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Medicare Part B Enrollee Use and Spending on Biosimilars, 2018-2023

Biosimilar competition reduced Medicare Part B program spending and beneficiary out-of-pocket costs on these drugs by about 62 percent in 2023 compared to projected spending without biosimilar competition. Policies to increase biosimilar uptake or otherwise reform Medicare Part B drug payment could yield substantial additional savings for the program, enrollees, and taxpayers.

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KEY POINTS

- In 2023, eight reference biologics in Medicare Part B were subject to competition from 27 biosimilars. Medicare spent $2.7 billion on these biologics in 2023, including $1.2 billion on biosimilars and $1.5 billion on reference products where biosimilars were available. This $2.7 billion in spending accounted for about six percent of estimated total Traditional (fee-for-service) Medicare Part B drug spending in 2023 ($45 billion).
- More than 560,000 Traditional Medicare beneficiaries used one of these biologics in 2023, and more than 220,000 beneficiaries (39 percent) used a biosimilar.
- Biosimilar uptake varied widely by biologic, from 26 percent for Lucentis to 80 percent for Avastin. Four of the eight biologics had biosimilar uptake greater than 50 percent. Biosimilar uptake was higher for products where the biosimilar price was lower relative to the reference product price.
- For five of the eight biologics, the average sales price (ASP) of the biosimilars were lower than the reference product; Part B payment limits for these biosimilars were 13 percent to 70 percent lower than the reference product payment limit. Three biologics had biosimilar ASPs higher than reference product ASPs, potentially reflecting a strategy by reference product manufacturers to compete on price after biosimilar entry to the market.
- We estimate that biosimilar competition reduced Medicare Part B drug spending by $12.9 billion between 2018 and 2023, including $4.4 billion in savings in 2023. This represents 31 percent less in spending than what we project would have been spent on these biologics from 2018 to 2023 without biosimilar competition.
- We estimate that biosimilar competition reduced beneficiary out-of-pocket costs by $3.2 billion between 2018 and 2023, including $1.1 billion in 2023. We estimate that beneficiaries using one of these biologics saved nearly $2,000 on average in potential out-of-pocket costs in 2023 due to biosimilar competition.
- If Congress authorized a “least costly alternative” policy where Part B payments were set based on the biosimilar or reference product with the lowest ASP, we estimate that Medicare would have saved an additional $3.1 billion between 2018 and 2023, including nearly $1 billion in savings in 2023.

- Biosimilar uptake is greater for those patients newly starting treatment, compared to those switching to a biosimilar from a reference product. In 2023, about 118,000 biosimilar users were newly starting treatment, compared to about 27,000 biosimilar users who were switching from the reference product or a different biosimilar.
- Providers eligible for the 340B Drug Pricing Program used biosimilars at lower rates than providers not eligible for 340B. We estimate that if biosimilar prescribing patterns at 340B-eligible providers were the same as at non-340B providers, Medicare would have saved $55 million in 2023 and beneficiaries would have saved up to $14 million.

BACKGROUND

Competition is a central feature of the U.S. strategy for managing prescription drug prices. Biosimilars provide competition for biologics, which account for a significant and growing portion of Medicare Part B drug spending. This report evaluates the current state of biosimilar competition in Medicare Part B and explores opportunities to achieve further savings.

Biologics are complex in structure and are generally derived from living material, in contrast to chemically synthesized small molecule drugs.[1] Under the abbreviated pathway established by the Biologics Price Competition and Innovation Act of 2009, a biosimilar can obtain approval by establishing that the product is highly similar and with no clinically meaningful differences in terms of safety and effectiveness when compared to the reference product.[2] Unlike generic small molecule drugs, pharmacists generally cannot automatically substitute biosimilars for their reference products without consulting the prescribing doctor (unless the biosimilar meets the additional requirements to be deemed an interchangeable biosimilar).[3] Previous research has demonstrated that biosimilar competition has led to price reductions and that biosimilar uptake has generally increased over time, though with significant variation across products.[4, 5, 6, 7, 8, 9]

Biologics account for a significant and growing portion of Medicare Part B drug spending. Previous work by ASPE demonstrated that Medicare Part B drug spending in 2021 was $33 billion.[10] Biologics accounted for about 79 percent of Medicare Part B prescription drug spending in 2021, and accounted for nearly all (89 percent) of Medicare Part B drug spending growth between 2008 and 2021.[11] Generally, a vast majority of drugs and biologics covered under Part B are administered by clinicians (that is, incident-to a physician service), in contrast to Part D drugs which are generally filled by beneficiaries at the pharmacy.

Generally, payment for Part B drugs is based on the average sales price (ASP) of each product plus an add-on percentage. The ASP is calculated based on quarterly data that manufacturers report to the Centers for Medicare & Medicaid Services (CMS) on the price and volume of sales to all purchasers (with limited exceptions). ASP is net of certain discounts and rebates (except those under the Medicaid drug rebate program and inflation rebates). A separate ASP is calculated for each reference product and biosimilar, and Medicare Part B payments are set separately for each product. The add-on percentage for reference products and biosimilars is typically six percent of the reference product ASP. Under provisions of the Inflation Reduction Act, the add-on percentage for qualifying biosimilars is increased from six to eight percent for a five-year period beginning on October 1st, 2022.* The Part B "payment limit" for each biologic is published quarterly by CMS and includes the ASP plus the applicable add-on percentage.

* A qualifying biosimilar is defined as a biosimilar with an ASP that is not more than the ASP of the reference product.

METHODS

ASPE analyzed Medicare claims and beneficiary data drawn from the Master Beneficiary Summary File, Common Working File, and Common Medicare Environment from 2018 to 2023. The study included eight reference products—Avastin (bevacizumab), Epogen (epoetin alfa), Herceptin (trastuzumab), Lucentis (ranibizumab), Neulasta (pegfilgrastim), Neupogen (filgrastim), Remicade (infliximab), and Rituxan (rituximab)—and their biosimilars.[*] These eight reference biologics represent those predominantly used in Medicare Part B with biosimilars approved and marketed in 2022 or earlier. (Three additional reference products—Humira [adalimumab], Lantus [insulin glargine], and Enbrel [etanercept]—had biosimilars approved prior to 2022, but are predominantly used in Medicare Part D and are not included in this study.)[†] The study does not include claims for Medicare Advantage, as payment variables are unavailable.

Total Traditional Medicare Part B drug spending for 2023 was estimated by calculating 2022 Part B drug spending from CMS Dashboard data and assuming a 2022-2023 growth rate equal to the National Health Expenditures per capita and traditional Medicare Part B enrollment growth rates.[12, 13, 14]

Part B payment limits were determined from ASP drug pricing files published by CMS.[15] Payment limits include the ASP plus the applicable add-on percentage. Provider eligibility for the 340B Drug Pricing Program was determined based on Health Resources and Services Administration (HRSA) data.[16] For each reference product and its biosimilars, we calculated Medicare Part B spending, utilization, biosimilar uptake, and ratio of biosimilar to reference product payment limit. "Biosimilar payment limit" represents the volume-weighted average payment limit of biosimilars for each reference biologic (i.e., for each reference product, "biosimilar payment limit" reflects the payment limit of each individual biosimilar weighted according to the number of units of the biosimilar furnished to Traditional Medicare Part B beneficiaries). For the main analysis, biosimilar uptake within each biologic group was defined as market share by units furnished to Traditional Medicare Part B beneficiaries, with the numerator being units of biosimilars and the denominator being units of biosimilars plus reference product. Units were defined as the Healthcare Common Procedure Coding System (HCPCS) code dose description as identified in the CMS ASP pricing files.[‡] We also analyzed biosimilar uptake across different provider types; biosimilar uptake in this analysis was defined as percent of services where a biosimilar was administered (i.e., numerator was number of services where a biosimilar was administered, and denominator was number of services where a biosimilar or the reference product was administered). Data on the number of units administered by each provider type was not available. We also analyzed biosimilar utilization and uptake according to beneficiary demographic characteristics.

Estimated savings due to biosimilar competition were calculated relative to a counterfactual where the ASP of the reference product was assumed to increase at the same rate as in the eight quarters prior to biosimilar entry; in the counterfactual, utilization of the reference product was assumed to be equal to the total utilization of the reference product and its biosimilars observed in claims data.[§] Because utilization was assumed to be constant, this estimate does not account for any changes in utilization that may be attributable to biosimilar entry. These estimates do not include savings from lower Medicare Advantage benchmarks resulting from reduced Part B spending. Savings from biosimilar entry were decomposed into two portions: savings attributable to switching from the reference product to a biosimilar, and savings attributable to the

[*] The study includes Epogen for non-ESRD use only. Note that Granix (tbo-filgrastim) was not approved using the biosimilar pathway established by the Biologics Price Competition and Innovation Act of 2009 and is not included in this study.

[†] Note that Enbrel biosimilars are approved but not yet on the market.

[‡] The dose description of Neulasta was normalized to 0.5 mg to allow comparison across products and years; the dose description of Rituxan was normalized to 10 mg to allow comparison across years.

[§] Neupogen ASP was assumed to grow at the same rate as in the six quarters prior to biosimilar entry, as prior to this time (2014 Q1) Neupogen ASP was reported separately for different dose descriptions.

reference product ASP decreasing.[*] Savings from a "least costly alternative" policy were estimated by calculating Medicare spending in a counterfactual where payments in each quarter were based on the lowest ASP among a reference product and its biosimilars; utilization was assumed to be unchanged. ASP was assumed to be unchanged, so this estimate does not include any additional savings that may result if the policy would cause manufacturers to reduce ASP to below the currently observed lowest value.

"New users" were identified as beneficiaries using a biosimilar each year who did not have a claim for any product in the biologic group (i.e., reference product or any of its biosimilars) in the previous year. "Switchers" were identified as beneficiaries using a biosimilar in each year who did not have a claim for the biosimilar in the previous year, but did have a claim for the reference product or a different biosimilar. "Continuing users" were identified as biosimilar users who used the same biosimilar in the previous year (i.e., all biosimilar users not identified as a "New user" or "Switcher").

To investigate the Medicare spending implications of different prescribing patterns at 340B versus non-340B-eligible providers, for each biologic group we calculated the weighted average payment limit for 340B hospital outpatient providers versus non-340B hospital outpatient providers. We estimated the savings if prescribing patterns (i.e., the percentage of services where each biosimilar or reference product was prescribed) at 340B-eligible hospital outpatient providers were identical to the prescribing patterns at non-340B hospital outpatient providers. Total utilization (i.e., reference product plus biosimilar services at 340B providers) was assumed to be unchanged.

FINDINGS

Spending and Utilization

In 2023, eight reference biologics in Medicare Part B were subject to competition from 27 biosimilars (Table 1). Medicare spent $2.7 billion on these biologics in total in 2023, including $1.2 billion on biosimilars and $1.5 billion on reference products where biosimilars were available. This $2.7 billion represents about six percent of the $45 billion that we estimate for total Traditional Medicare Part B drug spending in 2023. More than 560,000 Traditional Medicare beneficiaries used one of these biologics in 2023, and more than 220,000 beneficiaries (39 percent) used a biosimilar. Beneficiary out-of-pocket costs averaged more than $1,200 annually for these biologics, ranging from $260 for Neupogen and its biosimilars to $2,925 for Herceptin and its biosimilars. (Out-of-pocket cost estimates are based on the 20 percent Part B coinsurance rate and do not account for the effects of supplemental coverage.) These biologics are used to treat a variety of conditions including cancer, eye disease, and autoimmune conditions.

[*] For savings attributable to switching to biosimilars, spending for observed biosimilar utilization was compared to spending at the counterfactual reference product payment limit. For savings attributable to reference product price reductions, spending for observed reference product utilization was compared to spending at the counterfactual reference product payment limit.

Table 1. Traditional Medicare Spending and Utilization, 2023

Reference Product	Medicare Program Spending (Reference Product and Biosimilars), Millions	Number of Beneficiaries (Reference Product and Biosimilars), Thousands	Annual Medicare Program Spending per Beneficiary	Annual OOP Spending per Beneficiary	Number of Biosimilars	Medicare Program Spending, Biosimilars, Millions	Number of Beneficiaries, Biosimilars, Thousands	Percent of Beneficiaries Using Biosimilar	Examples of Condition(s) Treated
Avastin	$498	150	$3,311	$828	4	$327	29	19%	Cancer (e.g., colorectal), macular degeneration*
Epogen	$90	59	$1,519	$380	1	$44	30	50%	Anemia in chronic kidney disease
Herceptin	$223	19	$11,699	$2,925	5	$133	16	82%	Breast cancer
Lucentis	$429	106	$4,045	$1,011	2	$123	35	33%	Macular degeneration
Neulasta	$329	83	$3,946	$987	6	$161	39	46%	Low white blood cells due to chemotherapy
Neupogen	$20	19	$1,039	$260	3	$10	14	74%	Low white blood cells due to chemotherapy
Remicade	$447	59	$7,595	$1,899	3	$123	20	33%	Rheumatoid arthritis, inflammatory bowel disease
Rituxan	$684	64	$10,734	$2,683	3	$292	39	62%	Lymphoma, certain autoimmune conditions
Total	*$2,720*	*560*	*$4,856*	*$1,214*	*27*	*$1,212*	*221*	*39%*	

Notes: Estimates are based on 2023 Traditional Medicare Part B claims data. Medicare program spending represents Traditional Medicare program spending and does not include out-of-pocket spending. Potential annual OOP savings are based on the 20 percent Part B coinsurance rate and do not include the effects of supplemental coverage. Percent of beneficiaries using biosimilar represents the number of beneficiaries with a claim for a biosimilar divided by the number of beneficiaries with a claim for a biosimilar or its reference product. For each biologic, the percent of beneficiaries using a biosimilar is generally similar to biosimilar uptake by units furnished shown in Table 2. The exception is Avastin, where biosimilar uptake by units furnished is significantly higher than the percent of beneficiaries using biosimilars. This is likely due to off-label use of Avastin reference product for macular degeneration, where the dose administered is significantly lower than for cancer indications. Our analysis of 2023 claims data indicates that the most common diagnosis code for Avastin reference product represents macular degeneration, while the most common diagnosis codes for Avastin biosimilars are cancer-related. *Macular degeneration is an off-label use for Avastin and is not an FDA-approved indication.

Biosimilar Prices and Uptake

Biosimilar uptake (i.e., percentage of units furnished to Traditional Medicare beneficiaries) varied widely, from 26 percent for Lucentis to 80 percent for Avastin (Table 2). Four of the eight biologics had biosimilar uptake greater than 50 percent. Five of the eight biologics had biosimilar payment limits (i.e., ASP plus add-on percentage) lower than reference product payment limits; these biosimilar payment limits were 13 percent to 70 percent lower than the reference product payment limits, and four of these biologics had reference product payment limits more than double biosimilar payment limits. Three biologics had biosimilar payment limits higher than reference product payment limits; these biosimilar payment limits ranged from two percent to 23 percent higher than the reference product payment limit. These findings may reflect different pricing

strategies taken by reference product manufacturers upon biosimilar entry (discussed in more detail below). Note that these payment limits represent the volume-weighted average across biosimilars, but that there can be significant price variation between biosimilars – for example, in Q4 2023 Neupogen's biosimilars included Releuko with payment limit 53 percent of the reference product, as well as Zarxio with payment limit 17 percent of the reference product.

Table 2. Biosimilar Uptake and Payment Limit vs. Reference Product, 2023

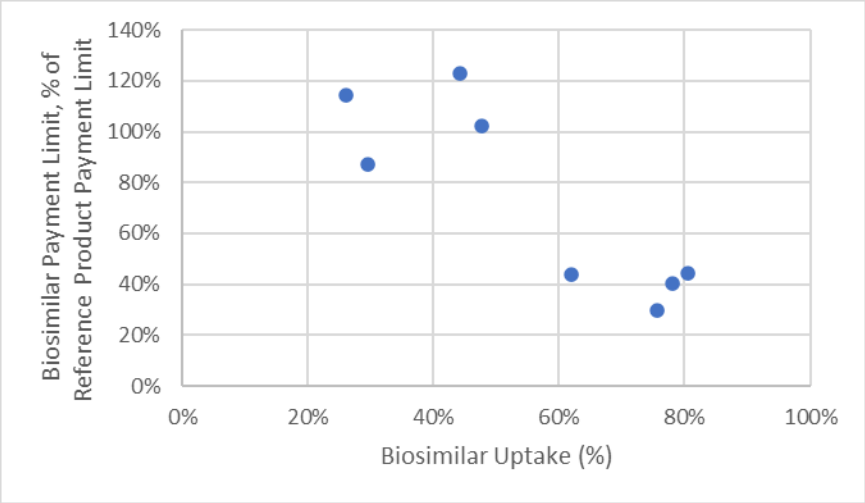
Reference Product	Biosimilar Uptake	Biosimilar Payment Limit, Percent of Reference Product Payment Limit	Potential Annual OOP Savings per Beneficiary if Biosimilar Prescribed
Avastin	80%	44%	-
Epogen	48%	102%	-
Herceptin	78%	40%	$3,340-$4,432
Lucentis	26%	114%	-
Neulasta	44%	123%	-
Neupogen	76%	30%	$335-$349
Remicade	30%	87%	$120-$836
Rituxan	62%	44%	$1,690-$2,531

Notes: Estimates are based on 2023 Traditional Medicare Part B claims data. Biosimilar uptake represents market share by units furnished to Traditional Medicare beneficiaries. For each biologic, biosimilar uptake by units furnished is generally similar to the percent of beneficiaries using a biosimilar shown in Table 1. The exception is Avastin, where biosimilar uptake by units furnished is significantly higher than the percent of beneficiaries using biosimilars. This is likely due to off-label use of Avastin reference product for macular degeneration, where the dose administered is significantly lower than for cancer indications. Our analysis of 2023 claims data indicates that the most common diagnosis code for Avastin reference product represents macular degeneration, while the most common diagnosis codes for Avastin biosimilars are cancer-related. Due to these differences in dose administered we do not estimate beneficiary-level OOP savings for Avastin reference product versus biosimilars. Biosimilar payment limit is the volume-weighted average payment limit of biosimilars for each reference product. Potential annual OOP savings is based on the 20 percent Part B coinsurance rate and does not include the effects of supplemental coverage. The OOP savings range is based on average annual spending per beneficiary for the biosimilar with the highest payment limit (least savings) and the biosimilar with the lowest payment limit (most savings), compared to average annual spending per beneficiary using the reference product. OOP: out of pocket.

Figure 1 demonstrates that biosimilar uptake was generally higher for biologics where the biosimilar payment limit was lower relative to the reference product payment limit. For biosimilars with prices substantially lower than the reference product, beneficiaries could potentially save thousands of dollars in out-of-pocket spending annually by using the biosimilar (Table 2). Out-of-pocket cost estimates are based on the 20 percent Part B coinsurance rate and do not account for the effects of supplemental coverage.

In addition to differences in price for biosimilars compared to the reference product, note that these biologics also had differences in the number of available biosimilars (ranging from one for Epogen to six for Neulasta, shown in Table 1) and in the year of first biosimilar entry (ranging from 2015 for Neupogen to 2022 for Lucentis, shown in Table 3 below).

Figure 1. Biosimilar Uptake vs. Payment Limit, 2023



Notes: Estimates are based on 2023 Traditional Medicare Part B claims data. Each dot represents one of the eight biologic groups included in the study. Biosimilar uptake represents market share by units furnished to Traditional Medicare beneficiaries. Biosimilar payment limit is the volume-weighted average payment limit of biosimilars for each reference product.

Figure 2 shows payment limits (i.e., ASP plus add-on percentage) for reference products and biosimilars from Q1 2014 through Q4 2023. These results indicate two distinct pricing patterns following biosimilar entry.[17] The first pattern is for the price of the reference product to remain relatively high, which cedes greater market share to lower-priced biosimilars. Avastin, Herceptin, Neupogen, and Rituxan appeared to follow this pattern; notably, these were also the four products with the greatest biosimilar market share, ranging from 62 percent to 80 percent. The second pattern is for the reference product to compete with biosimilars on price, which retains a relatively greater market share for the reference product. Epogen, Neulasta, and Remicade appeared to follow this pattern, and for these biologics the reference product manufacturer retained the majority of the market in 2023 (biosimilar market share ranged from 30 percent to 48 percent). Lucentis began facing biosimilar competition in 2022 and cannot yet be clearly classified into one of these patterns.

Figure 2. Medicare Payment Limits for Biosimilars and Reference Products

Notes: Data is from CMS ASP Pricing files. The dose description of the HCPCS code for Neulasta was normalized to 0.5 mg to allow comparison across products and years. The dose description of the HCPCS code for Rituxan was normalized to 10 mg to allow comparison across years. In 2017 and Q1 2018, a single HCPCS code was initially used for two Remicade biosimilars; this combined payment limit is labeled in Figure 2 as "Infliximab biosimilars". Subsequently, each biosimilar was assigned a unique HCPCS code. Stimufend and Fylnetra (biosimilars to Neulasta) and Vegzelma (a biosimilar to Avastin) do not have published payment limits prior to Q4 2023; payment limit data for these products is not shown in Figure 2.

Estimated Savings

We estimate that biosimilar competition reduced Medicare Part B drug spending by $12.9 billion between 2018 and 2023, including $4.4 billion in savings in 2023, relative to a counterfactual without biosimilar entry (Table 3). These spending reductions represent 31 percent savings relative to what we project Medicare would have spent on these biologics from 2018 to 2023 in the absence of biosimilar competition, and 62 percent savings in 2023. For individual groupings of reference products and their biosimilars, we estimate that in 2023 Medicare saved 44 percent to 81 percent due to biosimilar competition. (This range excludes Lucentis, which did not have biosimilar competition until 2022).

$12.9 billion

in Medicare savings due to biosimilar competition in Part B from 2018-2023

We estimate that biosimilar competition reduced beneficiary out-of-pocket costs by $3.2 billion (31 percent) between 2018 and 2023, including $1.1 billion (62 percent) in 2023. We estimate that beneficiaries using one of these biologics saved nearly $2,000 on average in potential annual out-of-pocket costs in 2023 due to biosimilar competition. Out-of-pocket cost estimates are based on the 20 percent Part B coinsurance rate and do not account for the effects of supplemental coverage.*

Savings from biosimilar competition were decomposed into two sources: savings from switching to a biosimilar, and savings from reference product price reductions. The three reference products that were noted above to compete with biosimilars on price (Epogen, Neulasta, and Remicade) had a large portion of savings attributable to reference product price reductions (50 percent to 76 percent). In contrast, reference products that kept prices substantially higher than biosimilars (Avastin, Herceptin, Neupogen, and Rituxan) had only two percent to 17 percent of savings attributable to reference product price reductions, with savings instead being driven by biosimilar use.

* Note that because out-of-pocket cost estimates are based on the 20 percent Part B coinsurance rate, the percent reduction in out-of-pocket costs is equal to the percent reduction in Part B program spending.

Table 3. Estimated Traditional Medicare Savings from Biosimilar Competition

Reference Product	Estimated Savings (Medicare and OOP), 2023 (%)	Estimated Medicare Program Savings, 2023 (Millions)	Estimated OOP Savings, 2023 (Millions)	Estimated Annual OOP Savings per Beneficiary, 2023	Estimated Savings (Medicare and OOP), 2018-2023 (%)	Estimated Medicare Program Savings, 2018-2023 (Millions)	Estimated OOP Savings, 2018-2023 (Millions)	Year of Biosimilar Entry	Portion of Savings Attributable to Reference Product Price Reductions, 2018-2023
Avastin	58%	$693	$173	$1,152	28%	$1,732	$433	2019	13%
Epogen	49%	$85	$21	$358	29%	$343	$86	2018	50%
Herceptin	67%	$448	$112	$5,882	28%	$1,146	$287	2019	17%
Lucentis	1%	$5	$1	$11	0.1%	$5	$1	2022	-
Neulasta	81%	$1,423	$356	$4,263	45%	$4,052	$1,013	2018	62%
Neupogen	55%	$24	$6	$313	39%	$159	$40	2015	2%
Remicade	73%	$1,196	$299	$5,078	51%	$4,187	$1,047	2016	76%
Rituxan	44%	$541	$135	$2,124	16%	$1,253	$313	2019	14%
Total	*62%*	*$4,414*	*$1,104*	*$1,971*	*31%*	*$12,877*	*$3,219*	-	-

Notes: Estimates are based on 2018-2023 Traditional Medicare Part B claims data. Estimated savings due to biosimilar competition were calculated relative to a counterfactual where the ASP of the reference product was assumed to increase at the same rate as in the eight quarters prior to biosimilar entry; in the counterfactual, utilization of the reference product was assumed to be equal to the total utilization of the reference product and its biosimilars observed in claims data. Neupogen ASP was assumed to grow at the same rate as in the six quarters prior to biosimilar entry, as prior to this time (2014 Q1) Neupogen ASP was reported separately for different dose descriptions. Estimated Medicare program savings represent reduced Traditional Medicare Part B spending and do not include OOP spending. Potential annual OOP savings are based on the 20 percent Part B coinsurance rate and do not include the effects of supplemental coverage. Because OOP estimates are based on the 20 percent Part B coinsurance rate, the percent reduction in OOP costs is equal to the percent reduction in Part B program spending. Year of biosimilar entry represents the first year that a Medicare claim appears for a biosimilar. OOP: out of pocket.

Least Costly Alternative

We also estimated savings from a "least costly alternative" policy, where Medicare Part B payment in each quarter would be based on the product in the biologic group with the lowest payment limit (i.e., the lowest payment limit among a reference product and its biosimilars). As a hypothetical example, if the payment limit of a reference product is $100, the payment limit of Biosimilar 1 is $85, and the payment limit of Biosimilar 2 is $80, a least costly alternative policy would set the payment for all three biologics based on Biosimilar 2's payment limit of $80. This payment approach would need to be authorized by Congress as it is not currently within CMS authority.[18]

We estimate that Medicare would have saved an additional $3.1 billion (11 percent) between 2018 and 2023 if a least costly alternative policy had been in place, including nearly $1 billion (35 percent) in savings in 2023 (Table 4). We estimate that a least costly alternative policy would have reduced beneficiary out-of-pocket costs by $771 million (11 percent) between 2018 and 2023, including $238 million (35 percent) in 2023. We estimate that beneficiaries using one of these biologics would have saved an average of $424 in potential annual out-of-pocket costs in 2023 if a least costly alternative policy had been in place. Out-of-pocket cost estimates are based on the 20 percent Part B coinsurance rate and do not account for the effects of supplemental coverage. These estimates are based on the lowest payment limit observed in each quarter and do not account for any additional ASP reductions that might occur as a result of a least costly alternative policy.

Table 4. Estimated Traditional Medicare Savings from a Least Costly Alternative Policy

Reference Product	Estimated Savings (Medicare and OOP), 2023 (%)	Estimated Medicare Program Savings, 2023 (Millions)	Estimated OOP Savings, 2023 (Millions)	Estimated Annual OOP Savings per Beneficiary, 2023	Estimated Savings (Medicare and OOP), 2018-2023 (%)	Estimated Medicare Program Savings, Total 2018-2023 (Millions)	Estimated OOP Savings, Total 2018-2023 (Millions)
Avastin	31%	$154	$38	$256	13%	$550	$137
Epogen	2%	$2	$0.5	$8	4%	$37	$9
Herceptin	43%	$96	$24	$1,261	13%	$377	$94
Lucentis	8%	$34	$8	$80	1%	$34	$8
Neulasta	38%	$127	$32	$379	8%	$402	$101
Neupogen	56%	$11	$3	$145	24%	$61	$15
Remicade	41%	$185	$46	$784	16%	$671	$168
Rituxan	50%	$342	$85	$1,342	14%	$953	$238
Total	*35%*	*$950*	*$238*	*$424*	*11%*	*$3,085*	*$771*

Notes: Estimates are based on 2018-2023 Traditional Medicare Part B claims data. Savings from a least costly alternative policy were estimated by calculating Medicare spending in a counterfactual where payments in each quarter were based on the lowest payment limit among a reference product and its biosimilars; utilization and ASP were assumed to be unchanged. Estimated Medicare program savings represent reduced Traditional Medicare Part B spending and do not include OOP spending. Potential annual OOP savings are based on the 20 percent Part B coinsurance rate and do not include the effects of supplemental coverage. Because OOP estimates are based on the 20 percent Part B coinsurance rate, the percent reduction in OOP costs is equal to the percent reduction in Part B program spending. OOP: out of pocket.

New Users and Switchers

Table 5 shows that biosimilar users were more likely to be newly starting treatment within the biologic group, rather than switching from the reference product or a different biosimilar. In 2023, about 118,000 biosimilar users were newly starting treatment within the biologic group, compared to about 27,000 biosimilar users who were switching products. In total, 53 percent of biosimilar users in 2023 were newly starting treatment, 12 percent were switching from the reference product or a different biosimilar, and 35 percent were continuing treatment with the biosimilar.

Table 5. Traditional Medicare Total Biosimilar Users, New Users, and Switchers, 2023

Reference Product	Total Biosimilar Users	New Users	Switchers	Continuing Users	New Users, Percent of Total Biosimilar Users	Switchers, Percent of Total Biosimilar Users	Continuing Users, Percent of Total Biosimilar Users
Avastin	28,693	14,812	1,159	12,722	52%	4%	44%
Epogen	29,692	14,255	1,719	13,718	48%	6%	46%
Herceptin	15,584	6,853	420	8,311	44%	3%	53%
Lucentis	34,824	17,266	16,237	1,321	50%	47%	4%
Neulasta	38,721	26,169	2,508	10,044	68%	6%	26%
Neupogen	14,459	10,680	343	3,436	74%	2%	24%
Remicade	19,620	4,817	1,962	12,841	25%	10%	65%
Rituxan	39,213	22,927	2,307	13,979	58%	6%	36%
Total	*220,806*	*117,779*	*26,655*	*76,372*	*53%*	*12%*	*35%*

Notes: Estimates are based on 2023 Traditional Medicare Part B claims data. New users are beneficiaries using a biosimilar in 2023 who did not have a claim for the reference product or any of its biosimilars in the previous year. Switchers are beneficiaries using a biosimilar in 2023 who had a claim for the reference product or a different biosimilar in the previous year. Continuing users are biosimilar users who used the same biosimilar in the previous year (i.e., all biosimilar users not identified as a new user or switcher).

Beneficiary Demographics

Table 6 shows demographic characteristics for Traditional Medicare beneficiaries using each reference product and its biosimilars. The demographic characteristics of beneficiaries using reference products and biosimilars were generally similar.

Table 6. Traditional Medicare Beneficiary Demographic Characteristics of Biosimilar and Reference Product Users, 2023

Reference Product Name	Reference Product or Biosimilar	Non-Hispanic White (%)	Non-Hispanic Black (%)	Asian (%)	Hispanic (%)	Native American (%)	Other Races (%)	Dual Eligibles (%)	Under Age 65 (%)	Female (%)
Avastin	Reference	82%	6%	3%	6%	1%	1%	17%	8%	60%
	Biosimilar	79%	7%	3%	6%	0%	1%	17%	13%	61%
Epogen	Reference	74%	12%	5%	7%	0%	1%	14%	5%	54%
	Biosimilar	73%	14%	4%	6%	0%	1%	15%	7%	53%
Herceptin	Reference	78%	8%	4%	6%	0%	1%	17%	15%	91%
	Biosimilar	80%	8%	4%	5%	0%	1%	15%	12%	91%
Lucentis	Reference	89%	3%	2%	4%	0%	1%	8%	3%	63%
	Biosimilar	86%	3%	3%	5%	1%	1%	12%	3%	63%
Neulasta	Reference	80%	8%	3%	5%	0%	1%	14%	8%	58%
	Biosimilar	82%	7%	3%	4%	0%	1%	13%	8%	55%
Neupogen	Reference	77%	8%	4%	6%	0%	1%	14%	11%	55%
	Biosimilar	81%	7%	3%	5%	0%	1%	12%	8%	55%
Remicade	Reference	85%	6%	1%	4%	0%	1%	10%	13%	64%
	Biosimilar	84%	7%	1%	4%	0%	1%	15%	18%	63%
Rituxan	Reference	80%	7%	2%	6%	0%	1%	13%	15%	64%
	Biosimilar	83%	5%	3%	5%	0%	1%	11%	10%	52%
Medicare Population Overall	-	72%	11%	4%	10%	0%	3%	19%	11%	54%

Notes: Estimates are based on 2023 Traditional Medicare Part B claims data. Estimates for Medicare population overall are drawn from CMS Medicare Monthly Enrollment data and include both Traditional Medicare and Medicare Advantage enrollees.[19]

Provider Characteristics

Table 7 shows biosimilar uptake (i.e., percent of services where a biosimilar was administered) according to several provider characteristics. Providers eligible for the 340B Drug Pricing program used biosimilars at lower rates than providers not eligible for 340B.* Certain individual biologics had different rates of biosimilar use according to other provider characteristics. However, there was no consistent relationship across biologics between biosimilar uptake and the following provider characteristics: hospital outpatient vs. physician office, Accountable Care Organization (ACO) status, teaching hospital status, Disproportionate Share Hospital (DSH) status, and urban vs. rural physician status.

* The federal 340B Drug Pricing Program allows qualifying providers that treat low-income and uninsured patients to purchase medications at a discount.

Table 7. Traditional Medicare Biosimilar Uptake by Provider Characteristics, 2023

Biosimilar Uptake (%)														
	All		HOPDs								MD offices			
Reference Product	HOPDs	MD offices	340B	Non-340B	ACO	Non-ACO	Teaching	Non-Teaching	DSH	Non-DSH	ACO (MD)	Non-ACO (MD)	Urban MDs	Rural MDs
Avastin	80%	15%	80%	81%	78%	80%	80%	80%	82%	74%	13%	15%	15%	14%
Epogen	65%	40%	63%	70%	46%	66%	65%	65%	66%	62%	60%	36%	42%	22%
Herceptin	75%	87%	74%	80%	78%	75%	74%	77%	76%	72%	82%	87%	86%	88%
Lucentis	2%	26%	1%	10%	2%	2%	2%	4%	2%	1%	21%	27%	26%	27%
Neulasta	40%	54%	40%	40%	59%	40%	39%	41%	42%	31%	49%	54%	54%	48%
Neupogen	50%	87%	48%	61%	77%	49%	49%	53%	48%	57%	92%	87%	87%	86%
Remicade	48%	18%	46%	56%	38%	49%	47%	50%	48%	48%	21%	17%	17%	27%
Rituxan	69%	58%	67%	76%	62%	69%	68%	72%	69%	70%	52%	59%	57%	66%

Notes: Estimates are based on 2023 Traditional Medicare Part B claims data. Biosimilar uptake represents percent of services for the reference product or its biosimilars where a biosimilar was administered. HOPD: hospital outpatient department. MD office: physician office. ACO: Accountable Care Organization. DSH: Disproportionate Share Hospital.

Biosimilar Prescribing by 340B-Eligible Providers

A substantial portion of services for the biologics in this study occurred at 340B-eligible providers. Excluding the two biologics with ophthalmology uses, between 30 percent and 51 percent of services for these biologics occurred at 340B-eligible providers. Table 8 also shows the weighted average payment limit based on the prescribing mix at 340B-eligible providers compared to non-340B-eligible providers. (E.g., the weighted average payment limit is higher when providers have a greater proportion of services where a higher-priced reference product is prescribed.) For three biologics where the reference product is substantially more expensive than its biosimilars (Herceptin, Neupogen, and Rituxan), Medicare is effectively paying 340B-eligible providers 12-13 percent more than non-340B-eligible providers due to lower biosimilar prescribing. We estimate that if biosimilar prescribing patterns at 340B-eligible hospital outpatient providers were the same as at non-340B-eligible hospital outpatient providers, Medicare would have saved $55 million in 2023 and beneficiaries would have saved up to $14 million.

Table 8. Traditional Medicare Biologic Prescribing and Potential for Savings Among 340B-Eligible Providers, 2023

Reference Product	340B Services, Percent of Total Services (All)	340B Services, Percent of Total Services (Reference Product)	Ratio of 340B Payment Limit to Non-340B Payment Limit	Estimated Savings if 340B Biosimilar Uptake Equal to Non-340B Biosimilar Uptake (Medicare and OOP) (%)	Estimated Medicare Program Savings if 340B Biosimilar Uptake Equal to Non-340B Biosimilar Uptake	Estimated OOP Savings if 340B Biosimilar Uptake Equal to Non-340B Biosimilar Uptake
Avastin	17%	5%	102%	0.8%	$3,772,528	$943,132
Epogen	30%	22%	100%	0.0%	$(39,962)	$(9,991)
Herceptin	48%	61%	113%	6.1%	$13,509,088	$3,377,272
Lucentis	2%	2%	98%	0.0%	$(142,091)	$(35,523)
Neulasta	51%	55%	100%	0.0%	$(68,774)	$(17,193)
Neupogen	26%	55%	112%	4.8%	$969,184	$242,296
Remicade	33%	25%	102%	0.7%	$3,107,921	$776,980
Rituxan	44%	40%	112%	4.9%	$33,811,760	$8,452,940
Total	-	-	-	*2.0%*	*$54,919,654*	*$13,729,913*

Notes: Estimates are based on 2023 Traditional Medicare Part B claims data. Ratio of 340B payment limit to non-340B payment limit represents the volume-weighted average payment limit of products administered at 340B-eligible providers divided by the volume-weighted average payment limit of products administered at non-340B-eligible providers. Estimated Medicare program savings represent reduced Traditional Medicare Part B spending and do not include OOP spending. Potential annual OOP savings are based on the 20 percent Part B coinsurance rate and do not include the effects of supplemental coverage. OOP: out of pocket.

Summary of Savings Estimates

Estimated savings from a least costly alternative policy and increasing biosimilar uptake at 340B-eligible providers are summarized in Table 9.

Table 9. Estimated Savings from Biosimilar Reforms, 2023

	Estimated Savings (Medicare and OOP), 2023 (%)	Estimated Medicare Program Savings, 2023 (Millions)	Estimated OOP Savings, 2023 (Millions)
Least Costly Alternative Payment	35%	$950	$238
Increase Biosimilar Uptake at 340B-Eligible Providers	2%	$55	$14

Notes: Estimates are based on 2023 Traditional Medicare Part B claims data. Savings from a least costly alternative policy were estimated by calculating Medicare spending in a counterfactual where payments in each quarter were based on the lowest payment limit among a reference product and its biosimilars; utilization and ASP were assumed to be unchanged. Savings from increasing biosimilar uptake at 340B-eligible providers were estimated by calculating spending if biosimilar prescribing patterns at 340B-eligible hospital outpatient providers were the same as at non-340B-eligible hospital outpatient providers. Estimated Medicare program savings represent reduced Traditional Medicare Part B spending and do not include OOP spending. Potential annual OOP savings are based on the 20 percent Part B coinsurance rate and do not include the effects of supplemental coverage. Because OOP estimates are based on the 20 percent Part B coinsurance rate, the percent reduction in OOP costs is equal to the percent reduction in Part B program spending. OOP: out of pocket.

DISCUSSION

This report contributes to a growing literature on biosimilar use in the United States. Our finding that biosimilar users are more likely to be newly starting treatment rather than switching products during treatment may partly explain the observation that biosimilar uptake increases gradually over many years following biosimilar entry to the market.[20] Previous authors have also noted the two distinct reference product pricing patterns after biosimilar entry identified in this report (i.e., manufacturers of reference products either keeping prices relatively high or competing with biosimilars by lowering the reference product's price).[21] Further work would be helpful in understanding the factors potentially driving different pricing and uptake patterns across products, such as prescriber and patient preferences, differing clinical indications, and market dynamics outside of Traditional Medicare. Our finding that 340B-eligible providers have lower biosimilar uptake is consistent with prior research.[22, 23] Further work would be helpful in illuminating the factors driving biosimilar prescribing patterns at 340B vs. non-340B eligible providers, and in understanding the reasons for no consistent increase in biosimilar prescribing in ACOs despite the financial incentive provided by shared savings. This study also builds on a recent report by the HHS Office of the Inspector General which found substantial variation in biosimilar uptake across products and estimated that a least costly alternative payment policy would lead to significant spending reductions; as noted in the report, implementation of such a policy would need to account for potential implications for future biosimilar development.[24]

CONCLUSION

Biosimilar competition in Medicare Part B has led to significant uptake of biosimilars and substantial savings to the Medicare program, enrollees, and taxpayers, though experience has varied across biologics. Certain reference products have prices more than double their biosimilar competitors while still retaining considerable market share, indicating that opportunities remain to further improve competition and savings. Overall, our results suggest that substantial savings are possible for the Medicare program, enrollees, and taxpayers through policies that expedite biosimilar entry, increase biosimilar uptake, and reform Part B payment for biosimilars.

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