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ISSUE BRIEF

Incenting Competition to Reduce Drug Spending: *The Biosimilar Opportunity*

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Executive Summary

A biosimilar is a biologic drug that has no "clinically meaningful difference" in safety, purity, and effectiveness relative to its reference originator biologic. Just like generic medicines, the benefits of biosimilars are the substantial price discounts they enable compared to the originator biologic. However, due to their complex production process, the discounts for biosimilars are not as large as the discounts for generic medicines. The savings are significant, nevertheless.

To improve our understanding regarding the savings potential, this study estimates the potential health care savings possible from the wider adoption of biosimilars. The estimates are based on average sales price (ASP) data that are effective from April 2019 through June 2019 and the rolling 12-month volume data through February 2019.

Leveraging these data, a baseline total expenditure scenario is constructed that assumes all biologic drugs sold are the originator biologic. Compared to this baseline scenario, the current biosimilar market share is annually creating $253.8 million in savings, see Table ES1. Greater savings are possible if the share of biosimilars were higher. Should biosimilars grow to 25 percent, 50 percent, or 75 percent of the market, annual total health care spending would be $2.5 billion, $4.8 billion, and $7.2 billion lower respectively than the baseline scenario. Over 10 years, these savings would become $24.7 billion, $48.0 billion, and $71.7 billion respectively. It should be noted that these savings only count the nine biologic drug classes where approved biosimilars already exist. Even greater savings will be realized if biosimilars were approved for more drug classes.

Table ES1: Total Annual Savings on Biologic Medicines Relative to the All Originator Biologic Baseline

Current, 25% Biosimilar Share, 50% Biosimilar Share, and 75% Biosimilar Share Scenarios

Drug Class	Originator Biologic	TOTAL SAVINGS (IN MILLIONS)			
		Current	25% Biosimilar Share	50% Biosimilar Share	75% Biosimilar Share
Infliximab	Remicade	$79.4	$318.2	$636.5	$954.7
Pegfilgrastim	Neulasta	$21.8	$121.9	$243.8	$365.7
Filgrastim	Neupogen	$152.1	$152.1	$152.1	$206.8
Epoetin Alfa	Epogen & Procrit	$0.5	$8.4	$16.9	$25.3
Bevacizumab	Avastin	$0.0	$199.2	$398.5	$597.7
Trastuzumab	Herceptin	$0.0	$208.0	$415.9	$623.9
Rituxumab	Rituxan	$0.0	$280.6	$561.2	$841.8
Etanercept	Enbrel	$0.0	$324.0	$648.0	$972.1
Adalimunab	Humira	$0.0	$861.1	$1,722.1	$2,583.2
GRAND TOTAL		$253.8	$2,473.6	$4,795.0	$7,171.2

Source: Author calculations

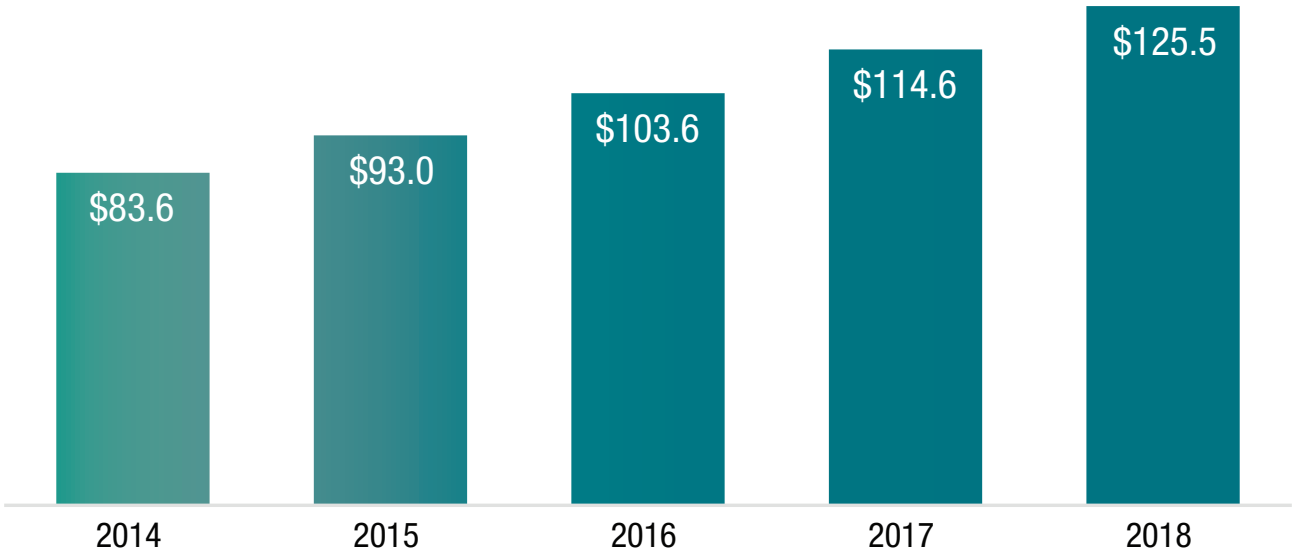
The existence of ineffective regulatory policy and adverse market incentives are obstructing the health care system's ability to realize these savings. Due to their value, reforms that address these obstructions are imperative. Doing so will strengthen market competition and increase the accessibility of high quality, affordable, health care for patients.

Introduction

Biologic medicines (or biologics) are drugs that are produced from, or contain, living organisms. These drugs are typically much more complicated than chemically based "small molecule" medicines that are typically sold over the pharmacy counter. Unlike these traditional medicines, biologic medicines are generally administered to patients in a clinical setting. These medicines create enormous benefits for patients - including better treatments for cancer, psoriatic arthritis, and ulcerative colitis.

Originator biologics exemplify the innovative and targeted aspects of the drug development process. In addition, because these medicines must cover the large capital costs associated with inventing a new complex therapy, they come with a high price tag. Annual average net spending on biologic medicines have grown 10.7 percent a year between 2014 and 2018, according to IQVIA,[1] resulting in total spending increasing from $83.6 billion in 2014 to $125.5 billion in 2018, see Figure 1.

Figure 1: Net Spending on Biologic Medicines | 2014 - 2018 (in billions)



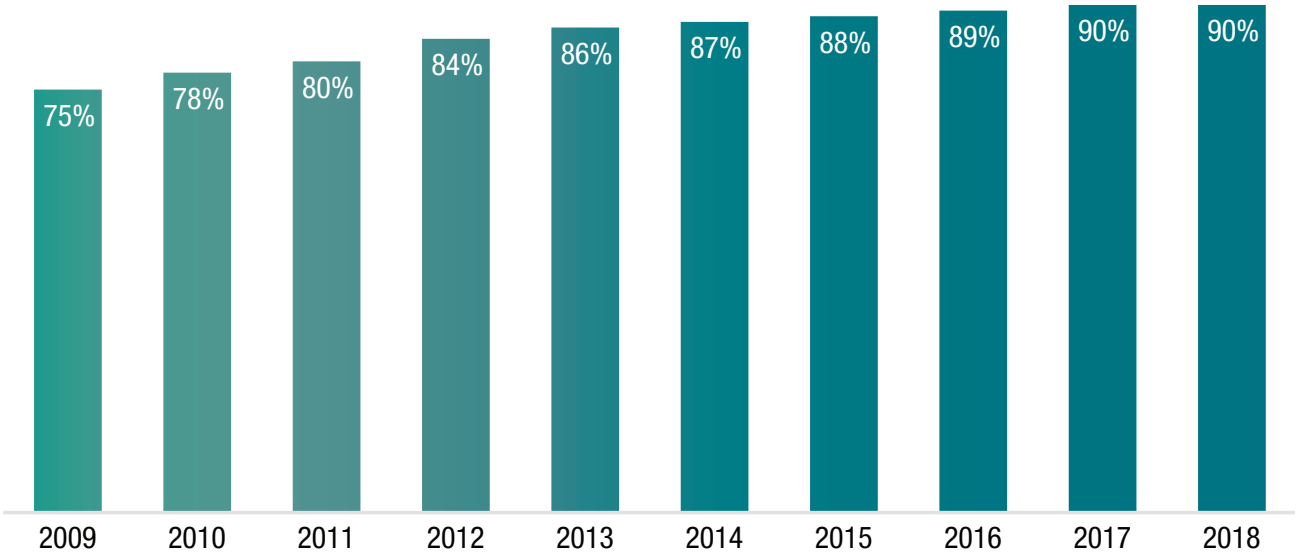
Source: IQVIA

The other part of the drug development process is the promotion of a competitive environment. When the system is working efficiently, once an innovative medicine has been given ample opportunity to recoup its costs of capital, the market will empower competition. This competition occurs when medicines adopt the original innovation but, because the original development costs do not need to be covered, sell these medicines at significant price discounts.

The market for traditional chemically based small molecule medicines exemplifies how this process should work. The U.S. market for generic medicines is very competitive. As of 2018, 9 out of 10 medicines dispensed at pharmacies were generic medicines, the highest generic usage rate among the OECD countries.[2] Not only is the share of generic medicines exceptionally high, this share also increased by 15

percentage points between 2009 and 2018, see Figure 2. Demonstrating the savings potential generics enable, 95.3 percent of the generic medicines were filled at $20 or less - saving the health care system $292.6 billion, according to the Association for Accessible Medicines.[3]

Figure 2: Generic Medicine's Share of Dispensed Prescriptions | 2009 - 2018



Source: IQVIA

Despite the savings generated by generic medicines, a robust market for biosimilars (the competitive products to originator biologic medicines) has been slow to develop in the U.S. In fact, while there has been a total of 60 biosimilar applications that have been approved in Europe, there has been just 19 biosimilars approved in the U.S., of which only seven are currently available to patients.[4]

Developing biologic medicines is more complex than developing chemically based medicines. This reality explains why the price discounts created by biosimilars are less than the price discounts created by generic medicines. But, as the large biosimilar share in the EU exemplifies, it does not explain the lack of a competitive biologic market in the U.S. Instead, there are key policy and market inefficiencies in the U.S. that are discouraging wider adoption of biosimilars. These obstructions are denying significant savings to the U.S. health care system.

In Europe, for example, "the seven established therapy areas with biosimilar competition show a consistent picture of reduced average list prices" according to a 2018 IQVIA report examining the impact of biosimilars in the EU. In the U.S., projected savings are just as encouraging. A 2017 Rand Study, for instance, estimated "that biosimilars will lead to a reduction of $54 billion in direct spending on biologic drugs from 2017 to 2026, or about 3 percent of total estimated biologic spending over the same period, with a range of $24 to $150 billion."[5]

The purpose of this *Issue Brief* is to evaluate the potential systemic savings possible for the nine biologic drug classes where biosimilars have already been approved, if the market and policy obstacles obstructing the development of a robust biosimilar segment were eliminated. While data is limited due to the slow

uptake of biosimilars, based on the evidence to date, the results support the prediction that biosimilars will create large health care savings. Specifically, the current price discounts offered by biosimilars, for just these nine drug classes, could save the U.S. health care system billions of dollars, depending upon the assumed biosimilar market share.

Defining the Biosimilar Savings Potential

In order to demonstrate biosimilars' savings potential, this analysis evaluates the potential total expenditures under alternative biosimilar share scenarios. Each scenario is based on the total sales of each drug class over the past 12-months. Table 1 documents the nine drug classes with an approved biosimilar competitor, as well as the seven biosimilars that had market sales as of February 2019, which competed in four drug classes (Infliximab, Pegfilgrastim, Filgrastim, and Epoetin Alfa).

Table 1: Volumes and Market Share
Biologic Drugs with Approved Biosimilar Competitors
12-month Volume Data through February 2019

DRUG CLASS	ORIGINATOR BIOLOGIC	BIOSIMILARS	UNIT VOLUMES 3/2018 – 2/2019	MARKET SHARE
Infliximab	Remicade		6,905,827	93.8%
		Inflectra	389,148	5.3%
		Renflexis	70,375	1.0%
Pegfilgrastim	Neulasta		1,120,412	95.5%
		Fulphila	25,965	2.2%
		Udenyca*	26,436	2.3%
Filgrastim	Neupogen		660,323	44.8%
		Zarxio	808,281	54.9%
		Nivestym	4,012	0.3%
Epoetin Alfa	Epogen & Procrit		8,621,211	95.5%
		Retacrit	127,784	1.5%
Bevacizumab	Avastin		1,779,490	100.0%
Trastuzumab	Herceptin		2,507,961	100.0%
Rituxumab	Rituxan		2,227,270	100.0%
Etanercept	Enbrel		1,080,208	100.0%
Adalimumab	Humira		1,368,606	100.0%

** Annualized data from 1/2019 – 2/2019*
Source: IQVIA data

Table 1 illustrates that the Filgrastim biosimilar (Zarxio) is now the major biologic for this drug class – Zarxio has a 54.9 percent share of market. Other than Zarxio, no other currently available biosimilar has obtained a meaningful share of the market. However, a likely explanation is the current market and policy obstacles, which will be described in the *Policy Implication* section below.

While there are other factors at play, a relationship between the price gap of the biosimilar and the biosimilar's market share is also evident in the data, see Table 2. Comparing across drug classes warrants caution, of course, due to the market and policy obstructions that impact different classes of drugs differently. Further, Udencya and Nivestym have only just been released onto the market, making the Pegfilgrastim data difficult to compare to the other drug classes where biosimilar competition has existed for a longer period of time. With these caveats, a clear, but expected, pattern emerges – the larger the price discount relative to the originator biologic, the larger the biosimilar market share. While very preliminary, this result supports the notion that biosimilars that sell at the expected discount to the originator biologic medicine (between 20 percent and 40 percent) can secure a large share of the total drug sales. Biosimilars that obtain more than 50 percent of the market (e.g. Zarxio) and sell around a 40 percent discount to the originator biologic will create substantial savings for the health care system.

Table 2: Biosimilar Market Share Compared to Biosimilar ASP Discount*

	BIOSIMILAR MARKET SHARE	PRICE DISCOUNT
Infliximab		
Inflectra	5.3%	-25.8%
Renflexis	1.0%	-18.5%
Pegfilgrastim		
Fulphila	2.2%	-10.3%
Udencya**	2.3%	-8.1%
Filgrastim		
Zarxio	54.9%	-38.3%
Nivestym	0.3%	-28.0%
Epoetin Alpha		
Retacrit	1.5%	-3.4%

** Price discounts are estimated based on the average sales prices (ASP) effective April 1, 2019 through June 30, 2019. Market share is based on units sold based on IQVIA data.*
*** Udencya volumes are annualized from the units sold data from 1/2019 – 2/2019.*
Source: IQVIA and CMMS

Establishing the Average Prices for Biologics

For the seven drug classes that are covered under Medicare Part B, prices were based on the payment limit data (or average sales price, ASP, including a provider mark-up) effective April 1, 2019 through June 30, 2019 as reported by the Centers for Medicare & Medicaid Services (CMS), see Table 3.[6] The Department of Health and Human Services (HHS) Office of Inspector General defines ASP as "a manufacturer's sales of a drug to all purchasers in the United States in a calendar quarter divided by the total number of units of the drug sold by the manufacturer in that same quarter. The ASP is net of any price concessions, such as volume discounts, prompt pay discounts, cash discounts, free goods contingent on purchase requirements, chargebacks, and rebates other than those obtained through the Medicaid drug rebate program."[7] The ASP does not include the discounts offered to the Department of Defense or Veterans Administration. ASP is, effectively, the transaction price of the drug to the health care system.

By statute, reimbursement rates for Medicare are equal to the ASP including a 6 percent statutory mark-up. According to CMS, the payment limit data "are 106 percent of the Average Sales Price (ASP) calculated from data submitted by drug manufacturers".[8] Due to the sequestration cuts, the actual mark-up amount is currently only 4.3 percent.[9] Since the purpose of this analysis is to estimate the potential savings in the future, and the statutory mark-up is 6 percent, the analysis estimates total Medicare Part B expenditures on these drugs based on the ASP + 6 percent formula. Medicaid prices, which will vary depending on the state, were assumed to equal the Medicare prices.

The reimbursement rates for commercial payers will differ from Medicare Part B. Commercial payers are not statutorily bound to an ASP + 6 percent formula. However, this repayment formula and rate is broadly representative of the commercial market. The 6 percent mark-up is applied differently for the commercial market than for Medicare patients, however. As discussed below, since reimbursements are a percentage of the drug's price, there is an incentive for hospitals and other inpatient facilities to use more expensive medicines because higher priced medicines generate larger revenues for the administering facility.

> "This means that Medicare's cost for biosimilars will reflect a higher provider mark-up than the commercial market, causing the costs for biosimilars in commercial plans to be lower than the costs for biosimilars for Medicare.

To eliminate this disincentive, Medicare pays the administering facility a 6 percent markup over the price of the originator biologic regardless of the actual medicine used. This reimbursement system eliminates the incentive to use the highest priced medicine because the facilities' compensation no longer depends on the specific medicine used. Commercial payers do not, generally speaking, apply this repayment formula. This means that Medicare's cost for biosimilars will reflect a higher provider mark-up than the commercial market, causing the costs for biosimilars in commercial plans to be lower than the costs for biosimilars for Medicare.

To account for this reality, the commercial costs are calculated by dividing the payment limit for the originator biologic drug by 1.06 to back out the 6 percent mark-up over ASP for the biosimilars that are competing against the originator biologic drug. This dollar value is then subtracted from the payment limit for the biosimilars to create an estimated ASP for the biosimilars. The total costs for the biosimilars in the commercial market are then marked up by 6 percent over this calculated ASP.

Table 3: Biologic Prices

	REIMBURSEMENT RATES (ASP + 6%)	
	MEDICARE/MEDICAID	COMMERCIAL
Infliximab		
Remicade (10 mg)	$71.83	$71.83
Weighted Avg Biosimilar	$55.09	$54.09
Inflectra	$54.34	$53.29
Renflexis	$59.27	$58.51
Pegfilgrastim		
Neulasta (6 mg)	$4,655	$4,655
Weighted Avg Biosimilar	$4,251	$4,227
Fulphila	$4,201	$4,174
Udenyca	$4,300	$4,279
Filgrastim		
Neupogen (1 mcg)	$1.00	$1.00
Weighted Avg Biosimilar	$0.64	$0.61
Zarxio	$0.64	$0.61
Nivestym	$0.73	$0.72
Epoetin Alfa		
Epogen (& Procrit) (1,000 units)	$11.73	$11.73
Retacrit	$11.36	$11.34
Bevacizumab		
Avastin (10 mg)	$81.22	$81.22
Mvasi (25.8% Discount)	$60.26	$59.01
Trastuzumab		
Herceptin (10 mg)	$10.70	$10.70
Biosimilar (25.8% Discount)	$7.94	$7.78
Rituxumab		
Rituxan (10 mg)	$952	$952
Biosimilar (25.8% Discount)	$706	$692
Etanercept		
Enbrel	$1,067	$1,067
Biosimilar (50.0% Discount)	$533	$533
Adalimumab		
Humira	$2,237	$2,237
Biosimilar (50.0% Discount)	$1,119	$1,119

Source: CMS Data

For the biosimilar versions for Infliximab (Inflectra and Renflexis), Pegfilgrastim (Fulphila and Undenyca), and Filgrastim (Zarxio and Nivestym), an average biosimilar price, weighted by each biosimilar's share of the market, is calculated for both the commercial market and Medicare patients. Epogen & Procrit only faced competition from one biosimilar (Retacrit), so calculating an average biosimilar price is unnecessary.

The biosimilars that compete against Avastin, Herceptin, and Rituxan have no sales as of February 2019, nor is there a recorded payment limit from which to calculate an ASP for these biosimilars. To estimate an ASP, the ASP for these biosimilars were assumed to be equal to the price discount of Inflectra relative to Remicade, or priced at a 25.8 percent discount to the originator biologic. The Inflectra discount was chosen because it is greater than Retacrit's discount to Epogen & Procrit (-3.4 percent) but less than Zarxio's discount to Neupogen (-38.3 percent). Therefore, the Inflectra discount is indicative of the average biosimilar discount that has been available in the market to date.

The final two original biologics (Enbrel and Humira) do not face biosimilar competition despite the fact that biosimilars have been approved by the FDA. These medicines are covered under the Medicare Part D program, not Part B like the other drug classes, and may be self-administered at home. Since these medicines are not covered under Part B, there is no payment limitation data. However, CMS does track the spending trends for Part B drugs including the total expenditures and expenditures per unit.[10]

> "In total, based on the current ASP rates and the actual 12-month units sold through February 2019, the annualized total costs of these nine biologic drug classes is $32.1 billion.

The expenditures per unit as of calendar year 2017 (the latest data available) were used as a proxy for the total payments for these medicines in the Medicare, Medicaid, and commercial markets.

Since there are no biosimilars actively competing against either Enbrel or Humira in the U.S., it is necessary to estimate the potential price for these biosimilars. Since these medicines differ from the other drugs (e.g. they can be self-administered outside of a clinical setting) and the biosimilar versions of Humira are available in Europe at discounts up to 80 percent,[11] the biosimilar versions of Etanercept and Adalimumab are, for conservative purposes, assumed to be priced at a 50 percent discount to Enbrel and Humira.

Documenting the Current Savings Enabled by Biosimilars

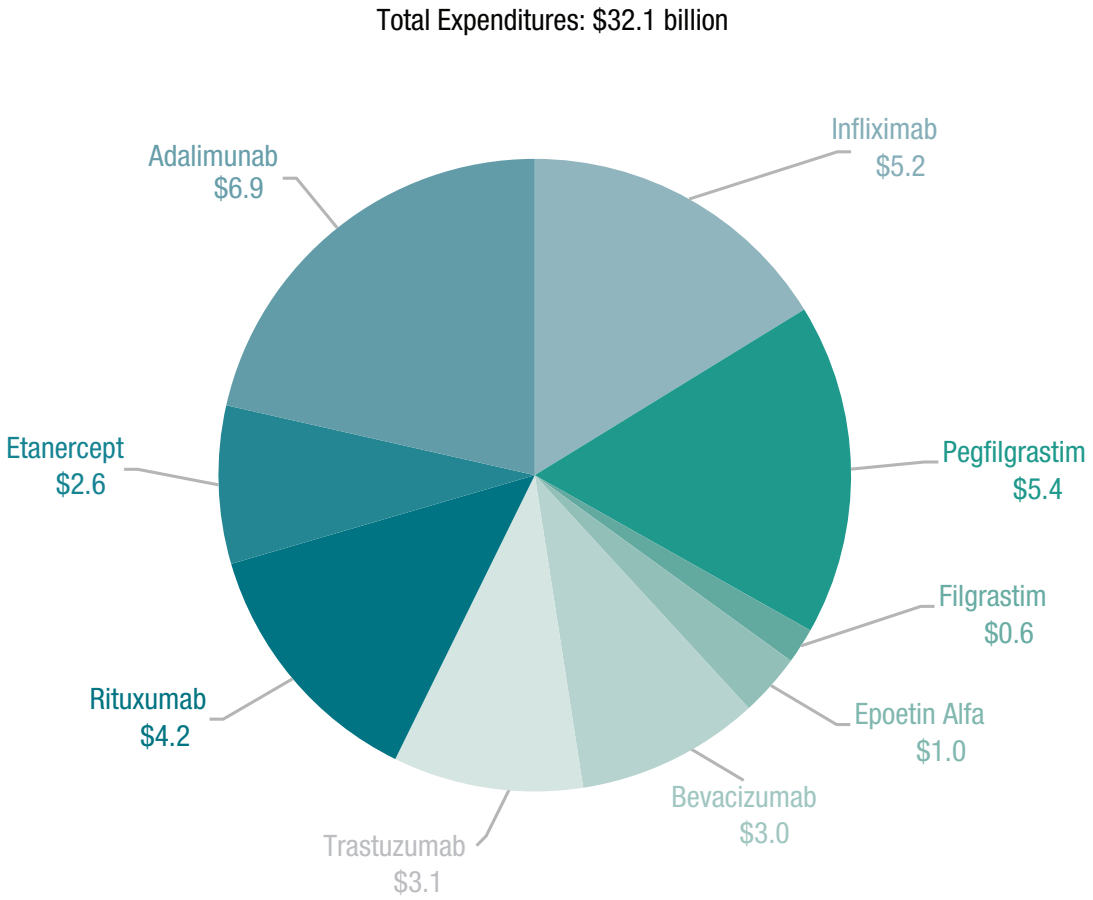
The current total expenditures on biologic medicines in these nine drug classes are estimated based on the current prices and total units sold described above. These expenditures are then compared to an "all originator biologics" baseline scenario. The current savings enabled by biosimilars is defined as the gap between the current and baseline scenarios.

Two important adjustments to the units sold are required before this calculation can be made. First, the volumes data are not denoted in the same units as prices. Consequently, volumes and prices were adjusted to reflect the average spending per claim and average units per claim as documented by CMS.[12] Second,

since the prices in the commercial market for biosimilars differ slightly from the prices charged Medicare, the volumes need to be allocated between the Medicare, Medicaid, and commercial markets. A December 2017 Government Accountability Office (GAO) study estimated Medicare's share of total expenditures on the most expensive biologic drugs.[13] Medicare's share of the market for Infliximab, Pegfilgrastim, Filgrastim, Epoetin Alfa, Bevacizumab, Trastuzumab, and Rituxumab are all equal to the GAO's findings. The GAO did not evaluate Etanercept nor Adalimumab. For these two drug classes, the average market share for Medicare according to the GAO was used.

In total, based on the current ASP rates and the actual 12-month units sold through February 2019, the annualized total costs of these nine biologic drug classes is $32.1 billion. Figure 3 breaks these costs down by drug class.

Figure 3: Total Expenditures by Drug Class based on ASP Effective 4-2019 through 6-2019 and 12 Month Rolling Average of Units Sold through February 2019 (in billions)

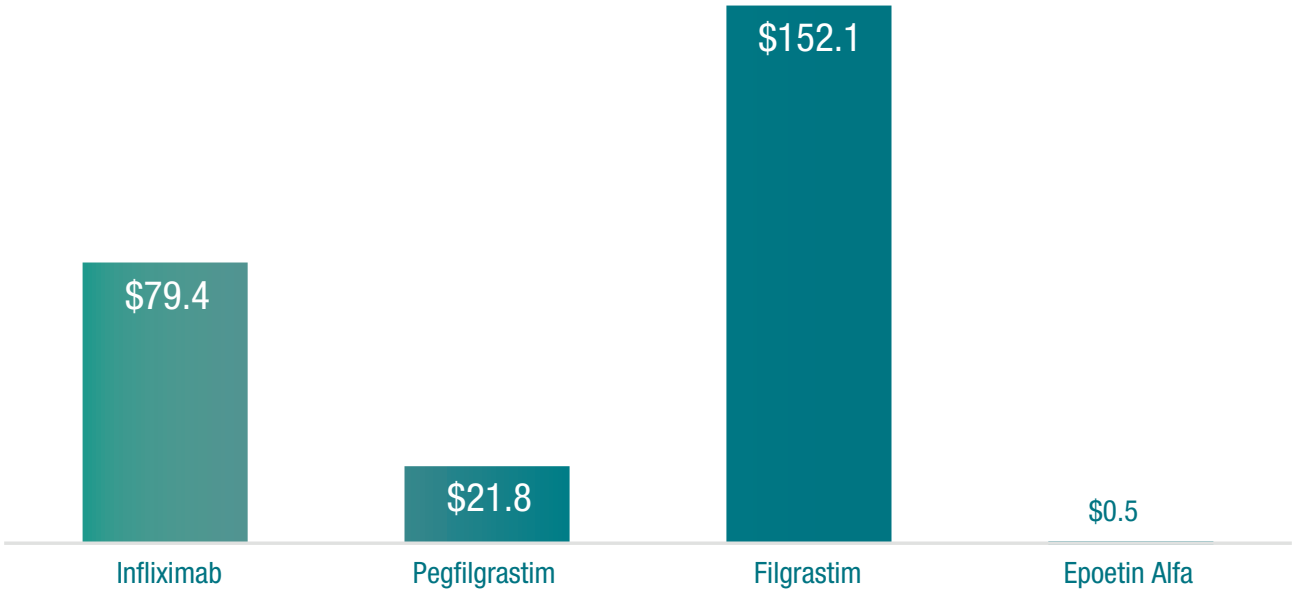


Source: Author calculations

Of the $32.1 billion in expenditures, sales of the originator biologic accounted for 97.7 percent, or $31.4 billion. Despite comprising 2.3 percent of the market, biosimilars still create $253.8 million in annual savings compared to an all-biologic baseline. These savings are concentrated in the four drug classes that currently face biosimilar competition, obviously. Figure 4 presents the actual savings biosimilars are cur-

rently creating relative to an all-biologic baseline, by drug class. As Figure 4 demonstrates, the Filgrastim biosimilars generate the largest dollar savings, which makes sense because the market share for Zarxio (a biosimilar) has surpassed Neupogen (the originator biologic). The Infliximab biosimilars generate the next largest savings, followed by Pegfilgrastim.

Figure 4: Current Biosimilar Savings by Drug Class (in millions)



Source: Author calculations

Projected Biosimilars Savings

Biosimilars' low market share in the U.S. stands in stark contrast to their large share in the EU, or generics' large share in the U.S. Clearly, a higher market share for biosimilars, a lower-priced alternative to the originator biologic, will decrease total expenditures on biologics relative to the baseline scenario. Table 4 compares the total expenditures on biologics for the baseline scenario (e.g. the all originator biologic scenario) to the total biologic expenditures under four biosimilar scenarios – the actual market share of biosimilars, 25 percent biosimilar share of the market, 50 percent biosimilar share of the market, and 75 percent biosimilar share of the market. Since the two biosimilars competing against Neupogen (in the Filgrastim drug class) already have 55.2 percent of the market, the 25 percent and 50 percent scenarios are not applied to the Filgrastim market and the current market share is applied instead. Based on these assumptions, Table 4 presents the total expenditures.

Table 4: Total Annual Expenditures on Biologic Medicines, Alternative Scenarios All Originator Biologic Baseline

Current, 25% Biosimilar Share, 50% Biosimilar Share, and 75% Biosimilar Share

DRUG CLASS	ORGINATOR BIOLOGIC	ANNUAL EXPENDITURES (IN MILLIONS)				
		ALL ORIGINATOR BIOLOGIC BASELINE	CURRENT	25% BIOSIMILAR SHARE	50% BIOSIMILAR SHARE	75% BIOSIMILAR SHARE
Infliximab	Remicade	$5,290	$5,211	$4,972	$4,654	$4,336
Pegfilgrastim	Neulasta	$5,460	$5,438	$5,338	$5,216	$5,094
Filgrastim*	Neupogen	$736	$584	$584	$584	$529
Epoetin Alfa	Epogen & Procrit	$1,027	$1,026	$1,018	$1,010	$1,001
Bevacizumab	Avastin	$3,010	$3,010	$2,811	$2,611	$2,412
Trastuzumab	Herceptin	$3,120	$3,120	$2,912	$2,704	$2,496
Rituxumab	Rituxan	$4,241	$4,241	$3,960	$3,680	$3,399
Etanercept	Enbrel	$2,592	$2,592	$2,268	$1,944	$1,620
Adalimunab	Humira	$6,889	$6,889	$6,027	$5,166	$4,305
GRAND TOTAL		$32,364	$32,110	$29,891	$27,569	$25,193

Source: Author calculations

Compared to the current and baseline expenditures, the total expenditures on biologic medicines for each drug class, and in total, under the three alternative biosimilar scenarios (25 percent, 50 percent, and 75 percent market share scenarios) is significantly smaller, indicating large potential health care savings. Table 5 presents the saving potentials compared to the baseline expenditure level.

Table 5: Total Annual Savings on Biologic Medicines Relative to the All Originator Biologic Baseline

Current, 25% Biosimilar Share, 50% Biosimilar Share, and 75% Biosimilar Share Scenarios

DRUG CLASS	ORIGINATOR BIOLOGIC	TOTAL SAVINGS (IN MILLIONS)			
		CURRENT	25% BIOSIMILAR SHARE	50% BIOSIMILAR SHARE	75% BIOSIMILAR SHARE
Infliximab	Remicade	$79.4	$318.2	$636.5	$954.7
Pegfilgrastim	Neulasta	$21.8	$121.9	$243.8	$365.7
Filgrastim*	Neupogen	$152.1	$152.1	$152.1	$206.8
Epoetin Alfa	Epogen & Procrit	$0.5	$8.4	$16.9	$25.3
Bevacizumab	Avastin	$0.0	$199.2	$398.5	$597.7
Trastuzumab	Herceptin	$0.0	$208.0	$415.9	$623.9
Rituxumab	Rituxan	$0.0	$280.6	$561.2	$841.8
Etanercept	Enbrel	$0.0	$324.0	$648.0	$972.1
Adalimunab	Humira	$0.0	$861.1	$1,722.1	$2,583.2
GRAND TOTAL		$253.8	$2,473.6	$4,795.0	$7,171.2

Source: Author calculations

Table 5 illustrates the large potential savings opportunity being lost due to the obstacles obstructing a more robust biosimilar market. Compared to the $253.8 million in savings created currently, the potential health care sector savings could be nearly 10 times as high ($2.5 billion) if biosimilars were able to gain a 25 percent market share. And, these savings are only based on the nine drug classes where biosimilars have already been approved to compete against the originator biologic. The realized savings potential will be larger with the introduction of biosimilars into additional drug classes. The realized savings will also be larger if the share of biosimilars is even higher.

Should biosimilars gain a 50 percent market share, the potential health care savings would be $4.8 billion; a 75 percent market share would create $7.2 billion in savings. It is also important to emphasize that these are not one-time savings, but will be reaped every year. Therefore, over ten years the savings could equal $24.74 billion, $47.95 billion, and $71.71 billion for a 25 percent, 50 percent, and 75 percent biosimilar market share respectively.

Relative to current expenditures, the currently approved biosimilars would generate $2.2 billion, $4.5 billion, and $6.9 billion in annual savings if they obtained 25 percent, 50 percent, and 75 percent market share, respectively, see Table 6. Over 10 years, these savings would equal $22.2 billion, $45.4 billion, and $69.2 billion, respectively.

Table 6: Total Annual Savings on Biologic Medicines Relative to Current Expenditures

25% Biosimilar Share, 50% Biosimilar Share, and 75% Biosimilar Share Scenarios

DRUG CLASS	ORIGINATOR BIOLOGIC	BIOSIMILAR SAVINGS RELATIVE TO ACTUAL (MILLIONS)		
		25% BIOSIMILAR SHARE	50% BIOSIMILAR SHARE	75% BIOSIMILAR SHARE
Infliximab	Remicade	$238.8	$557.1	$875.3
Pegfilgrastim	Neulasta	$100.1	$222.0	$343.9
Filgrastim*	Neupogen	$0.0	$0.0	$54.7
Epoetin Alfa	Epogen & Procrit	$8.0	$16.4	$24.8
Bevacizumab	Avastin	$199.2	$398.5	$597.7
Trastuzumab	Herceptin	$208.0	$415.9	$623.9
Rituxumab	Rituxan	$280.6	$561.2	$841.8
Etanercept	Enbrel	$324.0	$648.0	$972.1
Adalimunab	Humira	$861.1	$1,722.1	$2,583.2
GRAND TOTAL		$2,219.8	$4,541.2	$6,917.4

Putting these savings in perspective, based on the CMS national health expenditure data,[14] the total expenditures on prescription drugs at retail outlets grew $9.2 billion annually. Therefore, if biosimilars reached a 50 percent market share for the biosimilars currently competing against an originator biologic (which is less than Zarxio's current market share), these drugs would generate annual savings that would equal nearly half of the average annual growth in prescription drug expenditures over the past 10 years (measured against the current expenditures). This comparison demonstrates that biosimilars have the potential to meaningfully reduce the growth in prescription drug spending.

Policy Implications

Due to the large potential savings biosimilars offer, identifying the barriers preventing these savings from being realized is an important policy priority.

Starting with the market practices discussed earlier, biologic medicines are typically purchased via a "buy-and-bill" process, where providers purchase medicines, and then bill the payers (either a commercial insurance company or the government) once the medicines have been administered to the patient. These reimbursements are typically based on the average sales price (ASP) of the medicine, plus a percentage mark-up over the ASP. As discussed earlier, most commercial payers base the percentage mark-up on the ASP of the actual drug being administered. This means that providers will lose money when they prescribe a biosimilar medicine instead of its reference biologic medicine. The same percentage mark-up on a lower priced biosimilar provides less revenues to the provider than if a higher-priced biologic medicine had been prescribed. These differences in repayment can be large, biasing the current reimbursement system against biosimilars, which, according to Reddan et al. (2017), is a "critical factor limiting provider use of biosimilars".[15]

Another obstacle is fail-first, or step therapy, policies that are commonly included in insurance plans. Fail first policies for generic medicines require patients to use lower-priced generic medicines first, and only if a generic medicine fails to sufficiently help a patient can a more expensive branded medicine be prescribed. Fail-first policies work in reverse for biosimilars. With respect to biosimilars, patients can only use the less expensive biosimilar if they first failed on the more expensive biologic, biasing the market against less expensive biosimilars. For example, in its May 2019 *network bulletin*, UnitedHealthcare notes that Neulasta (the originator biologic) is its "preferred product" rather than the biosimilar versions of Fulphila or Udenyca.[16]

> "This comparison demonstrates that biosimilars have the potential to meaningfully reduce the growth in prescription drug spending.

There are also anti-competitive contracting practices that thwart the competitive process. For example, current biologic contracting practices link the rebates insurers receive on reaching pre-established minimum volume-thresholds; or, the rebates connect biologic sales with rebates on other medical devices. These contracting practices create another reimbursement disincentive that biases the market against lower priced biosimilars.

Regulatory inefficiencies also exist. For instance, despite recent improvements, too much uncertainty still exists with respect to the FDA's regulatory guidance. Take the interchangeability designation as an example. The interchangeable designation means "that the biological product may be substituted for the reference product without the intervention of the health care provider who prescribed the reference product."[17] Of course, since most biologics are administered by doctors who can change the prescription at their discretion, interchangeability is often not a relevant consideration. The problem arises because the uncertainty regarding biosimilars' "interchangeable" designation creates an additional obstacle. As described by Milliman,

A physician may prescribe an approved biosimilar at their own discretion, but the key distinction with interchangeability status is that pharmacists can substitute an interchangeable biosimilar even when the prescription is for the reference product.

The switching studies may be considered an unnecessary obstacle. A recent study from March 2018, comparing global data spanning over 20 years, shows that when patients switch from reference product to biosimilar, there were no meaningful differences in safety or efficacy. [18]

Since the interchangeability designation creates uncertainty regarding the efficacy of biosimilar products despite their "safety or efficacy", this issue creates unnecessary barriers to wider adoption of biosimilars.

Conclusion

The purpose of this analysis was to document the systemic health care savings biosimilars enable based on the current volumes and price differentials for each originator biologic that currently faces biosimilar competition. Other than Zarxio, no other biosimilar has obtained a major share of the market despite the large potential savings.

As this study showed, for just the nine drug classes that currently face biosimilar competitors, compared to the baseline scenario, spending on biologic medicines can be reduced by $4.8 billion annually, or $47.95 billion over ten years, if biosimilars were able to obtain a 50 percent market share. The potential savings is even larger should these medicines obtain a larger share of the market, or greater biosimilar competition is promoted in other drug classes that currently do not face biosimilar competition. Given that there are 60 biosimilar applications that have been approved in Europe, compared to the 19 biosimilars that have been approved in the U.S., there is clearly room to spread the benefits from greater competition to more originator biologic products.

In order to promote greater competition, it is imperative to address the obstacles preventing the wider use of biosimilars. This requires regulatory changes at the FDA to promote greater education and less confusion regarding the efficacy of biosimilars. It also requires market changes, such as alternative payment models that overcome the disincentives to administer biosimilars. Based on the evidence, such changes can improve patient outcomes while also promoting greater health care affordability.

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