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Two Employer Plan Sponsors Biosimilar Savings Analysis

Prepared for Pacific Business Group on Health 2020

Background

What is a biosimilar? Biosimilars are drugs approved by the U.S. Food and Drug Administration (FDA) as alternatives to branded specialty drugs, known as "reference biologics" or sometimes "originator biologics."[1] For example, two approved biosimilars currently on the market, Inflectra and Renflexis, are alternatives to the reference (originator) biologic, Remicade.

To receive FDA approval for use, a biosimilar drug must meet two criteria:[1]

1. The biosimilar must be "highly similar" to the reference biologic in chemical structure, purity, and biological activity. Minor differences, such as in a buffering agent, are acceptable, but no major differences in chemistry or purity are permitted.
2. The biosimilar must have "no clinically meaningful differences" from the reference biologic. This means that the biosimilar and the reference biologic must have equivalent safety and effectiveness.

As in any FDA approval process, the manufacturer of the biosimilar drug must demonstrate it meets these criteria using scientific studies that are reported to the FDA. These include studies of drug chemistry; of the way that the drug is processed in the human body (pharmacokinetics); of the responses of bodily cells to the drug (pharmacodynamics); and sometimes additional clinical information, depending on the drug.[1]

Why are biosimilars important to employers? Biosimilars and their reference biologics compete for prescription business. For example, a patient with rheumatoid arthritis, Crohn's disease, or another condition that might be treated with Remicade, could instead receive a prescription for Inflectra or Renflexis. Biosimilars are usually offered at a lower price than are their corresponding reference biologics. At the high cost of specialty drugs, these price differences could yield significant savings in drug expense.

Recently, the number of biosimilars on the market increased rapidly—from seven in January 2019 to 16 in March 2020.[2] This major change in the options available to employers and their plan enrollees makes it important to assess the potential cost savings opportunities from biosimilar drugs.

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What should savings calculations measure? Biosimilar savings calculations should account for three factors. First is the price savings available for each biosimilar relative to its reference biologic, known as the discount. Second is the possibility that only a portion of patients, not all patients, will switch to the biosimilar drug, known as the uptake rate. Third is the possibility that in encouraging more members to use a biosimilar, the employer might give up rebates—fees paid by manufacturers to employers or PBMs in exchange for market share for their reference biologic. This possibility is measured with the rebate rate, the percentage of reference biologic expense rebated back to the employer or PBM.

In this analysis, we consider all three factors .

Purpose. The purpose of this study was to assess potential savings from using biosimilars instead of reference biologic drugs, based on market pricing, potential rebates foregone, and biosimilar uptake.

Methods

Data Processing

Study drugs were identified using a comprehensive published list of biosimilars and their corresponding reference biologics as of March 2020.[2] For all biosimilar and reference drugs, medical claims were identified using Healthcare Common Procedural Coding System (HCPCS) codes, and pharmacy claims were identified using National Drug Codes (NDC).

Employer (Purchaser) "A"

Both medical (n=about 6.2 million) and pharmacy claims (n=about 1.5 million) were provided by the employer plan sponsor for approximately 2 years of history from March 2018 through February 2020.

Costs were based on allowed amounts in the medical claims file, and on amount paid plus patient out-of-pocket cost sharing in the pharmacy claims file, which had no allowed amount field.

Exclusions from medical claims were as follows:

- Infliximab claims bundled with home infusion therapy services
- Epoetin claims marked as for end-stage renal disease (ESRD) use or given to a patient with a claim diagnosis of ESRD (N18.6) or dialysis (Z99.2) were excluded because these are typically part of bundled dialysis payments; mean epoetin cost for these claims was $51, compared with $343 for non-dialysis claims.

In the pharmacy benefit, repricing was based on Archimedes experience because only a few biosimilars had claims experience in the employer plan data. For biosimilars that did have employer plan claims, the discounts that would have been based on median price per dose tracked closely to Archimedes experience.

Employer (Purchaser) "B"

Medical (n=about 49,000) claims from three health plan carriers were provided by the employer plan sponsor for a two-year time period from September 2018 to August 2020. Of those, 1,450 were either reference biologics or biosimilars, after excluding claims bundled with other services: (1) infliximab claims

bundled with home infusion therapy services and (2) epoetin claims with HCPCS codes indicating end-stage renal disease (ESRD) use, which typically indicates bundled dialysis claims.

After removal of a small number (n=72) of claims that were exactly duplicated (same anonymized member identifier, date, drug, place of service, quantity, and billed amount) and consolidation of claims that represented customized dosages, the medical dataset contained 1,151 unique claims, including both reference biologics and biosimilars.

Pharmacy claims (n=575) were provided by the employer for reference drugs and biosimilars only, for the time period August 2018 to July 2020. Most (71%, n=407) claims were for Zarxio, and the file contained only 112 claims for reference biologics. For that reason, we report biosimilar market shares for those claims but did not reprice them.

Costs were based on allowed amounts in the medical claims file. Claim allowed amounts in the medical file were verified against average sales price; because very few claims (n=57 of 1,151 overall, n=40 of 991 reference biologics) showed evidence of billing errors, all reference biologic claims were included in the analysis.

Overview of Savings Calculation Methodology

Repricing calculations represented the difference between the plan's spending on the reference biologic and what it would have spent with greater uptake of biosimilars. All calculations were stratified by site of care and accounted for dispensed quantity and dosage, for the foregone rebates a plan might have obtained on the reference biologic, and for less than 100% uptake of the biosimilar. These methods represented an improvement over previously published work on this topic, which did not account for rebates, consider national averages in uptake rates for different biosimilars, or differentiate by site of care.3 All assumptions were modeled in ranges.

Medical benefit pricing. In the medical benefit, repricing for each originator biologic was modeled in a range based on the ratio of the biosimilar price to that of its corresponding reference drug. In determining the range of repricing ratios, three sources were used: (1) Archimedes analyses of medical benefit experience across a large population of employees and beneficiaries; (2) Purchaser A's median price per dosing unit (e.g. milligrams for Neulasta and Remicade, units for Epogen and Procrit, micrograms for Neupogen); and (3) the most recently published average sales price (ASP).[4] For Purchaser B, it was not possible to use the study employer's data as a source for the ratio calculations because of extremely small market share for either the reference biologic or the biosimilar in most therapy categories.

Net savings calculation. Total net savings were calculated as:

- Total allowed amount × uptake rate × (1-biosimilar pricing ratio) *minus*
- Total allowed amount × uptake rate × rebate percentage *where*
- Minimum uptake was the national average estimated as of April 2020;[5] maximum potential (assumed base-case) uptake was a 97% figure reported by Kaiser for intensive promotion of Inflectra,[6] and a median uptake was the midpoint between the two figures *and*
- Rebates were varied from 0% to 20% to reflect the full range of potential employer experiences in the market. The base case analysis assumed no rebates were shared with the employer, as receipt of specialty drug rebates in the medical benefit is uncommon.[7]

Sites of Care

For Purchaser A, we stratified all calculations into each of three medical sites of care (office, outpatient hospital [OPH], and other [place of service missing, home, inpatient, emergency department, ambulatory surgery center, or skilled nursing facility]) and pharmacy. To avoid biasing the results with inaccurate cost values for originator biologics,[3] we assessed whether each plan included in the study had ≥1 medical claim in any site of care for each biosimilar studied. We also required ≥20 claims in each site of care for each drug overall, but not by plan.

We found that nearly all Purchaser A plans with ≥10,000 study drug medical claims had ≥1 claim for each biosimilar, although in smaller plans, it was common to have no Truxima claims. One large HMO, Plan D, had only 1 Retacrit medical claim despite having >30,000 study drug claims and >8,600 Epogen-Procrit claims. Because Plan D's median allowed amount per unit for Epogen-Procrit was about 20 times that of other plans, it was removed from the cost savings analysis for Epogen-Procrit.

For Purchaser B, we stratified all calculations into two medical sites of care, office/other and outpatient hospital (OPH). Of 991 office/other category claims, 12 were from independent clinics, 33 were Remicade claims administered in the home, and the remaining 946 (95%) were administered in a physician's office. Because of small plan sizes, we did not require a minimum number of claims in each site of care.

Results for Purchaser A

With the exceptions of Inflectra and Zarxio, most biosimilars were used at a rate much lower than the national market share and differed considerably by plan in the pharmacy and medical benefit (Tables 1 and 2). Zarxio utilization rates were approximately 60%, compared with the national average of 72%, in three plans. Plan D achieved a 98% rate for Zarxio in both the medical and pharmacy benefits, and a 69% rate for Inflectra in the medical benefit. Overall, Plan D's market share for biosimilars outperformed that of the other plans for most drugs, with the exception of Epogen-Procrit as noted previously.

For the base case analysis, the total savings opportunity was identified based on a 97% potential market uptake no rebates foregone, and a biosimilar price range. The base case analysis found a savings opportunity of $28-$48 million against a plan spend of $208.8 million for the drugs evaluated (i.e., savings of 13.4%-23.3%; Table 3). Rituxan represented the greatest biosimilar savings opportunity ($5.5M-$13.5M), followed by Epogen-Procrit ($6.3-$6.4M) and Remicade ($4.9M-$9.9M). Plan A had both the largest drug spend and the largest potential savings ($10.8M-$25.9M), followed by Plan I ($10.5M; Table 4). Savings opportunities by site of care are shown in Table 5.

Sensitivity analysis (Table 6) indicates potential total price savings of about $6.5-$9.3 million at the minimum (national) uptake, $17.2-$28.8 million at the midpoint uptake, and $28.0-$48.4 million at maximum (97%) uptake. After offsetting these savings with foregone rebates of 10%, these net savings declined to $2.7-$5.4 million (1.3%-2.6% savings on the total expense of $208.8 million), $5.2-$16.8 million (2.5%-8.0% savings), and $7.7-$28.2 million (3.7%-13.5% savings), respectively.

Table 1. Biosimilar Market Share in the Medical Benefit, by Plan[a]

Purchaser A

Drug	National Market Share [b]	Plan A		Plan B		Plan D		Plan F	
		N of Claims	Market Share	N of Claims	Market Share	N of Claims	Market Share	N of Claims	Market Share
Avastin		8725	99.4%	1767	99.2%	2858	86.5%	3926	99.3%
Mvasi	**25%**	54	**0.6%**	15	**0.8%**	447	**13.5%**	27	**0.7%**
Epogen-Procrit		6383	90.7%	366	93.1%	8605	100.0%	1107	87.8%
Retacrit	29%	654	**9.3%**	27	**6.9%**	1	**0.0%**	154	**12.2%**
Neupogen		1344	38.8%	259	41.1%	86	1.8%	394	44.2%
Zarxio	**72%**	2026	58.5%	366	**58.1%**	4641	**98.2%**	452	**50.7%**
Nivestym		95	**2.7%**	5	**0.8%**	0	**0.0%**	46	**5.2%**
Remicade		4061	90.1%	1585	92.3%	1876	31.3%	995	92.6%
Inflectra, Renflexis, or unspecified biosimilar	**14%**	445	**9.9%**	133	**7.7%**	4120	**68.7%**	79	**7.4%**
Neulasta		3996	87.4%	543	82.9%	18	85.7%	847	86.4%
Fulphila	**29%**	250	**5.5%**	44	**6.7%**	3	**14.3%**	34	**3.5%**
Udenyca		326	**7.1%**	68	10.4%	0	**0.0%**	99	10.1%
Rituxan/Other Brand		4057	99.9%	0	0.0%	4775	96.7%	853	99.8%
Truxima	**5%**	4	**0.1%**	0	**0.0%**	165	**3.3%**	2	**0.2%**
Herceptin		4189	98.7%	916	99.2%	2654	91.9%	802	98.5%
Ogivri/Kanjinti	**17%**	54	**1.3%**	7	**0.8%**	235	**8.1%**	12	**1.5%**

[a] Only plans with significant claims volume for reference products are shown in the table, but all plans were included in the savings analyses.

[b] Based on a national market share analysis as of April 2020.[5]

Table 2. Biosimilar Market Share in the Pharmacy Benefit [a] by Plan [b]

Purchaser A

Drug	National Biosimilar Market Share	Plan D		Plan I	
		N of claims	Market Share	N of claims	Market Share
Avastin		0	0.0%	118	100.0%
Epogen		46	2.0%	672	17.4%
Procrit		2218	97.7%	3065	79.5%
Retacrit	**29%**	6	**0.3%**	119	**3.1%**
Neupogen		84	2.1%	1030	57.5%
Nivestym	**72%**	0	**0.0%**	16	**0.9%**
Zarxio		3981	**97.9%**	745	**41.6%**
Neulasta		11	40.7%	618	72.2%
Neulasta Onpro		1	3.7%	203	23.7%
Fulphila	**29%**	15	55.6%	6	**0.7%**
Udenyca		0	**0.0%**	29	**3.4%**
Remicade		0	0.0%	1109	87.5%
Inflectra	**14%**	0	**0.0%**	74	**5.8%**
Renflexis		0	**0.0%**	84	**6.6%**
Rituxan		0	0.0%	457	100.0%
Herceptin		0	0.0%	56	100.0%

[a] If a reference biologic is not shown, the plan did not have any claims for that reference biologic. A 100% market share for the reference biologic means there were no biosimilar claims.
[b] Only plans with significant claims volume for reference products are shown in the table, but all plans were included in the savings analyses.

Table 3. Biosimilar Savings [a] Summary by Drug (Assumes 97% biosimilar uptake and no rebates foregone)

Purchaser A

Drug	Paid Amount	Medical Discount Range	Pharmacy Discount Range	Minimum Price Savings	Maximum Price Savings
Avastin	$26,727,428	14%-20%	16%	$3,642,655	$5,158,980
Epogen-Procrit	$13,159,687	8%-11%	42%-62%	$6,328,581	$6,410,126
Herceptin	$32,401,169	6%-21%	15%	$1,906,958	$6,585,978
Neulasta	$35,382,118	7%-11%	32%	$4,274,199	$5,347,545
Neupogen	$5,110,227	33%-47%	28%	$1,425,773	$1,531,709
Remicade	$38,631,476	5%-22%	41%	$4,947,242	$9,866,142
Rituxan	$57,353,778	10%-26%	8%	$5,457,059	$13,508,313
All Drugs	$208,765,883			$27,982,467	$48,408,793

[a] Excludes medical claims removed from the analysis due to discrepancies in allowed amount versus dosage; those remaining after cleaning totaled 67% of 61,249 claims (n remaining=40,840) and 66% of $258.2 million in allowed amounts ($171.2 million).

Table 4. Biosimilar Savings [a] Summary by Plan (Assumes 97% biosimilar uptake and no rebates foregone)

Purchaser A

Plan	Paid Amount	Minimum Price Savings	Maximum Price Savings
A	$130,696,337	$10,760,859	$25,942,818
B	$3,294,271	$588,279	$891,098
C	$2,509,772	$170,862	$528,888
D[b]	$14,230,018	$2,670,929	$4,380,298
E	$1,943,997	$131,754	$389,094
F	$25,035,801	$3,072,385	$5,568,549
G	$841,047	$54,814	$175,461
H	$48,901	$15,088	$15,088
I	$30,165,738	$10,517,499	$10,517,499
All Plans	**$208,765,880**	**$27,982,469**	**$48,408,794**

[a] Excludes medical claims removed from the analysis due to discrepancies in allowed amount versus dosage; those remaining after cleaning totaled 67% of 61,249 claims (n remaining=40,840) and 66% of $258.2 million in allowed amounts ($171.2 million). Plans A, C, E, and G had medical utilization only. Because Plans H and I were PBMs with pharmacy utilization only, the top and bottom of the price savings range were equal.

[b] Plan D's medical claims for Epogen-Procrit were removed because the median allowed amount was about 20 times that of other plans.

Table 5. Biosimilar Savings [a] by Site of Care (Assumes 97% biosimilar uptake and no rebates foregone)

Purchaser A

Site of Care	N of Claims	Discount Lower Limit	Discount Upper Limit	Amount Paid	Minimum Price Savings	Maximum Price Savings
Office						
Avastin	10,933	14%	20%	$10,978,366	$1,490,862	$2,129,803
Epogen-Procrit	4,262	8%	11%	$1,811,304	$140,557	$193,266
Herceptin	2,590	6%	21%	$13,515,764	$786,617	$2,753,161
Neulasta	1,852	7%	11%	$10,040,299	$681,736	$1,071,300
Neupogen	905	33%	47%	$378,566	$121,179	$172,588
Remicade	2,194	5%	22%	$10,139,112	$491,747	$2,163,686
Rituxan	4,572	10%	26%	$31,281,773	$3,034,332	$7,889,263
Total Office	27,308			$78,145,184	$6,747,030	$16,373,067
OPH						
Avastin	1,768	14%	20%	$15,031,192	$2,041,236	$2,916,051
Epogen-Procrit	1,675	8%	11%	$973,689	$75,558	$103,893
Herceptin	2,215	6%	21%	$18,642,451	$1,084,991	$3,797,467
Neulasta	2,373	7%	11%	$17,425,514	$1,183,192	$1,859,302
Neupogen	672	33%	47%	$393,182	$125,858	$179,252
Remicade	2,149	5%	22%	$17,264,355	$837,321	$3,684,213
Rituxan	2,138	10%	26%	$20,099,239	$1,949,626	$5,069,028
Total OPH	12,990			$89,829,622	$7,297,782	$17,609,206
Other Medical						
Avastin	8	14%	20%	$44,127	$5,992	$8,561
Epogen-Procrit	8	8%	11%	$17,197	$1,334	$1,835
Neulasta	14	7%	11%	$197,734	$13,426	$21,098
Neupogen	7	33%	47%	$8,343	$2,671	$3,804
Remicade	469	5%	22%	$2,426,130	$117,667	$517,736
Rituxan	36	10%	26%	$495,622	$48,075	$124,996
Total Other	542			$3,189,153	$189,165	$678,030
Pharmacy						
Avastin	118	16%	NA	$673,743	$104,565	NA
Epogen	782	42%	NA	$607,558	$247,519	NA
Procrit	5,867	62%	NA	$9,749,939	$5,863,613	NA
Herceptin	56	15%	NA	$242,954	$35,350	NA
Neulasta	869	32%	NA	$5,922,538	$1,838,356	NA
Neulasta Onpro	286	32%	NA	$1,796,033	$557,489	NA
Neupogen	1,240	28%	NA	$4,330,136	$1,176,065	NA
Remicade	1,267	41%	NA	$8,801,879	$3,500,507	NA
Rituxan	493	8%	NA	$5,477,144	$425,026	NA
Total Pharmacy	10,978			$37,601,924	$13,748,490	

a Price savings are calculated by applying 1 minus the site- and drug-specific biosimilar pricing ratio (Table 3) to the total amount paid for the reference biologic, for the uptake percentage of claims. Table excludes medical claims removed from the analysis because of discrepancies between billed amount and dosage.

Table 6. Sensitivity Analysis

Purchaser A

			Biosimilar Savings					
	Uptake	Paid Amount	Min Discount, 10% Rebate	Max Discount, 10% Rebate	Min Discount, 20% Rebate	Max Discount, 20% Rebate	Min Discount, No Rebates	Max Discount, No Rebates
National (Minimum) Uptake								
Avastin	25%	$26,727,428	$270,643	$661,448	($397,542)	($6,737)	$938,829	$1,329,634
Epogen-Procrit	29%	$13,159,687	$1,510,420	$1,534,800	$1,128,789	$1,153,169	$1,892,051	$1,916,431
Herceptin	17%	$32,401,169	($216,611)	$603,423	($767,431)	$52,603	$334,209	$1,154,243
Neulasta	29%	$35,382,118	$251,772	$572,670	($774,310)	($453,412)	$1,277,854	$1,598,752
Neupogen	72%	$5,110,227	$690,367	$769,001	$322,430	$401,064	$1,058,304	$1,136,938
Remicade	14%	$38,631,476	$173,194	$883,139	($367,647)	$342,298	$714,035	$1,423,980
Rituxan	5%	$57,353,778	($5,477)	$409,536	($292,246)	$122,767	$281,292	$696,305
All drugs		**$208,765,883**	**$2,674,308**	**$5,434,017**	**($1,147,957)**	**$1,611,752**	**$6,496,574**	**$9,256,283**
Midpoint Uptake								
Avastin	61%	$26,727,428	$660,368	$1,613,933	($970,005)	($16,440)	$2,290,741	$3,244,306
Epogen-Procrit	63%	$13,159,687	$3,281,258	$3,334,219	$2,452,197	$2,505,158	$4,110,317	$4,163,278
Herceptin	57%	$32,401,169	($726,283)	$2,023,244	($2,573,150)	$176,377	$1,120,584	$3,870,111
Neulasta	63%	$35,382,118	$546,953	$1,244,075	($1,682,120)	($984,998)	$2,776,026	$3,473,148
Neupogen	85%	$5,110,227	$810,224	$902,508	$378,409	$470,693	$1,242,039	$1,334,323
Remicade	56%	$38,631,476	$686,592	$3,501,015	($1,457,455)	$1,356,968	$2,830,639	$5,645,062
Rituxan	51%	$57,353,778	($55,867)	$4,177,266	($2,980,909)	$1,252,224	$2,869,175	$7,102,308
All drugs		**$208,765,883**	**$5,203,244**	**$16,796,260**	**($6,833,033)**	**$4,759,982**	**$17,239,521**	**$28,832,536**
Maximum Uptake								
Avastin	97%	$26,727,428	$1,050,095	$2,566,420	($1,542,465)	($26,140)	$3,642,655	$5,158,980
Epogen-Procrit	97%	$13,159,687	$5,052,092	$5,133,637	$3,775,603	$3,857,148	$6,328,581	$6,410,126
Herceptin	97%	$32,401,169	($1,235,956)	$3,443,064	($4,378,870)	$300,150	$1,906,958	$6,585,978
Neulasta	97%	$35,382,118	$842,134	$1,915,480	($2,589,931)	($1,516,585)	$4,274,199	$5,347,545
Neupogen	97%	$5,110,227	$930,081	$1,036,017	$434,389	$540,325	$1,425,773	$1,531,709
Remicade	97%	$38,631,476	$1,199,989	$6,118,889	($2,547,264)	$2,371,636	$4,947,242	$9,866,142
Rituxan	97%	$57,353,778	($106,257)	$7,944,997	($5,669,573)	$2,381,681	$5,457,059	$13,508,313
All drugs		**$208,765,883**	**$7,732,178**	**$28,158,504**	**($12,518,111)**	**$7,908,215**	**$27,982,467**	**$48,408,793**

[a] Excludes medical claims removed from the analysis due to discrepancies in allowed amount versus dosage; those remaining in the analysis after cleaning totaled 67% of 61,249 claims (n remaining=40,840) and 66% of $258.2 million in allowed amounts ($171.2 million).

Results for Purchaser B

Use of biosimilars varied by plan (Table 7). Relative to national averages, biosimilars were underutilized for Avastin (Mvasi), Herceptin (Ogivri and Kanjinti), Remicade (Inflectra and Renflexis), and Rituxan (Truxima). The 0%-2% market share for biosimilar alternatives to Remicade is particularly notable because of the large number of medical claims (n=420) for Remicade. In contrast, biosimilar use rates were favorable relative to national averages for Neupogen (Zarxio), Neulasta (Fulphila and Udenyca), and Retacrit (Epogen/Procrit).

For the base case analysis, the total savings opportunity was identified based on a 97% potential market uptake, no rebates foregone, and a biosimilar price range. The base case analysis found a medical benefit savings opportunity of $780,518-$2.4 million against a plan spend of $11.8 million for the drugs evaluated (i.e., savings of 6.6%-20.6%; Table 8). Remicade represented the greatest biosimilar savings opportunity ($260,894-$1,147,933), followed by Herceptin ($177,423-$620,980) and Rituxan ($139,438-$362,537). Plan B had both the largest total medical spending on reference biologics ($5.6 million) and the largest potential savings ($378,404-$1,151,561), followed by Plan C (total spending of $4.5 million, potential savings of $298,544-$915,565; Table 9).

Savings opportunities were proportionately approximately equal for the office and OPH sites of care, at about 6%-7% assuming minimum discounts and 21% assuming maximum discounts (Table 10). However, absolute dollar savings were greater in the OPH because of generally greater spending in that setting. In both sites of care, the greatest savings opportunity was for Remicade ($81,740-$359,656 in the office, $179,154-$788,277 in the OPH).

Sensitivity analysis (Table 11) indicated potential total price savings of $132,931-$377,269 at the minimum (national) uptake, $456,723-$1,403,635 at the midpoint uptake, and $780,518-$2,430,001 at maximum (97%) uptake. After offsetting these savings with foregone rebates of 10%, net savings would result only with the maximum discount under all three uptake scenarios: minimum uptake ($190,259, 1.6% savings); midpoint uptake ($737,859, 6.3%), and maximum uptake ($1,285,459, 10.9%).

Table 7. Biosimilar Market Share in the Medical and Pharmacy Benefit, by Plan[a]

Purchaser B

Drug	National Market Share [b]	Plan A		Plan B		Plan C		Pharmacy Benefit	
		N of Claims	Market Share	N of Claims	Market Share	N of Claims	Market Share	N of Claims	Market Share
Avastin		22	100.0%	136	100.0%	104	100.0%	0	0.0%
Mvasi	**25%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Epogen-Procrit		0	0.0%	0	0.0%	1	33.3%	37	100.0%
Retacrit	**29%**	**7**	**100.0%**	**6**	**100.0%**	**2**	**66.6%**	**0**	**0.0%**
Herceptin		23	74.2%	50	96.2%	77	98.7%	0	0.0%
Ogivri/Kanjinti	**17%**	**8**	**25.8%**	**2**	**3.8%**	**1**	**1.3%**	**0**	**0.0%**
Neulasta		5	22.7%	35	44.3%	31	46.3%	40	41.7%
Fulphila	**29%**	**10**	**45.5%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Udenyca		**7**	**31.8%**	**44**	**55.7%**	**36**	**53.7%**	**56**	**58.3%**
Neupogen		0	0.0%	3	10.7%	10	66.6%	33	7.5%
Zarxio	**72%**	**0**	**0.0%**	**25**	**89.3%**	**5**	**33.3%**	**407**	**92.5%**
Nivestym		**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**	**0**	**0.0%**
Remicade		63	100.0%	260	97.7%	97	100.0%	2	100.0%
Inflectra [c]	**14%**	**0**	**0.0%**	**6**	**2.3%**	**0**	**0.0%**	**0**	**0.0%**
Rituxan/Other Brand		28	100.0%	27	96.4%	19	100.0%	0	0.0%
Truxima	**5%**	**0**	**0.0%**	**1**	**3.6%**	**0**	**0.0%**	**0**	**0.0%**

[a] No plan identifier was provided in the pharmacy claims file.
[b] Based on a national market share analysis as of April 2020.
[c] Although HCPCS and NDC numbers for Renflexis and other infliximab biosimilars were searched, no claims for these drugs were in the files.

Table 8. Biosimilar Savings Summary by Drug, Medical Benefit (Assumes 97% biosimilar uptake and no rebates foregone)

Purchaser B

Drug	Paid Amount	Medical Discount Range	Maximum Savings
Avastin	$1,000,204	14%-20%	$194,040
Epogen-Procrit	$1,152	8%-11%	$123
Herceptin	$3,048,503	6%-21%	$620,980
Neulasta	$918,876	7%-11%	$98,044
Neupogen	$13,916	33%-47%	$6,344
Remicade	$5,379,258	5%-22%	$1,147,933
Rituxan	$1,437,500	10%-26%	$362,537
All Drugs	**$11,799,409**		**$2,430,001**

Table 9. Biosimilar Savings Summary by Plan, Medical Benefit (Assumes 97% biosimilar uptake and no rebates foregone)

Purchaser B

Plan	Paid Amount	Minimum Price Savings	Maximum Price Savings
A	$1,652,922	$103,569	$362,876
B	$5,614,626	$378,404	$1,151,561
C	$4,531,861	$298,544	$915,565
All Plans	**$11,799,409**	**$780,518**	**$2,430,002**

Table 10. Biosimilar Savings [a] by Medical Site of Care (Assumes 97% biosimilar uptake and no rebates foregone)

Purchaser B

Site of Care	N of Claims	Discount Lower Limit	Discount Upper Limit	Amount Paid	Minimum Price Savings	Maximum Price Savings
Office/Other[b]						
Avastin	205	14%	20%	$333,272	$45,258	$64,655
Epogen-Procrit	1	8%	11%	$1,152	$89	$123
Herceptin	48	6%	21%	$351,206	$20,440	$71,541
Neulasta	10	7%	11%	$79,159	$5,375	$8,446
Neupogen	0	33%	47%	$0	$0	$0
Remicade	200	5%	22%	$1,685,362	$81,740	$359,656
Rituxan	8	10%	26%	$105,472	$10,231	$26,600
Total Office/Other[b]	**472**			**$2,555,623**	**$163,134**	**$531,021**
OPH						
Avastin	57	14%	20%	$666,932	$90,569	$129,385
Epogen-Procrit	0	8%	11%	$0	$0	$0
Herceptin	102	6%	21%	$2,697,297	$156,983	$549,439
Neulasta	61	7%	11%	$839,717	$57,017	$89,598
Neupogen	13	33%	47%	$13,916	$4,455	$6,344
Remicade	220	5%	22%	$3,693,896	$179,154	$788,277
Rituxan	66	10%	26%	$1,332,028	$129,207	$335,937
Total OPH	**519**			**$9,243,786**	**$617,384**	**$1,898,981**

[a] Price savings are calculated by applying 1 minus the drug-specific biosimilar pricing ratio (Table 8) to the total amount paid for the reference biologic, for the uptake percentage of claims.

[b] The office category includes 33 Remicade claims administered in the home and 12 claims from independent clinics.

Table 11. Sensitivity Analysis

Purchaser B

			Biosimilar Savings					
	Uptake	Paid Amount	Min Discount, 10% Rebate	Max Discount, 10% Rebate	Min Discount, 20% Rebate	Max Discount, 20% Rebate	Min Discount, No Rebates	Max Discount, No Rebates
National (Minimum) Uptake								
Avastin	25%	$1,000,204	$10,002	$25,005	($15,003)	$0	$35,007	$50.010
Epogen-Procrit	29%	$1,152	($7)	$3	($40)	($30)	$27	$37
Herceptin	17%	$3,048,503	($20,730	$57,007	($72,554)	$5,182	$31,095	$108,832
Neulasta	29%	$918,876	($7,994)	$2,665	($34,642)	($23,983)	$18,653	$29,312
Neupogen	72%	$13,916	$2,304	$3,707	$1,303	$2,705	$3,306	$4,709
Remicade	14%	$5,379,258	($37,655)	$90,372	($112,964)	$15,062	$37,655	$165,681
Rituxan	5%	$1,437,500	$0	$11,500	($7,188)	$4,313	$7,188	$18,688
All drugs		**$11,799,409**	**($54,080)**	**$190,259**	**($241,088)**	**$3,249**	**$132,931**	**$377,269**
Midpoint Uptake								
Avastin	61%	$1,000,204	$24,405	$61,012	($36,607)	$0	$85,417	$122,025
Epogen-Procrit	63%	$1,152	($15)	$7	($87)	($65)	$58	$80
Herceptin	57%	$3,048,503	($69,506)	$191,141	($243,271)	$17,376	$104,259	$364,906
Neulasta	63%	$918,876	($17,367)	$5,789	($75,256)	($52,100)	$40,522	$63,678
Neupogen	85%	$13,916	$2,705	$4,351	$1,529	$3,175	$3,880	$5,527
Remicade	56%	$5,379,258	($149,274)	$358,259	($447,823)	$59,710	$149,274	$656,807
Rituxan	51%	$1,437,500	$0	$117,300	($73,313)	$43,988	$73,313	$190,612
All drugs		**$11,799,409**	**($209,052)**	**$737,859**	**($874,828)**	**$72,084**	**$456,723**	**$1,403,635**
Maximum Uptake								
Avastin	97%	$1,000,204	$38,808	$97,020	($58,212)	$0	$135,827	$194,040
Epogen-Procrit	97%	$1,152	($22)	$11	($134)	($101)	$89	$123
Herceptin	97%	$3,048,503	($118,282)	$325,275	($413,987)	$29,570	$177,423	$620,980
Neulasta	97%	$918,876	($26,739)	$8,913	($115,870)	($80,218)	$62,392	$98,044
Neupogen	97%	$13,916	$3,105	$4,994	$1,755	$3,645	$4,455	$6,344
Remicade	97%	$5,379,258	($260,894)	$626,146	($782,682)	$104,358	$260,894	$1,147,933
Rituxan	97%	$1,437,500	$0	$223,100	($139,438)	$83,663	$139,438	$362,537
All drugs		**$11,799,409**	**($364,024)**	**$1,285,459**	**($1,508,568)**	**$140,917**	**$780,518**	**$2,430,001**

References

[1] U.S. Food and Drug Administration. Biosimilar and interchangeable products. October 23, 2017. Available at: https://www.fda.gov/drugs/biosimilars/biosimilar-and-interchangeable-products#biosimilar

[2] Brennan Z. US biosimilar launches about to turn a corner. *Regulatory Focus.* March 16, 2020. Available at: https://www.raps.org/news-and-articles/news-articles/2019/12/us-biosimilar-launches-about-to-turn-a-corner

[3] Socal M, Ballreich J, Chyr L, Anderson G. Biosimilar medications—savings opportunities for large employers. Johns Hopkins, Center for Hospital Finance and Management. March 2020.

[4] Centers for Medicare & Medicaid Services. 2020 ASP drug pricing files. Available at: https://www.cms.gov/medicare/medicare-part-b-drug-average-sales-price/2020-asp-drug-pricing-files

[5] Mehr S. An interesting comparison: the latest data on US and EU biosimilar uptake. *Biosimilars Review and Report.* April 23, 2020. Available at: https://biosimilarsrr.com/2020/04/23/an-interesting-comparison-the-latest-data-on-us-and-eu-biosimilar-uptake/

[6] Smith L. Bucking trend, Kaiser boosts biosimilar uptake. *Gastroenterology & Endoscopy News.* April 29, 2019.

[7] Magellan Health. *Medical Pharmacy Trend Report.* April 8, 2020. Available at: https://ir.magellanhealth.com/news-releases/news-release-details/magellan-rx-management-medical-pharmacy-trend-report-delivers#:~:text=8%2C%202020--%20Magellan%20Rx%20Management%2C%20a%20division%20of,trends%2C%20data%20benchmarking%2C%20forecasting%20for%20significant%20categories%20

Conclusion

For Purchaser A, with $208.8 million in total medical and pharmacy benefit expense for seven reference biologics with biosimilar alternatives, we estimated total price savings of $28.0-$48.4 million with a 97% uptake, before accounting for any potential rebates.

For Purchaser B, with $11.8 million in total medical benefit expense for the same seven reference biologics, we estimated total potential biosimilar price savings of $780,518-$2.4 million with a 97% uptake, before accounting for any potential rebates.

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Capturing biosimilar savings requires a multipronged approach that includes patient financial incentives, patient education, clinical policy changes, and physician education.

Biosimilars represent an important drug cost savings opportunity for employers seeking to provide a financially sustainable benefit.

A companion editorial piece by PBGH can be accessed at https://www.pbgh.org/biosimilars

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