Medicare Part D Prescription Claims for Brodalumab: Analysis of Annual Trends for 2017-2019

Aislyn Oulee, BS; Sogol S. Javadi, BS; Grace Sora Ahn, BS; Julia-Tatjana Maul, MD; Jashin J. Wu, MD

PRACTICE **POINTS**

- Brodalumab is associated with a boxed warning due to increased suicidal ideation and behavior (SIB), including completed suicides, during clinical trials.
- Brodalumab is underutilized compared to the other US Food and Drug Administration–approved IL-17 inhibitors used to treat psoriasis.
- Most experts agree that there is no increased risk for suicide associated with brodalumab. However, it remains imperative that prescribers assess patients' risk of SIB and subsequently their access to appropriate psychiatric services prior to initiating and during treatment with brodalumab.

To the Editor:

Brodalumab, a monoclonal antibody targeting IL-17RA, was approved by the US Food and Drug Administration (FDA) in 2017 for the treatment of moderate to severe chronic plaque psoriasis. The drug is the only biologic agent available for the treatment of psoriasis for which a psoriasis area severity index score of 100 is a primary end point.[1,2] Brodalumab is associated with an FDA boxed warning due to an increased risk for suicidal ideation and behavior (SIB), including completed suicides, during clinical trials.

We sought to characterize national utilization of this effective yet underutilized drug among Medicare beneficiaries by surveying the Medicare Part D Prescriber dataset.[3] We tabulated brodalumab utilization statistics and characteristics of high-volume prescribers who had 11 or more annual claims for brodalumab.

Despite its associated boxed warning, the number of Medicare D claims for brodalumab increased by 1756 from 2017 to 2019, surpassing $7 million in costs by 2019. The number of beneficiaries also increased from 11 to 292—a 415.2% annual increase in beneficiaries for whom brodalumab was prescribed (Table 1).

In addition, states in the West and South had the highest utilization rates of brodalumab in 2019. There also was an increasing trend toward high-volume prescribers of brodalumab, with private practice clinicians constituting the majority (Table 2).

There was a substantial increase in advanced practice providers including nurse practitioners and physician assistants who were brodalumab prescribers. Although this trend might promote greater access to brodalumab, it is vital to ensure that advanced practice providers receive targeted training to properly understand the complexities of treatment with brodalumab.

Ms. Oulee, Ms. Javadi, and Ms. Ahn are from the Dermatology Research and Education Foundation, Irvine, California. Ms. Oulee also is from the University of California Riverside School of Medicine. Ms. Javadi also is from the David Geffen School of Medicine, University of California, Los Angeles. Ms. Ahn also is from the University of California San Diego School of Medicine, La Jolla. Dr. Maul is from the Department of Dermatology, University Hospital Zurich, Switzerland. Dr. Wu is from the Department of Dermatology, University of Miami Miller School of Medicine, Florida.

Ms. Oulee, Ms. Javadi, and Ms. Ahn report no conflict of interest. Dr. Maul has served as an advisor for, has received speaking fees from, and/or has participated in clinical trials for AbbVie, Almirall, Amgen, Bristol Myers Squibb, Celgene Corporation, Eli Lilly and Company, Janssen-Cilag, LEO Pharma, MSD, Novartis, Pfizer Inc, Pierre Fabre, Roche, Sanofi, and UCB. Dr. Wu is or has been an investigator, consultant, or speaker for AbbVie, Almirall, Amgen, Arcutis, Aristea Therapeutics, Bausch Health, Boehringer Ingelheim, Bristol-Myers Squibb, Dermavant, DermTech, Dr. Reddy's Laboratories, Eli Lilly & Company, EPI Health, Galderma, Janssen, LEO Pharma, Mindera, Novartis, Regeneron, Samsung Bioepis, Sanofi Genzyme, Solius, Sun Pharmaceutical, UCB, Valeant Pharmaceuticals North America LLC, and Zerigo Health.

Correspondence: Jashin J. Wu, MD (jashinwu@gmail.com).

doi:10.12788/cutis.0625

Copyright Cutis 2022. No part of this publication may be reproduced, stored, or transmitted without the prior written permission of the Publisher.

TABLE 1. Annual Trends in Medicare Part D Brodalumab Claims, Costs, and Beneficiaries, 2017-2019

Utilization statistic[a]	Total of all years	2017	2018	2019	Average annual rate of change,[b] %	*P* value[c]
Claims, n	2567	29	753	1785	684.5	<.001
Normalized total claims for every 100,000 Medicare Part D beneficiaries,[d] n	5.7	0.1	1.7	3.9	524.5	<.001
Total Medicare Part D benefit recipients, n	472	11	169	292	415.2	.046
Mean claims per beneficiary, n	13.2	2.6	4.5	6.1	53.2	.032
Cost of all claims, $	10,331,315.82	123,026.25	3,135,421.25	7,072,868.32	658	.049
Average spending per claim, $	12,368.58	4242.28	4163.90	3962.40	−3.4	.002
Average spending per beneficiary, $	53,959.14	11,184.20	18,552.80	24,222.15	47.2	.048
Total prescribing clinicians, n	389	9	144	236	913.1	<.001

[a]Utilization statistics represent the total values for all prescribers in each given year.

[b]The average annual rate of change was determined using a compound growth rate.

[c]*P* values were calculated for each utilization statistic using a linear regression model.

[d]The number of claims represents the total number of prescriptions filled, including initial prescriptions and refills. Claims were normalized by dividing the number claims by the total number of national Medicare part D beneficiaries in each year.

Although the utilization of brodalumab has increased since 2017 ($P<.001$), it is still underutilized compared to the other IL-17 inhibitors secukinumab and ixekizumab. Secukinumab was FDA approved for the treatment of moderate to severe plaque psoriasis in 2015, followed by ixekizumab in 2016.[4]

According to the Medicare Part D database, both secukinumab and ixekizumab had a higher number of total claims and prescribers compared to brodalumab in the years of their debut.[3] In 2015, there were 3593 claims for and 862 prescribers of secukinumab; in 2016, there were 1731 claims for and 681 prescribers of ixekizumab. In contrast, there were only 29 claims for and 11 prescribers of brodalumab in 2017, the year that the drug was approved by the FDA. During the same 3-year period, secukinumab and ixekizumab had a substantially greater number of claims—totals of 176,823 and 55,289, respectively—than brodalumab. The higher number of claims for secukinumab and ixekizumab compared to brodalumab may reflect clinicians' increasing confidence in prescribing those drugs, given their long-term safety and efficacy. In addition, secukinumab and ixekizumab do not require completion of a Risk Evaluation and Mitigation Strategy (REMS) program, which makes them more readily prescribable.[3]

Overall, most experts agree that there is no increase in the risk for suicide associated with brodalumab compared to the general population. A 2-year pharmacovigilance report on brodalumab supports the safety of this drug.[5] All participants who completed suicide during the clinical trials harbored an underlying psychiatric disorder or stressor(s).[6]

Although causation between brodalumab and SIB has not been demonstrated, it remains imperative that prescribers diligently assess patients' risk of SIB and subsequently their access to appropriate psychiatric services as a precaution, if necessary. This is particularly important for private practice prescribers, who constitute the majority of Medicare D brodalumab claims, because they must ensure collaboration with a multidisciplinary team involving mental health providers. Lastly, considering that the highest number of brodalumab Medicare D claims were in western and southern states, it is critical to note that those 2 regions also harbor comparatively fewer mental health facilities that accept Medicare than other regions of the country.[7] Prescribers in western and southern states must be mindful of mental health coverage limitations when treating psoriasis patients with brodalumab.

The increase in the number of claims, beneficiaries, and prescribers of brodalumab during its first 3 years of

Copyright Cutis 2022. No part of this publication may be reproduced, stored, or transmitted without the prior written permission of the Publisher.

TABLE 2. Characterization of High-Volume Prescribers With 11 or More Annual Claims for Brodalumab

Characteristic	2018	2019	Change, %
Prescribers who filed ≥11 claims for brodalumab,[a,b] n	14	67	378.6
Prescriber's sex, n			
Male	9	38	322.2
Female	5	29	480
Type of provider, n			
Dermatologist	13	51	292.3
Advanced practice provider[c]	1	16	1500
Practice setting, n			
Private practice	8	46	475
Large multispecialty group or hospital	4	11	175
Academic hospital	2	10	400
Region,[d] n			
Northeast	2	12	500
Midwest	3	11	266.7
South	6	23	283.3
West	3	21	600

[a]Individual attributes of prescribers with <11 annual claims could not be obtained due to dataset privacy regulations. Prescribers with low or moderate utilization are not represented here.

[b]No prescriber had ≥11 claims in 2017; therefore, prescriber characteristics for 2017 are not presented here.

[c]Nurse practitioners and physician assistants.

[d]The National Provider Identifier for each prescriber with ≥11 claims, as supplied by the provider datasets, was used to identify the practice setting and geographic region of the clinic.

availability might be attributed to its efficacy and safety. On the other hand, the boxed warning and REMS associated with brodalumab might have led to underutilization of this drug compared to other IL-17 inhibitors.

Our analysis is limited by its representative restriction to Medicare patients. There also are limited data on brodalumab given its novelty. Individual attributes of prescribers with fewer than 11 annual claims for brodalumab could not be obtained because of dataset regulations; however, aggregated utilization statistics provide an indication of brodalumab prescribing patterns among all providers. Furthermore, during this analysis, data on the Medicare D database were limited to 2013 through 2020. Studies are needed to determine prescribing patterns of brodalumab since this study period.

REFERENCES

1. Foulkes AC, Warren RB. Brodalumab in psoriasis: evidence to date and clinical potential. *Drugs Context*. 2019;8:212570. doi:10.7573/dic.212570
2. Beck KM, Koo J. Brodalumab for the treatment of plaque psoriasis: up-to-date. *Expert Opin Biol Ther*. 2019;19:287-292. doi:10.1080/14712598.2019.1579794
3. Centers for Medicare & Medicaid Services. Medicare Part D Prescribers. Updated July 27, 2022. Accessed September 23, 2022. https://data.cms.gov/provider-summary-by-type-of-service/medicare-part-d-prescribers/medicare-part-d-prescribers-by-provider
4. Drugs. US Food and Drug Administration website. Accessed September 23, 2022. https://www.fda.gov/drugs
5. Lebwohl M, Leonardi C, Wu JJ, et al. Two-year US pharmacovigilance report on brodalumab. *Dermatol Ther (Heidelb)*. 2021;11:173-180. doi:10.1007/s13555-020-00472-x
6. Lebwohl MG, Papp KA, Marangell LB, et al. Psychiatric adverse events during treatment with brodalumab: analysis of psoriasis clinical trials. *J Am Acad Dermatol*. 2018;78:81-89.e5. doi:10.1016/j.jaad.2017.08.024
7. Substance Abuse and Mental Health Services Administration. *National Mental Health Services Survey (N-MHSS): 2019, Data On Mental Health Treatment Facilities*. Rockville, MD: Substance Abuse and Mental Health Services Administration; August 13, 2020. Accessed September 21, 2022. https://www.samhsa.gov/data/report/national-mental-health-services-survey-n-mhss-2019-data-mental-health-treatment-facilities

Copyright Cutis 2022. No part of this publication may be reproduced, stored, or transmitted without the prior written permission of the Publisher.