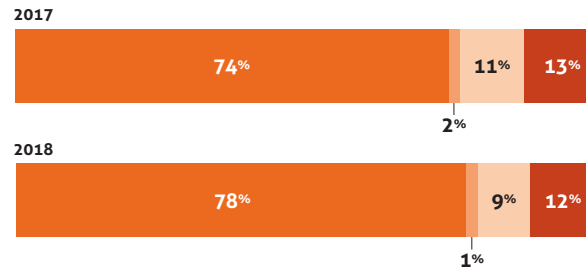


Figure 94: Medicare

● Avastin ● Cyramza ● Erbitux ● Vectibix

Market Share



Annual Cost per Patient

Brand	2017	2018
Avastin	\$25,241	\$27,691
Cyramza	\$30,296	\$35,017
Erbitux	\$34,799	\$29,429
Vectibix	\$40,427	\$36,628

Allowed Amount PMPM

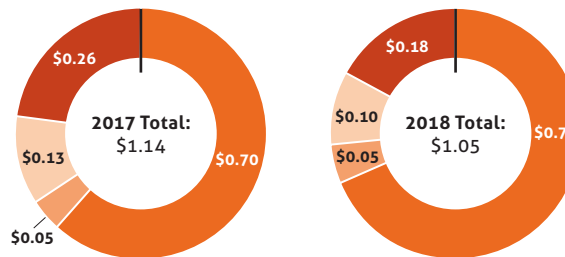
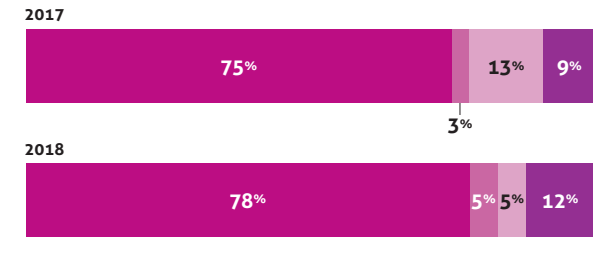


Figure 95: Medicaid

● Avastin ● Cyramza ● Erbitux ● Vectibix

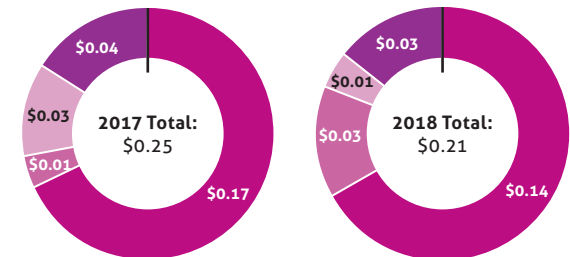
Market Share



Annual Cost per Patient

Brand	2017	2018
Avastin	\$30,654	\$28,116
Cyramza	\$55,200	\$90,509
Erbitux	\$30,123	\$21,443
Vectibix	\$34,501	\$29,393

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

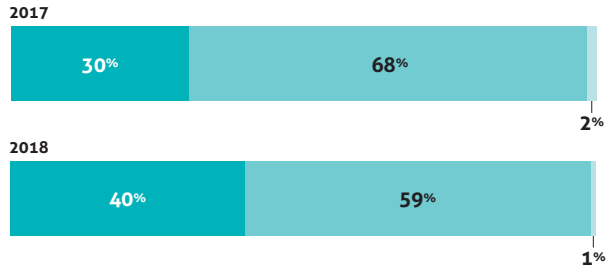
2018 MARKET SHARE TRENDS***

Oncology: Multiple Myeloma

Figure 96: Commercial

● Darzalex ● Kyprolis ● Rituxan

Market Share



Annual Cost per Patient

Brand	2017	2018
Darzalex	\$105,392	\$109,524
Kyprolis	\$76,024	\$81,027
Rituxan	\$40,443	\$35,466

Allowed Amount PMPM

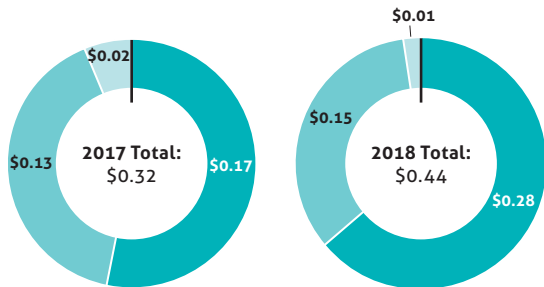
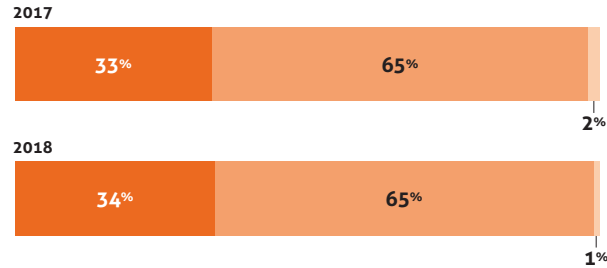


Figure 97: Medicare

● Darzalex ● Kyprolis ● Rituxan

Market Share



Annual Cost per Patient

Brand	2017	2018
Darzalex	\$55,875	\$57,481
Kyprolis	\$41,588	\$58,921
Rituxan	\$17,089	\$19,827

Allowed Amount PMPM

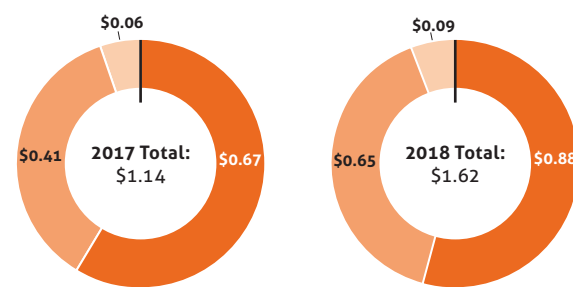
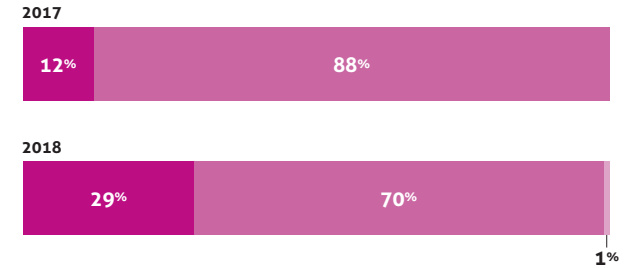


Figure 98: Medicaid

● Darzalex ● Kyprolis ● Rituxan

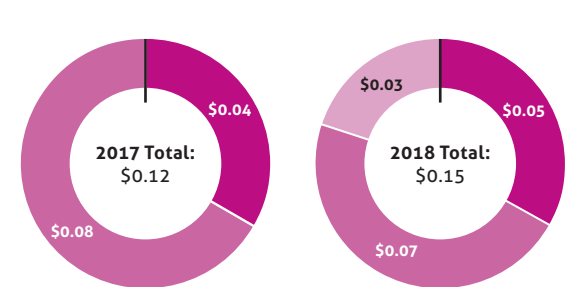
Market Share



Annual Cost per Patient

Brand	2017	2018
Darzalex	\$79,179	\$42,881
Kyprolis	\$67,825	\$61,860
Rituxan	--	\$28,588

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

APPENDIX

2018 MARKET SHARE TRENDS***

Oncology: NSCLC

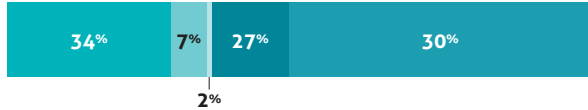
Figure 99: Commercial

● Alimta ● Avastin ● Cyramza ● Keytruda ● Opdivo

Market Share
2017



2018



Annual Cost per Patient

Brand	2017	2018
Alimta	\$37,186	\$39,181
Avastin	\$54,496	\$65,326
Cyramza	\$86,117	\$46,736
Keytruda	\$62,213	\$69,743
Opdivo	\$60,463	\$79,588

Allowed Amount PMPM

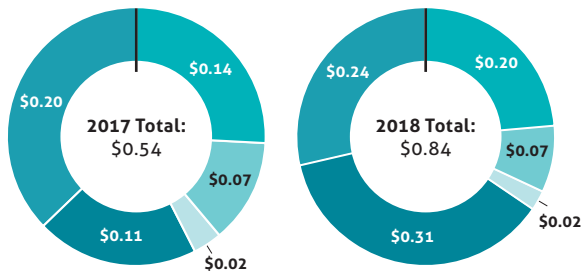
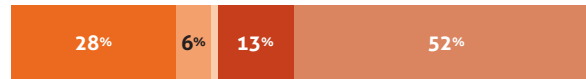


Figure 100: Medicare

● Alimta ● Avastin ● Cyramza ● Keytruda ● Opdivo

Market Share
2017



2018



Annual Cost per Patient

Brand	2017	2018
Alimta	\$23,249	\$24,020
Avastin	\$32,095	\$36,805
Cyramza	\$19,292	\$21,869
Keytruda	\$32,594	\$49,487
Opdivo	\$50,295	\$51,068

Allowed Amount PMPM

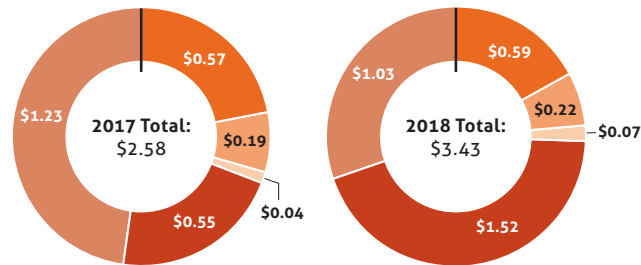
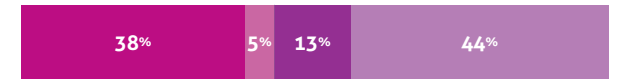


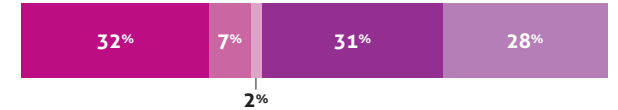
Figure 101: Medicaid

● Alimta ● Avastin ● Cyramza ● Keytruda ● Opdivo

Market Share
2017



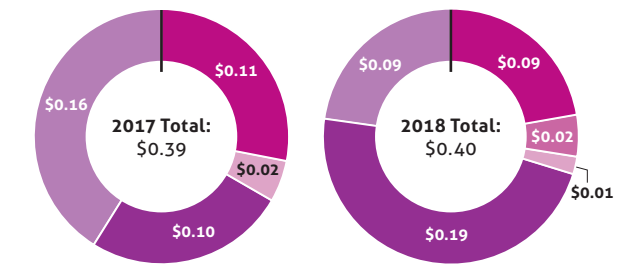
2018



Annual Cost per Patient

Brand	2017	2018
Alimta	\$31,207	\$28,297
Avastin	\$20,430	\$30,818
Cyramza	--	\$21,319
Keytruda	\$45,291	\$45,492
Opdivo	\$46,115	\$41,971

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

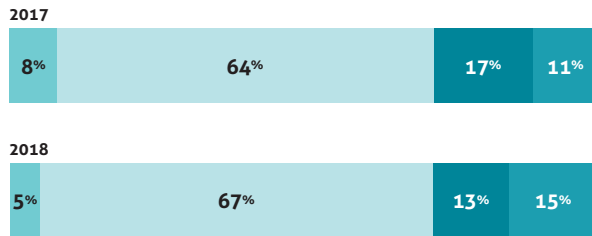
2018 MARKET SHARE TRENDS***

Oncology Support: Colony-Stimulating Factors

Figure 102: Commercial

Fulphila Granix Neulasta Neupogen Zarxio

Market Share



Annual Cost per Patient

Brand	2017	2018
Fulphila	--	\$8,926
Granix	\$4,296	\$3,616
Neulasta	\$28,696	\$29,550
Neupogen	\$3,836	\$4,195
Zarxio	\$4,322	\$4,405

Allowed Amount PMPM

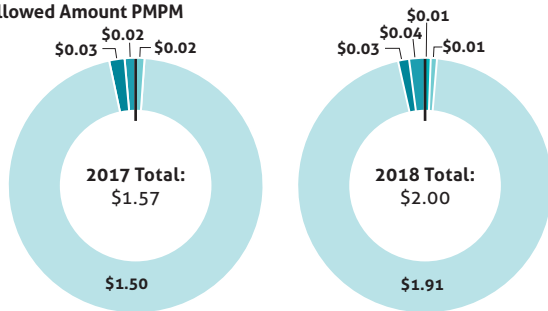
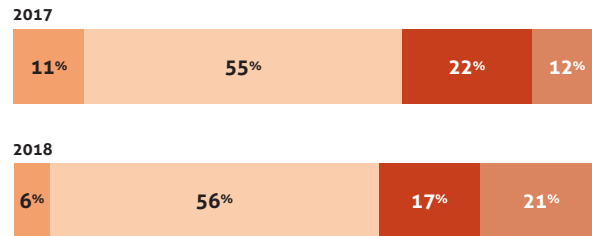


Figure 103: Medicare

Fulphila Granix Neulasta Neupogen Zarxio

Market Share



Annual Cost per Patient

Brand	2017	2018
Fulphila	--	\$7,868
Granix	\$1,771	\$1,376
Neulasta	\$14,650	\$16,419
Neupogen	\$2,731	\$3,223
Zarxio	\$2,025	\$2,260

Allowed Amount PMPM

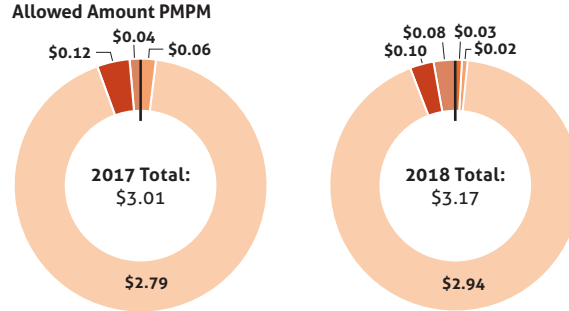
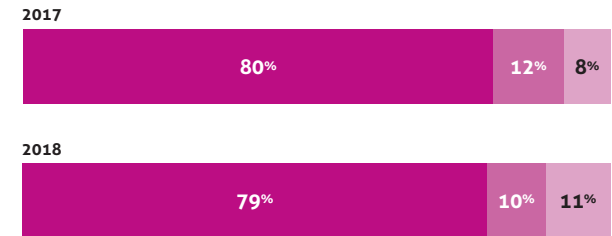


Figure 104: Medicaid

Neulasta Neupogen Zarxio

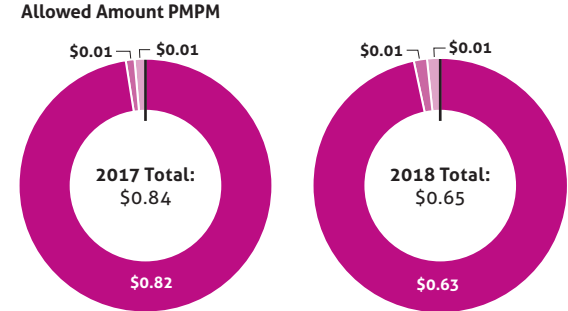
Market Share



Annual Cost per Patient

Brand	2017	2018
Neulasta	\$21,741	\$20,642
Neupogen	\$3,200	\$3,860
Zarxio	\$3,230	\$1,467

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

APPENDIX

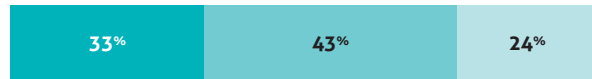
2018 MARKET SHARE TRENDS***

Ophthalmic Injections

Figure 105: Commercial

● Avastin ● Eylea ● Lucentis

Market Share
2017



2018



Annual Cost per Patient

Brand	2017	2018
Avastin	\$1,378	\$1,115
Eylea	\$11,819	\$11,204
Lucentis	\$9,523	\$8,776

Allowed Amount PMPM

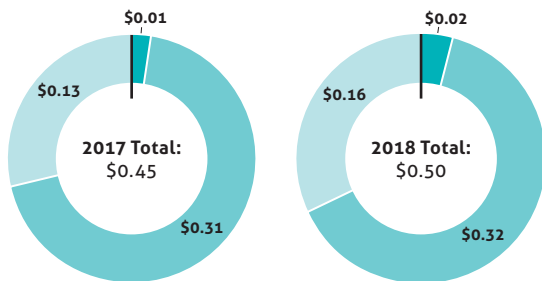


Figure 106: Medicare

● Avastin ● Eylea ● Lucentis

Market Share
2017



2018



Annual Cost per Patient

Brand	2017	2018
Avastin	\$1,072	\$834
Eylea	\$9,862	\$9,368
Lucentis	\$10,184	\$9,735

Allowed Amount PMPM

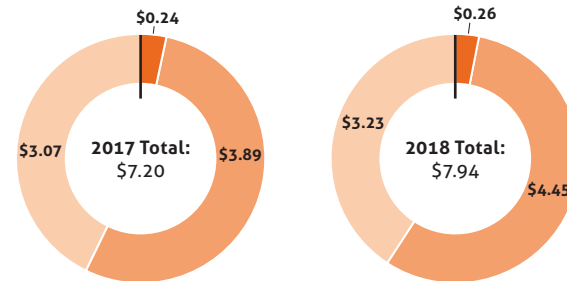


Figure 107: Medicaid

● Avastin ● Eylea ● Lucentis

Market Share
2017



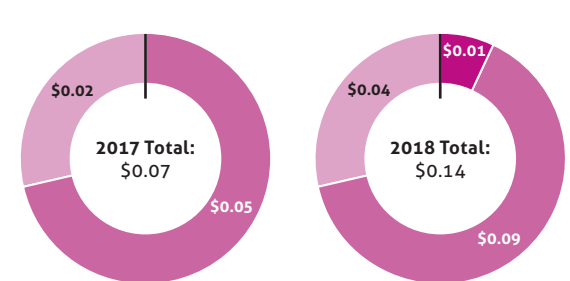
2018



Annual Cost per Patient

Brand	2017	2018
Avastin	\$308	\$282
Eylea	\$8,291	\$5,897
Lucentis	\$5,815	\$5,442

Allowed Amount PMPM



***Only drugs with \$0.01 PMPM or greater were included in market share analysis.

FIGURE 108: 2018 HOSPITAL ADMINISTRATIVE CODE TRENDS BY LINE OF BUSINESS

CPT	DESCRIPTION	COMMERCIAL		MEDICARE		MEDICAID	
		PMPM	UNIT COST	PMPM	UNIT COST	PMPM	UNIT COST
96413	Chemotherapy administration, intravenous infusion technique; up to 1 hour, single or initial substance/drug	\$0.61	\$641.83	\$1.12	\$360.90	\$0.11	\$226.53
96375	Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); each additional sequential intravenous push of a new substance/drug	\$0.26	\$163.48	\$0.22	\$46.48	\$0.07	\$24.73
96365	Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); initial, up to 1 hour	\$0.25	\$445.33	\$0.48	\$221.49	\$0.07	\$85.06
96374	Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); intravenous push, single or initial substance/drug	\$0.21	\$331.15	\$0.60	\$185.05	\$0.13	\$57.92
96361	Intravenous infusion, hydration; each additional hour	\$0.13	\$125.76	\$0.12	\$41.25	\$0.09	\$24.79
96415	Chemotherapy administration, intravenous infusion technique; each additional hour	\$0.09	\$209.02	\$0.07	\$68.00	\$0.01	\$49.47
96367	Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); additional sequential infusion of a new drug/substance, up to 1 hour	\$0.08	\$202.63	\$0.10	\$72.37	\$0.02	\$47.70
96372	Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); subcutaneous or intramuscular	\$0.08	\$132.90	\$0.10	\$75.45	\$0.06	\$22.97
96360	Intravenous infusion, hydration; initial, 31 minutes to 1 hour	\$0.07	\$382.56	\$0.13	\$200.16	\$0.03	\$72.59
96417	Chemotherapy administration, intravenous infusion technique; each additional sequential infusion (different substance/drug), up to 1 hour	\$0.07	\$265.07	\$0.04	\$71.74	\$0.01	\$83.01
96366	Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); each additional hour	\$0.05	\$132.80	\$0.07	\$40.83	\$0.02	\$26.70
96411	Chemotherapy administration; intravenous, push technique, each additional substance/drug	\$0.04	\$275.10	\$0.02	\$78.28	\$0.00	\$77.61
96416	Chemotherapy administration, intravenous infusion technique; initiation of prolonged chemotherapy infusion (more than 8 hours), requiring use of a portable or implantable pump	\$0.04	\$565.03	\$0.04	\$282.16	\$0.00	\$183.68
20610	Under General Introduction or Removal Procedures on the Musculoskeletal System	\$0.03	\$453.30	\$0.08	\$170.46	\$0.00	\$72.96
96409	Chemotherapy administration; intravenous, push technique; single or initial substance/drug	\$0.03	\$460.22	\$0.08	\$309.09	\$0.02	\$191.90
96376	Intravenous push, single or initial substance/drug; each additional sequential intravenous push of the same substance/drug provided in a facility	\$0.02	\$113.28	\$0.01	\$50.51	\$0.01	\$13.91
96401	Chemotherapy administration, subcutaneous or intramuscular; nonhormonal anti-neoplastic	\$0.02	\$268.26	\$0.06	\$123.61	\$0.00	\$90.02
96402	Chemotherapy administration, subcutaneous or intramuscular; hormonal anti-neoplastic	\$0.02	\$252.51	\$0.03	\$151.36	-	-
96450	Chemotherapy administration, into CNS (e.g., intrathecal), requiring and including spinal puncture	\$0.02	\$943.10	-	-	-	-
96368	Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); concurrent infusion	\$0.01	\$153.07	\$0.00	\$122.84	-	-
96523	Irrigation of implanted venous access device for drug-delivery systems	\$0.01	\$155.14	\$0.01	\$87.89	-	-
67028	Intravitreal injection of a pharmacologic agent (separate procedure)	\$0.01	\$635.75	\$0.06	\$248.44	\$0.00	\$117.83
95165	Supervision of preparation and provision of antigens for allergen immunotherapy; single or multiple antigens (specify number of doses)	\$0.01	\$38.18	\$0.00	\$6.18	\$0.00	\$9.63
95117	Immunotherapy injections	\$0.01	\$105.26	\$0.00	\$48.40	\$0.00	\$47.31

APPENDIX

FIGURE 109: 2018 PHYSICIAN OFFICE ADMINISTRATIVE CODE TRENDS BY LINE OF BUSINESS

CPT	DESCRIPTION	COMMERCIAL		MEDICARE		MEDICAID	
		PMPM	UNIT COST	PMPM	UNIT COST	PMPM	UNIT COST
95165	Supervision of preparation and provision of antigens for allergen immunotherapy; single or multiple antigens (specify number of doses)	\$0.34	\$14.48	\$0.09	\$12.34	\$0.06	\$7.09
20610	Under General Introduction or Removal Procedures on the Musculoskeletal System	\$0.29	\$112.17	\$0.60	\$60.68	\$0.06	\$67.25
96413	Chemotherapy administration, intravenous infusion technique; up to 1 hour, single or initial substance/drug	\$0.23	\$212.78	\$0.49	\$145.02	\$0.03	\$122.67
96372	Therapeutic, prophylactic or diagnostic injection (specify substance or drug); subcutaneous or intramuscular	\$0.23	\$28.36	\$0.38	\$19.88	\$0.13	\$17.61
90461	Immunization administration each additional component	\$0.12	\$11.96	-	-	\$0.05	\$18.62
67028	Intravitreal injection of a pharmacologic agent (separate procedure)	\$0.09	\$198.16	\$0.70	\$113.46	\$0.03	\$213.69
96365	Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); initial, up to 1 hour	\$0.07	\$94.21	\$0.15	\$73.35	\$0.01	\$53.03
95117	Immunotherapy injections	\$0.06	\$13.97	\$0.02	\$10.15	\$0.04	\$13.05
96401	Chemotherapy administration, subcutaneous or intramuscular; nonhormonal anti-neoplastic	\$0.04	\$88.33	\$0.12	\$77.28	\$0.00	\$43.89
96367	Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); additional sequential infusion of a new drug/substance, up to 1 hour	\$0.03	\$44.28	\$0.09	\$31.30	\$0.01	\$33.33
96415	Chemotherapy administration, intravenous infusion technique; each additional hour	\$0.03	\$47.08	\$0.05	\$31.59	\$0.00	\$27.55
96375	Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); each additional sequential intravenous push of a new substance/drug	\$0.03	\$34.72	\$0.05	\$19.56	\$0.01	\$17.21
96417	Chemotherapy administration, intravenous infusion technique; each additional sequential infusion (different substance/drug), up to 1 hour	\$0.03	\$103.45	\$0.06	\$68.50	\$0.00	\$60.20
96416	Chemotherapy administration, intravenous infusion technique; initiation of prolonged chemotherapy infusion (more than 8 hours), requiring use of a portable or implantable pump	\$0.02	\$226.15	\$0.03	\$154.91	\$0.00	\$133.86
96411	Chemotherapy administration; intravenous, push technique, each additional substance/drug	\$0.01	\$93.11	\$0.03	\$60.41	\$0.00	\$51.65
96374	Therapeutic, prophylactic, or diagnostic injection (specify substance or drug); intravenous push, single or initial substance/drug	\$0.01	\$78.13	\$0.02	\$47.29	\$0.00	\$40.39
96360	Intravenous infusion, hydration; initial, 31 minutes to 1 hour	\$0.01	\$89.60	\$0.02	\$49.50	\$0.00	\$49.80
96366	Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); each additional hour	\$0.01	\$33.20	\$0.02	\$25.29	\$0.00	\$22.35
95115	Immunotherapy; one injection	\$0.01	\$12.63	-	-	\$0.01	\$10.24
96409	Chemotherapy administration; intravenous, push technique, single or initial substance/drug	\$0.01	\$171.07	\$0.02	\$114.19	\$0.00	\$93.20
96361	Intravenous infusion, hydration; each additional hour	\$0.01	\$23.34	\$0.01	\$14.97	\$0.00	\$12.25
96402	Chemotherapy administration, subcutaneous or intramuscular; hormonal anti-neoplastic	\$0.01	\$50.87	\$0.02	\$33.73	-	-
96521	Refilling and maintenance of portable pump	\$0.00	\$151.43	\$0.01	\$132.21	-	-
96368	Intravenous infusion for therapy, prophylaxis, or diagnosis (specify substance or drug); concurrent infusion	\$0.00	\$29.38	\$0.01	\$21.03	-	-

GLOSSARY

ACO.....	accountable care organization	IV.....	intravenous
AS.....	ankylosing spondylitis	IVIG.....	intravenous immune globulin
ASP.....	average sales price	LOB.....	line of business
AWP.....	average wholesale price	MS.....	multiple sclerosis
BDAIDs.....	biologic drugs for autoimmune disorders	MTM.....	medication therapy management
CAP.....	competitive acquisition program	NCCN.....	National Comprehensive Cancer Network
CAR-T.....	chimeric antigen receptor therapy	NCQA.....	National Committee for Quality Assurance
CMS.....	Centers for Medicare & Medicaid Services	NDC.....	national drug code
CNS.....	central nervous system	NME.....	new molecular entity
COPD.....	chronic obstructive pulmonary disease	NSCLC.....	non-small cell lung cancer
CPT.....	current procedural terminology	PA.....	prior authorization
CRL.....	complete response letter	Part D.....	Medicare Prescription Drug Program
Crohn's/UC.....	crohn's disease/ulcerative colitis	PBM.....	pharmacy benefit manager
CSF.....	colony-stimulating factor	PMPM.....	per member per month
ESA.....	erythropoiesis-stimulating agent	PPPY.....	per patient per year
FDA.....	U.S. Food and Drug Administration	PSCE.....	post-service claim edits
FFS.....	fee for service	RA.....	rheumatoid arthritis
GI.....	gastrointestinal	RAC.....	rare autoinflammatory conditions
HAE.....	hereditary angioedema	SCIG.....	subcutaneous immune globulin
HCPCS.....	Healthcare Common Procedure Coding System	SLE.....	systemic lupus erythematosus
HEDIS.....	Healthcare Effectiveness Data and Information Set	SOS.....	site of service
HI.....	home infusion	SQ.....	subcutaneous
Hospital OP.....	hospital outpatient	UC.....	ulcerative colitis
ICD.....	International Classification of Diseases	UM.....	utilization management
ICER.....	Institute for Clinical and Economic Review	VEGF.....	vascular endothelial growth factor
ICU.....	intensive care unit	WAC.....	wholesale acquisition cost
IG.....	immune globulin	YOY.....	year over year

