Medicare Physician-Administered Drugs: Do Providers Choose Treatment Based on Payment Amount?

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Executive Summary

The Medicare Part B program reimburses providers for physician-administered (via infusion or injection) drugs and biologics given in the office setting. This program, which sets payment rates based on the average sales price (ASP) negotiated for the drugs in the market, has been criticized as creating a financial incentive for physicians to prescribe more expensive drugs rather than less expensive alternatives. This criticism is based on assumptions that many physician-administered drugs that treat the same condition (eg, cancer or rheumatoid arthritis [RA]) offer similar efficacy and side effect profiles, and that the physician prescribing in these instances is guided by financial incentives rather than the clinical needs of the patient. Many physicians counter that medicines are not often interchangeable, and their prescribing is guided by best available evidence on the safety and effectiveness of medicines and the needs and values of the individual patient.

The challenge to that belief is that it is an assumption, rather than reliance on data to demonstrate that providers are prescribing based on revenue. If this criticism of the ASP-based Medicare Part B payment rate is true, and prescribing is driven by the reimbursement differences among drugs that have similar clinical effects, then one would expect to see this reflected in utilization patterns. Specifically, utilization would generally be higher for drugs that are more expensive in the office setting, and would follow trends consistent with changes in per-patient reimbursement.

Xcenda tested the hypothesis that prescribers of physician-administered drugs disproportionately prescribe therapies with higher reimbursement rates to financially benefit from larger add-on payments. Xcenda analyzed claims data for Medicare Part B fee-for-service beneficiaries receiving physician-administered drugs for RA, breast cancer (BC), and non-small cell lung cancer (NSCLC) in the office setting. The lack of a strong, positive correlation between drug payment and utilization suggests that physician prescribing is not driven by payment-per-drug administration.

In total, changes in 2016 RA payment explain only 5% of variation in office utilization, suggesting 95% of office utilization is attributable to factors other than payment rates.

In 2016, less than 1% of the variation in utilization in BC can be attributed to payment rates; indicating other factors beyond payment played a significant role in driving prescribing.

Only 1% of the variation of the utilization in NSCLC can be attributed to payment rates in 2016; payment rates do not appear to drive utilization.

Our findings indicate that there is no meaningful correlation between drug payment and utilization, challenging the theory that physicians significantly favor drugs with high add-on payments.

These findings call into question claims made by some that the ASP+6% add-on payment rate for prescription drug reimbursement in Medicare Part B distorts prescribing decisions.[1] The results of this analysis should temper expectations that substantial savings would be achieved through reforms to Part B that assume that the ASP system drives inappropriate spending among clinically similar drugs.

Introduction

Congress enacted the ASP payment methodology in 2003, providing a transparent basis to reimburse providers for administering drugs to fee-for-service Medicare Part B patients. With growing concern about drug spending and discussions around cost controls, the ASP+6% add-on payment rate has been highlighted as a driver of physician prescribing and increased costs to the United States healthcare system.[2-4]

Those who disapprove of this methodology believe doctors are motivated to utilize more expensive drugs because the add-on payment is greater, insinuating prescribers are driven by revenue and not what is best for their patients. However, many physicians reject this criticism, arguing that their decisions are informed by treatment guidelines, introduction of new treatments, and clinical knowledge of each individual patient's needs and preferences.[5]

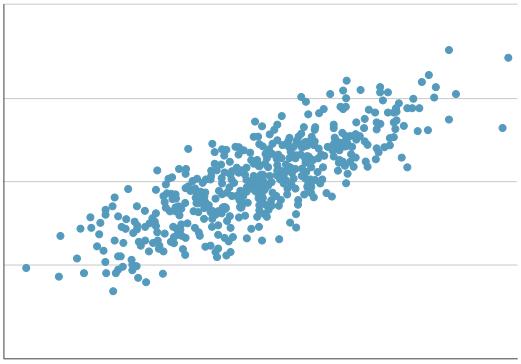
Given that limited data exists on this issue to justify material changes to the Medicare program and provider drug reimbursement, Xcenda tested the hypothesis that prescribers of physician-administered drugs disproportionately prescribe therapies with higher reimbursement rates and larger add-on payments.

Approach

To assess the relationship between payment rates and utilization, providers treating patients with RA, BC, and NSCLC in the office setting were identified in the 2016 Medicare 5% Carrier Standard Analytic File. Rheumatology and oncology products were selected as these specialties have a significant volume of Part B drug utilization in their practices, and drug payments represent a significant portion of their practice revenue.

Average payment per administration and utilization were calculated at the provider level, weighted by the number of administrations, and tested for correlation using Pearson's correlation coefficient. The Pearson correlation coefficient measures the linear association between 2 continuous variables and has a value between +1 and −1. Values closer to 1 represent strong positive correlation, indicating that an increase in 1 variable would be associated with an increase in the other variable. A value closer to −1 represents negative correlation, indicating an inverse relationship where a decrease in 1 variable is associated with an increase in the other variable. Values close to 0 indicate no linear correlation; a change in 1 variable would have little-to-no effect on the other variable.[6,7] The example on the right illustrates a strong correlation, which one would expect to see if payment amount significantly influenced physician utilization. We used Pearson correlation here to determine if there was any significant correlation between average payment per administration and utilization.*

Example of strong correlation (Pearson's correlation=0.8)



*To account for outliers, for all drugs of interest the top and bottom 2.5% of providers (5% total) based on their average payment per administration were excluded from this analysis.

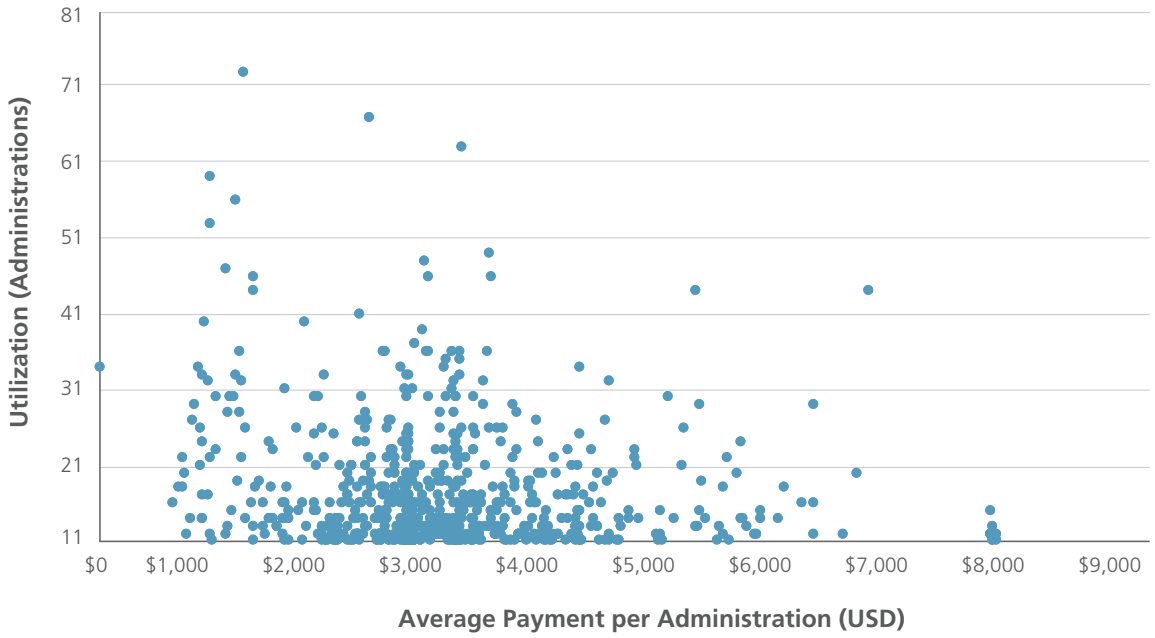
Rheumatoid Arthritis

In 2016, total Medicare payments for 7 RA drugs of interest in physician offices totaled $2.1 billion, representing 13.5% of spending for Medicare Part B drugs in total ($15.5 billion). We estimate that for every $1 increase in the average payment for a drug, the average administration count per provider decreased 0.002 in the physician office setting. Our analysis did not identify evidence that higher payment led to increased utilization of certain RA drugs (**Figure 1**). Correlation analysis suggests that physicians did not systematically favor drugs with higher add-on payments (correlation coefficients ranged from -0.41 to 0.14).

The lack of a strong, positive correlation between payment rates and provider utilization was consistent from 2012 to 2016. Increases in payment for physician-administered RA drugs do not appear associated with increased utilization (**Appendix A: Tables A-1, A-2**). We identified both minor positive and negative correlations between payment amount and utilization of RA drugs. From 2012 to 2016, there was no evidence to support the hypothesis that increased payment was associated with increased utilization ($\rho_{overall}$=-0.14, *P*<0.0001).

In total, changes in payment explain only 5% of variation in office utilization, suggesting 95% of office utilization is attributable to factors other than payment rates.

Figure 1. Utilization and Payment Rates in the Physician Office Setting for Medicare Part B Medicines for RA, 2016.*



*Administrations with counts less than 11 were analyzed but excluded from graphs in order to comply with the Federal Privacy Act, 5 U.S.C. Section 552a and the HIPAA Privacy Rule, 45 C.F.R Parts 160 and 164.

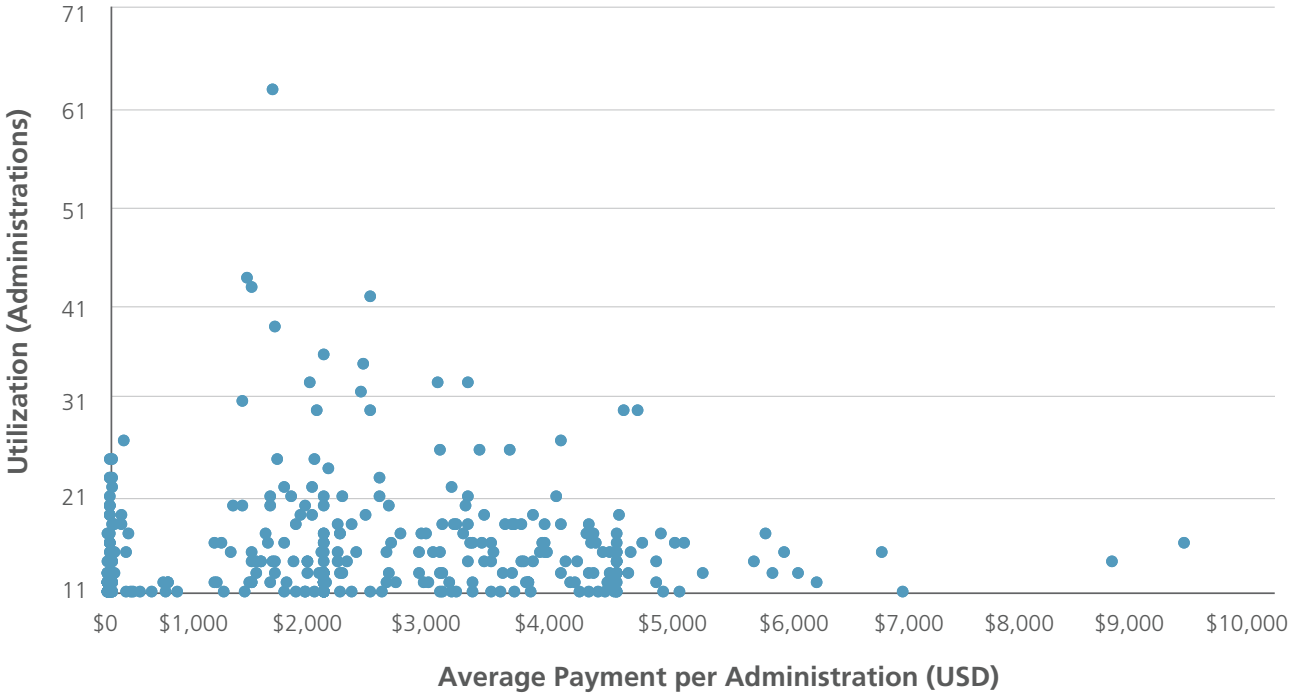
Breast Cancer

Our analysis for drugs to treat BC yielded similar results (**Figure 2**). While use of these drugs in the physician office represented a smaller portion of total Medicare Part B drug spending than RA products ($0.8 billion for 22 BC drugs), oncology practices are major drivers of Part B drug spending and their practices are deeply acquainted with physician-administered drugs.

There was not a strong, positive correlation between payment rates and provider utilization between 2012 and 2016. The results suggest increases in payment for BC physician-administered drugs were not connected with increased utilization (**Appendix A: Tables A-3, A-4**). We found both minor positive and negative correlations between payment amount and utilization in BC. From 2012 to 2016, there was lack of support to demonstrate that higher payment was associated with higher utilization ($\rho_{overall}$=0.04, *P*=<0.0001).

In 2016, less than 1% of the variation in utilization in BC can be attributed to payment rates; indicating other factors beyond payment played a significant role in driving prescribing.

Figure 2. Utilization and Payment Rates in the Physician Office Setting for Medicare Part B Medicines for BC, 2016.*



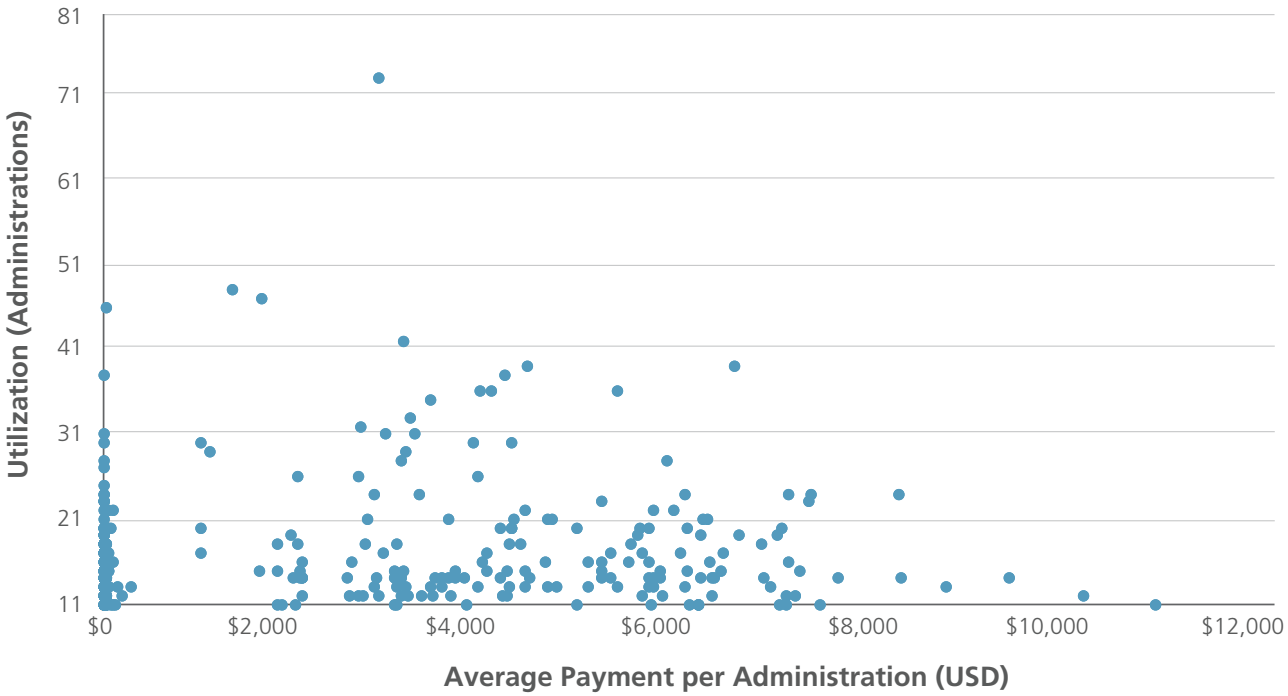
*Administrations with counts less than 11 were analyzed but excluded from graphs in order to comply with the Federal Privacy Act, 5 U.S.C. Section 552a and the HIPAA Privacy Rule, 45 C.F.R Parts 160 and 164.

Non-Small Cell Lung Cancer

The 16 NSCLC drugs that we evaluated for this analysis comprised $0.9 billion in Medicare Part B spending in 2016. From 2012 to 2016, there was not an identifiable correlation, strong or positive, that associated payment rates and provider utilization. Increases in payment for NSCLC physician-administered drugs were not related to increased utilization (**Figure 3, Appendix A: Tables A-5, A-6**). We detected both minor positive and negative correlations between payment amount and utilization in NSCLC. From 2012 to 2016, our results showed that increased payment was not associated with increased utilization ($\rho_{overall}$=0.02, *P*=0.00).

Only 1% of the variation of the utilization in NSCLC can be attributed to payment rates in 2016; payment rates do not appear to drive utilization.

Figure 3. Utilization and Payment Rates in the Physician Office Setting for Medicare Part B Medicines for NSCLC, 2016.*



*Administrations with counts less than 11 were analyzed but excluded from graphs in order to comply with the Federal Privacy Act, 5 U.S.C. Section 552a and the HIPAA Privacy Rule, 45 C.F.R Parts 160 and 164.

Limitations

Multiple factors inform physicians' prescribing decisions. Because these data do not determine the appropriate level of prescribing for any group of therapies, the analysis is not able to identify a deviation from the "appropriate" level (higher or lower), nor to describe the individual factors (financial or other) that may be influencing physician and patient decision making. However, it does provide evidence to counter the position that financial incentives encourage physicians to prescribe more expensive options among drugs with similar efficacy profiles.

Summary

Xcenda's assessment of Part B payment rates and drug utilization challenges the hypothesis that prescribers of physician-administered drugs disproportionately prescribe therapies with higher reimbursement rates to financially benefit from larger add-on payments. In additional to this, our findings were similar in the hospital outpatient department setting (**Appendix B**). As policy makers consider reforms, the available evidence evaluating the payment an utilization relationship should be carefully. Policy proposals based on the premise that payment rates influence physician utilization patterns may significantly overestimate anticipated savings from changes in reimbursement.

Overall, treatment choice does not appear to be driven by the margin physicians are paid on a drug, indicating that the ASP+6% payment rate does not drive high-cost drug utilization.

1. Centers for Medicare & Medicaid Services. Mandatory Payment Reductions in the Medicare Fee-for-Service (FFS) Program – "Sequestration." https://www.cms.gov/Outreach-and-Education/Outreach/FFSProvPartProg/Downloads/2013-03-08-standalone.pdf. Published March 8, 2013. Accessed April 25, 2018.
2. Medicare Payment Advisory Commission. Report to the Congress: Medicare and the Health Care Delivery System. http://www.medpac.gov/docs/default-source/reports/chapter-3-part-b-drug-payment-policy-issues-june-2015-report-.pdf?sfvrsn=0. Published June 2015. Accessed April 25, 2018.
3. Health Affairs. Health Policy Brief: Medicare Part B. https://www.healthaffairs.org/do/10.1377/hpb20171008.000171/full/. Published August 10, 2017. Accessed April 25, 2018.
4. Sheingold S, et al. Medicare Part B Drugs: Pricing and Incentives. https://aspe.hhs.gov/system/files/pdf/187581/PartBDrug.pdf. Published March 8, 2016. Accessed April 25, 2018.
5. Patt D. Submitted Testimony on "The Obama Administration's Medicare Drug Experiment: The Patient and Doctor Perspective." Energy and Commerce Health Subcommittee Hearing. https://docs.house.gov/meetings/IF/IF14/20160517/104931/HHRG-114-IF14-Wstate-PattD-20160517.pdf. Published May 17, 2016. Accessed July 18, 2018.
6. Mukasa MM. A guide to appropriate use of correlation coefficient in medical research. *Malawi Med J.* 2012;24(3):69-71. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3576830. Accessed August 2, 2018.
7. Hinkle DE, Wiersma W, Jurs SG. Applied Statistics for the Behavioral Sciences. 5th ed. Boston, MA: Houghton Mifflin; 2003.

Appendix A. Correlation Summary Tables in Office Setting

Table A-1. Correlation Between RA Drug Payment Rates and Utilization, 2016

Drug Rank (by average payment per administration)	Office	
	Correlation Coefficient (ρ)	*P*-Value
1	-0.18	<0.001
2	0.09	0.01
3	-0.41	<0.0001
4	0.04	0.25
5	-0.26	<0.0001
6	-0.38	<0.0001
7	0.14	0.16
2016 Overall	**-0.23**	**<0.0001**

Table A-2. Correlation Between RA Drug Payment Rates and Utilization, 2012–2016

Year	Office	
	Correlation Coefficient (ρ)	*P*-Value
2012	-0.03	0.12
2013	-0.07	<0.001
2014	-0.13	<0.0001
2015	-0.18	<0.0001
2016	-0.23	<0.0001
2012–2016 Overall	**-0.14**	**<0.0001**

Table A-3. Correlation Between Top 10 BC Drug Payment Rates and Utilization, 2016

Drug Rank (by average payment per administration)	Office	
	Correlation Coefficient (ρ)	*P*-Value
1	0.02	0.83
2	0.06	0.84
3	-0.31	<0.0001
4	-0.82	<0.001
5	-0.39	<0.0001
6	0.11	0.31
7	-0.09	0.31
8	-0.08	0.06
9	-0.20	<0.001
10	-0.51	<0.0001
2016 Overall	**0.09**	**<0.0001**

Table A-4. Correlation Between BC Drug Payment Rates and Utilization, 2012–2016

Year	Office	
	Correlation Coefficient (ρ)	*P*-Value
2012	0.04	0.01
2013	0.06	<0.001
2014	0.04	0.03
2015	0.07	<0.0001
2016	0.09	<0.0001
2012–2016 Overall	**0.04**	**<0.0001**

Table A-5. Correlation Between Top 10 NCSLC Drug Payment Rates and Utilization, 2016

Drug Rank (by average payment per administration)	Office	
	Correlation Coefficient (ρ)	*P*-Value
1	-0.22	0.19
2	-0.62	<0.001
3	-0.34	<0.0001
4	-0.34	<0.0001
5	-0.39	<0.0001
6	-0.99	0.08
7	-0.32	<0.001
8	-0.59	<0.0001
9	-0.36	<0.0001
10	-0.13	0.42
2016 Overall	**0.10**	**<0.0001**

Table A-6. Correlation Between NSCLC Drug Payment Rates and Utilization, 2012–2016

Year	Office	
	Correlation Coefficient (ρ)	*P*-Value
2012	0.02	0.28
2013	<-0.01	0.86
2014	-0.02	0.15
2015	<-0.01	0.89
2016	0.10	<0.0001
2012–2016 Overall	**0.02**	**0.00**

Appendix B. Correlation Summary Tables in Hospital Outpatient Department (HOPD) Setting

Table B-1. Correlation Between RA Drug Payment Rates and Utilization, 2016

Drug Rank (by average payment per administration)	HOPD	
	Correlation Coefficient (ρ)	*P*-Value
1	-0.15	0.02
2	0.07	0.17
3	-0.42	<0.0001
4	0.04	0.51
5	-0.27	0.04
6	-0.40	<0.0001
7	-0.64	0.36
2016 Overall	**-0.25**	**<0.0001**

Table B-2. Correlation Between RA Drug Payment Rates and Utilization, 2012–2016

Year	HOPD	
	Correlation Coefficient (ρ)	*P*-Value
2012	-0.17	<0.0001
2013	-0.23	<0.0001
2014	-0.29	<0.0001
2015	-0.27	<0.0001
2016	-0.25	<0.0001
2012–2016 Overall	**-0.24**	**<0.0001**

Table B-3. Correlation Between Top 10 BC Drug Payment Rates and Utilization, 2016

Drug Rank (by average payment per administration)	Office	
	Correlation Coefficient (ρ)	*P*-Value
1	0.02	0.87
2	-0.18	0.35
3	-0.40	<0.0001
4	-0.77	<0.001
5	-0.14	0.01
6	-0.11	0.39
7	-0.23	0.05
8	0.01	0.88
9	-0.29	<0.0001
10	-0.24	<0.0001
2016 Overall	**0.10**	**<0.0001**

Table B-4. Correlation Between BC Drug Payment Rates and Utilization, 2012–2016

Year	HOPD	
	Correlation Coefficient (ρ)	*P*-Value
2012	0.14	<0.0001
2013	0.11	<0.0001
2014	0.07	0.01
2015	0.12	<0.0001
2016	0.10	<0.0001
2012–2016 Overall	**0.12**	**<0.0001**

Table B-5. Correlation Between Top 10 NCSLC Drug Payment Rates and Utilization, 2016

Drug Rank (by average payment per administration)	HOPD	
	Correlation Coefficient (ρ)	*P*-Value
1	-0.40	<0.001
2	-0.55	<0.001
3	0.01	0.86
4	-0.20	<0.0001
5	0.04	0.46
6	-0.42	0.01
7	-0.19	0.06
8	-0.39	<0.0001
9	0.24	0.46
10	0.89	0.11
2016 Overall	**0.02**	**0.55**

Table B-6. Correlation Between NSCLC Drug Payment Rates and Utilization, 2012–2016

Year	HOPD	
	Correlation Coefficient (ρ)	*P*-Value
2012	<0.01	0.98
2013	-0.01	0.86
2014	0.05	0.12
2015	0.11	<0.001
2016	0.02	0.55
2012–2016 Overall	**0.05**	**0.00**

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