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Growth in the cost of biologics in Medicare beneficiaries, 2013 to 2016

To the Editor: Prescription drugs are more than twice as expensive per capita in the United States than anywhere else in the world, largely because of exclusive marketing rights granted by the US Food and Drug Administration.[1] Biologic medications for psoriasis and other disorders have no true bioequivalent substitutes. Biosimilars and competing biologics are competitors but are not interchangeable. This distinction precludes automatic substitution at the point of sale and the price decrease associated with entry of generics.[2] As such, costs of biologics are likely driven by other market factors. We sought to determine how prices of biologics have changed over time in the United States.

We examined the pricing of 7 biologic medications used for psoriasis (adalimumab, etanercept, infliximab, and ustekinumab) and other disorders (rituximab, abatacept, and omalizumab). Data from the Centers for Medicare and Medicaid Services' (CMS) Part D 2013-2016 Public Use Files[3] were analyzed, including prescriber specialty and state, prescription year, and geographic region (Table I). Mean drug cost per day of medication was determined to account for different dosing by indication. This was defined as the cost of dispensed drug divided by the aggregate number of day's supply dispensed. Prices were adjusted for inflation to 2016 US dollars using the Bureau of Labor Statistics' Consumer Price Index[4] and compared between years for each biologic medication (Fig 1).

Table I. Characteristics of biologic prescribers and prescriptions

Variable	Prescriber frequency	Claim frequency
Prescriber type, n (%)		
Rheumatology	35,267 (44.9)	1,789,485 (63.6)
Allergy/immunology	847 (1.1)	19,757 (0.7)
Dermatology	10,771 (13.7)	223,595 (7.9)
Family practice	2950 (3.8)	182,481 (6.5)
Gastroenterology	9081 (11.6)	306,809 (10.9)
Internal medicine	9339 (11.9)	95,909 (3.4)
Nurse practitioner	3504 (4.5)	3504 (4.5)
Physician assistant	3615 (4.6)	91,169 (3.2)
Other	3106 (4.0)	60,195 (2.1)
Region, n (%)		
South	29,087 (37.1)	1,110,180 (39.4)
Midwest	16,954 (21.6)	603,653 (21.4)
Northeast	16,397 (20.9)	533,393 (19.0)
West	16,040 (20.4)	567,322 (20.2)
Year, n (%)		
2013	16,615 (21.2)	639,084 (22.7)
2014	18,590 (23.7)	707,403 (25.1)
2015	20,948 (26.7)	717,172 (25.5)
2016	22,325 (28.5)	750,889 (26.7)

The most frequent biologic prescribers were rheumatologists. Dermatologists were the second most frequent biologic prescribers; however, there were more biologic prescriptions for gastrointestinal than dermatologic indications. The number of prescribers increased each year between 2013 and 2016, with providers from the South most likely to prescribe biologics. Adalimumab and etanercept were the least expensive of the psoriasis biologics across all years, with abatacept and omalizumab being the least expensive overall.

Significant price increases were observed for all biologics. Adalimumab had the highest annualized growth rate (18.1%) while rituximab had the lowest (2.3%). Ustekinumab was initially the most expensive biologic drug for psoriasis in 2013 but was overtaken by infliximab in 2015 to 2016.

These results indicate that prices of biologics for Medicare have increased faster than inflation and

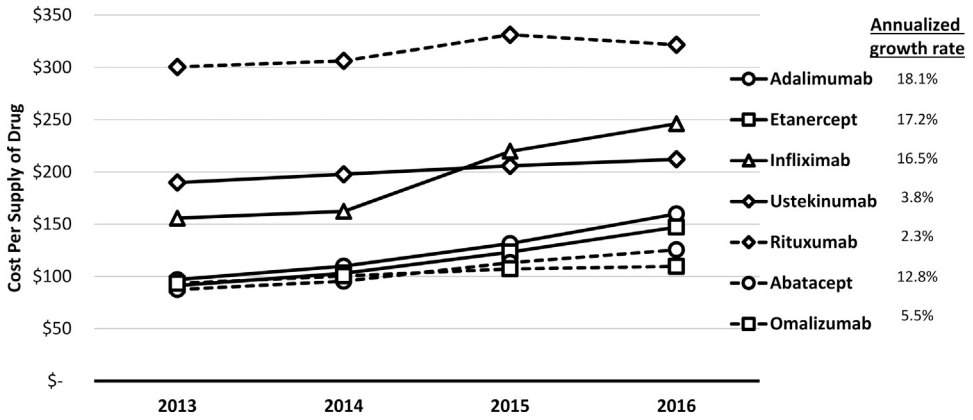

Fig 1. Trends in cost per day of biologic medication. Mean cost per day of medication per provider (95% confidence intervals) are plotted by calendar year for biologics approved for psoriasis (solid line) or only other indications (dashed line). All costs are corrected for inflation with reporting in terms of 2016 US dollars. Annualized growth of expenditure per day of medication for adalimumab, etanercept, infliximab, ustekinumab, rituximab, abatacept, and omalizumab were 18.1%, 17.2%, 16.5%, 3.8%, 2.3%, 12.8%, and 5.5%, respectively.

were most drastic for older drugs. The 4 drugs with price growth >10% were all approved by the US Food and Drug Administration between 9 and 15 years before the beginning of the claims data, while ustekinumab was only approved 4 years earlier. Moreover, drugs with the fastest growth have more indications than ustekinumab, which is only approved for plaque psoriasis. In particular, adalimumab, etanercept, infliximab, and abatacept all have rheumatologic indications, which may be driving pricing increases. These patterns may also suggest that manufacturers increased prices as Medicare and clinicians developed a higher willingness to pay and clinicians developed greater clinical experience and comfort with these drugs.

This study is limited by the lack of transparency in the true pricing of these drugs with respect to negotiated rebates and discounts. Moreover, we cannot confirm the external validity of the study with respect to commercial payers or Medicaid. Future studies are needed to better understand the reasons for cost increases of biologics in the United States.

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Long-term safety results from a phase 3 open-label study of a fixed combination halobetasol propionate 0.01% and tazarotene 0.045% lotion in moderate-to-severe plaque psoriasis

To the Editor: Psoriasis is a chronic immune-mediated disease with a variable natural history marked by remissions and exacerbations that is