

## SUPPLEMENTARY MATERIALS

### Health care costs and utilization prior to diagnosis of antineutrophil cytoplasmic antibody vasculitis in Medicare beneficiaries

Shirley P Huang, PharmD, MS; Xintong Li, MS; Binxin Cao, MPH; Joehl T Nguyen, PhD, MPH; Jacob E Robinson, MS; Vimal K Derebail, MD, MPH; Susan L Hogan, PhD, MPH; Carolyn T Thorpe, PhD, MPH

**SUPPLEMENTARY TABLE 1** Diagnosis codes used to identify systemic vasculitis patients in 2016

<b>ICD-10-CM Code</b>	<b>Description</b>
D69.0	Allergic purpura
D89.1	Cryoglobulinemia
M30.0	Polyarthritis nodosa
M30.1	Polyarteritis with lung involvement
M30.3	Mucocutaneous lymph node syndrome
M31.0	Hypersensitivity angiitis
M31.30	Wegener's granulomatosis without renal involvement
M31.31	Wegener's granulomatosis with renal involvement
M31.4	Aortic arch syndrome
M31.6	Other giant cell arthritis
M31.7	Microscopic polyangiitis
M31.8	Other specified necrotizing vasculopathies
M35.2	Behcet's disease
H16.391	Other interstitial and deep keratitis right eye
H16.392	Other interstitial and deep keratitis left eye
H16.393	Other interstitial and deep keratitis bilateral eye
H16.399	Other interstitial and deep keratitis unspecified eye
I77.6	Arteritis, unspecified

**SUPPLEMENTARY TABLE 2** Number of patients with each ANCA vasculitis (AV) sub-type, in primary case-finding method, requiring  $\geq 1$  inpatient claim or  $\geq 2$  other claims with the same AV diagnosis code

<b>Incident cases in 2016*</b>	<b>AB Sample (N=730)</b>	<b>ABD Sample (N=1,626)</b>
Granulomatosis with polyangiitis (GPA)	531 (72.7%)	1,180 (72.6%)
WG without renal involvement (M31.30)	410 (56.2%)	872 (53.6%)
WG with renal involvement (M31.31)	121 (16.6%)	308 (18.9%)
Microscopic polyangiitis (MPA) (M31.7)	119 (16.3%)	284 (17.5%)
Eosinophilic granulomatosis with polyangiitis (eGPA) (M30.1)	80 (11.0%)	162 (10.0%)

\*Without prior ICD-9-CM/ICD-10-CM codes in the previous year of 446.4 447.6, M31.30, M31.31, M31.7, M30.1, I77.6

**SUPPLEMENTARY TABLE 3** Sensitivity Analysis: Number of patients with each ANCA vasculitis (AV) sub-type, in alternative case-finding method, after requiring at least two claims of any type with the diagnosis code

<b>Incident cases in 2016*</b>	<b>AB Sample (N=615)</b>	<b>ABD Sample (N=1,380)</b>
Granulomatosis with polyangiitis (GPA)	450 (73.2%)	996 (72.2%)
WG without renal involvement (M31.30)	348 (56.6%)	733 (53.1%)
WG with renal involvement (M31.31)	102 (16.6%)	263 (19.1%)
Microscopic polyangiitis (MPA) (M31.7)	102 (16.6%)	253 (18.3%)
Eosinophilic granulomatosis with polyangiitis (eGPA) (M30.1)	63 (10.2%)	131 (9.5%)

\*Without prior ICD-9-CM/ICD-10-CM codes in the previous year of 446.4 447.6, M31.30, M31.31, M31.7, M30.1, I77.6

**SUPPLEMENTARY TABLE 4** Sensitivity Analysis: Demographic and Clinical Characteristics of beneficiaries by insurance coverage and ANCA vasculitis (AV) diagnosis, using alternative case-finding algorithm

Demographics	Medicare Part AB Sample			Medicare Part ABD Sample		
	Overall n=1,230	Beneficiaries without AV n=615	Beneficiaries with AV n=615	Overall n=2,760	Beneficiaries without AV n=1,380	Beneficiaries with AV n=1,380
Age, mean (SD)	71.58 (10.97)	71.58 (10.97)	71.58 (10.97)	70.53 (11.61)	70.53 (11.62)	70.53 (11.62)
Female	646 (52.52%)	323 (52.52%)	323 (52.52%)	1720 (62.32%)	860 (62.32%)	860 (62.32%)
Race						
Non-Hispanic White (reference)	1,023 (83.17%)	503 (81.79%)	520 (84.55%)	2194 (79.49%)	1,080 (78.26%)	1,114 (80.72%)
Non-Hispanic Black	75 (6.10%)	51 (8.29%)	24 (3.90%)*	242 (8.77%)	152 (11.01%)	90 (6.52%)**
Hispanic	81 (6.59%)	35 (5.69%)	46 (7.48%)	197 (7.14%)	86 (6.23%)	111 (8.04%)
Other/unknown	51 (4.15%)	26 (4.23%)	25 (4.07%)	127 (4.60%)	62 (4.49%)	65 (4.71%)
Region						
South (reference)	523 (42.52%)	284 (46.18%)	239 (38.86%)	1120 (40.58%)	625 (45.29%)	495 (35.87%)
Northeast	198 (16.10%)	90 (14.63%)	108 (17.56%)*	518 (18.77%)	228 (16.52%)	290 (21.01%)**
Midwest	260 (21.14%)	119 (19.35%)	141 (22.93%)*	616 (22.32%)	283 (20.51%)	333 (24.13%)**
West	249 (20.24%)	122 (19.84%)	127 (20.65%)	506 (18.33%)	244 (17.68%)	262 (18.99%)*
<b>Comorbidities</b>						
Quan-CCI, median (IQR)	2 (1, 5)	1 (0, 4)	3 (2, 6)**	3 (1, 6)	1 (0, 5)	3 (2, 7)**
Originally enrolled in Medicare due to disability	278 (22.60%)	140 (22.76%)	138 (22.44%)	697 (25.25%)	379 (27.46%)	318 (23.04%)*
<b>Insurance Coverage</b>						
Part D enrollment	-	-	-			
Medicaid (and LIS)	-	-	-	709 (25.69%)	377 (27.32%)	332 (24.06%)
LIS	-	-	-	152 (5.51%)	68 (4.93%)	84 (6.09%)
None (No Medicaid, no LIS) (reference group)	-	-	-	1,899 (68.80%)	935 (67.75%)	964 (69.86%)

AV: ANCA vasculitis; SD: standard deviation; Quan-CCI: Quan-Charlson Comorbidity Index; IQR: interquartile range; LIS: low-income subsidy

\*p<.05 for comparison of beneficiaries with AV vs. without AV.

\*\*p<.001 for comparison of beneficiaries with AV vs. without AV.

**SUPPLEMENTARY TABLE 5** Sensitivity Analysis: Total one-year utilization and costs prior to diagnosis for beneficiaries with AV and matched controls (AB Sample), using alternative case-finding algorithm

	Descriptive Statistics				Adjusted Regression Model†		
	Beneficiaries without AV N=615		Beneficiaries with AV N=615		Incidence Rate Ratios	Beneficiaries without AV N=615	Beneficiaries with AV N=615
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	IRR [95%CI]	Predicted Means [95%CI]	Predicted Means [95%CI]
<b>Medical Service Payments (USD§)</b>							
Total Medicare Parts A and B Payments	8,583 (25,013)	1,942 (572, 7,220)	17,942 (28,137)	7,174 (2,249, 23,755)	2.93* [2.38 - 3.59]	7,185 [5,893 - 8,476]	21,024 [18,036 - 24,013]
Total Beneficiary Parts A and B Payments	1,469 (2,481)	604 (253, 1,830)	3,276 (4,029)	1,959 (721, 4,190)	2.44* [2.09 - 2.85]	1,403 [1,230 - 1,576]	3,423 [3,081 - 3,766]
<b>Drug Payments (USD§)</b>							
Total Medicare Part B Drug Payments	246 (1,573)	11 (0, 66)	588 (3,052)	35 (0, 202)	2.41* [1.63 - 3.54]	221 [143 - 299]	531 [337 - 725]
Total Beneficiary Part B Drug Payments	55 (401)	0 (0, 3)	142 (783)	0 (0, 16)	3.48* [1.89 - 6.42]	57 [20 - 94]	198 [45 - 352]
<b>Healthcare Utilization</b>							
Acute Inpatient Stays	0.22 (0.61)	0 (0, 0)	0.57 (1.07)	0 (0, 1)	2.68* [2.07 - 3.46]	0.22 [0.17 - 0.27]	0.58 [0.50 - 0.67]
Hospital Outpatient Visits	6.97 (20.19)	2 (0, 6)	21.83 (51.51)	5 (1, 14)	2.74* [2.22 - 3.40]	7.22 [6.01 - 8.43]	19.81 [16.15 - 23.47]
Emergency Room Visits	0.68 (1.58)	0 (0, 1)	1.02 (1.97)	0 (0, 1)	1.60* [1.27 - 2.00]	0.66 [0.54 - 0.78]	1.06 [0.87 - 1.24]
Part B Drug Events	2.92 (6.64)	2 (0, 3)	4.79 (13.58)	2 (0, 4)	1.47* [1.21 - 1.79]	2.99 [2.52 - 3.47]	4.40 [3.61 - 5.19]
Part B Physician Office Services	7.62 (7.84)	5 (2, 10)	12.46 (11.03)	10 (5, 17)	1.69* [1.52 - 1.89]	7.50 [6.89 - 8.12]	12.71 [11.36 - 14.06]
Imaging	4.38 (6.55)	2 (0, 6)	9.21 (9.48)	7 (2, 14)	2.30* [2.00 - 2.65]	4.21 [3.74 - 4.68]	9.69 [8.83 - 10.55]
Tests	14.27 (26.21)	8 (1, 18)	28.23 (33.07)	17 (6, 38)	2.14* [1.83 - 2.51]	13.77 [12.07 - 15.48]	29.51 [26.50 - 32.51]
Other Procedures	8.25 (23.11)	2 (0, 7)	10.34 (19.15)	5 (1, 11)	1.64* [1.31 - 2.07]	7.18 [5.85 - 8.51]	11.80 [10.00 - 13.61]
Durable Medical Equipment	2.27 (6.68)	0 (0, 0)	3.07 (7.10)	0 (0, 2)	1.45‡ [1.06 - 1.97]	2.25 [1.72 - 2.79]	3.27 [2.58 - 3.96]
Other Part B Carrier Events	4.76 (22.38)	1 (0, 4)	7.57 (28.16)	3 (0, 8)	1.90* [1.53 - 2.35]	4.10 [3.31 - 4.88]	7.78 [6.50 - 9.07]

\*p <0.001

‡p=0.018

†Adjusted for age, sex, race, dual Medicaid enrollment or Part D low-income subsidy, entitlement due to disability, and US region  
AV: ANCA vasculitis, SD: standard deviation, IQR: interquartile range, IRR: incidence rate ratio, CI: confidence interval.

§Healthcare costs were measured in the one-year period prior to the index date in 2016, resulting in a combination of 2015 and 2016 USD

**SUPPLEMENTARY TABLE 6** Sensitivity Analysis: Total one-year utilization and costs prior to diagnosis for beneficiaries with AV and matched controls (ABD Sample), using alternative case-finding algorithm

	Descriptive Statistics				Adjusted Regression Model†		
	Beneficiaries without AV N=1,380		Beneficiaries with AV N=1,380		Incidence Rate Ratios	Beneficiaries without AV N=1,380	Beneficiaries with AV N=1,380
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	IRR [95%CI]	Predicted Means [95%CI]	Predicted Means [95%CI]
<b>Medical Service Payments (USD§)</b>							
Total Medicare Parts A and B Payments	10,037 (19,746)	3,010 (1,150, 8,767)	21,519 (31,755)	10,093 (3,839, 28,379)	2.68* [2.38 - 3.03]	9,026 [8,138 - 9,913]	24,216 [22,258 - 26,175]
Total Beneficiary Parts A and B Payments	1,878 (3,223)	834 (379, 2,078)	4,091 (4,876)	2,424 (1,042, 4,982)	2.44* [2.21 - 2.69]	1,770 [1,630 - 1,910]	4,317 [4,035 - 4,598]
<b>Drug Payments (USD§)</b>							
Total Medicare Part B Drug Payments	505 (3,175)	47 (0, 208)	1,216 (5,917)	62 (7, 262)	2.33* [1.84 - 2.94]	419 [325 - 513]	976 [751 - 1,200]
Total Beneficiary Part B Drug Payments	116 (814)	0 (0, 7)	301 (1,514)	2 (0, 40)	4.63* [3.16 - 6.78]	105 [61 - 149]	487 [243 - 730]
Total Medicare Part D Drug Payments	3,395 (12,250)	822 (113, 2,367)	4,760 (15,000)	1,411 (336, 2,978)	1.61* [1.39 - 1.87]	3,060 [2,615 - 3,505]	4,932 [4,225 - 5,638]
Total Beneficiary Part D Drug Payments	588 (1,094)	208 (57, 667)	1,002 (2,671)	367 (94, 1,016)	1.46* [1.31 - 1.62]	625 [571 - 679]	910 [821 - 998]
<b>Healthcare Utilization</b>							
Acute Inpatient Stays	0.29 (0.77)	0 (0, 0)	0.59 (1.10)	0 (0, 1)	2.25* [1.90 - 2.66]	0.28 [0.24 - 0.31]	0.62 [0.56 - 0.68]
Hospital Outpatient Visits	8.38 (16.66)	4 (1, 9)	27.59 (54.06)	8 (3, 19.50)	2.82* [2.49 - 3.21]	9.05 [8.19 - 9.90]	25.55 [22.82 - 28.29]
Emergency Room Visits	0.82 (2.18)	0 (0, 1)	1.30 (2.89)	0 (0, 2)	2.02* [1.71 - 2.38]	0.73 [0.64 - 0.83]	1.48 [1.30 - 1.66]
Part B Drug Events	4.15 (9.10)	2 (0, 4)	6.67 (13.26)	3 (1, 6)	1.59* [1.41 - 1.79]	4.09 [3.71 - 4.47]	6.50 [5.90 - 7.10]
Part B Physician Office Services	9.31 (8.32)	7 (4, 13)	14.05 (12.15)	11 (6, 19)	1.52* [1.43 - 1.62]	9.27 [8.83 - 9.71]	14.13 [13.48 - 14.77]
Imaging	4.93 (6.32)	3 (1, 7)	10.20 (10.28)	8 (3, 14)	2.21* [2.03 - 2.41]	4.78 [4.46 - 5.09]	10.55 [9.97 - 11.13]
Tests	18.10 (24.87)	11 (3, 23)	31.71 (34.07)	21 (8.5, 43)	1.86* [1.70 - 2.03]	17.61 [16.42 - 18.79]	32.70 [30.78 - 34.61]
Other Procedures	7.72 (15.87)	3 (0, 7)	11.71 (20.74)	6 (2, 13)	1.65* [1.46 - 1.87]	7.36 [6.61 - 8.12]	12.15 [11.06 - 13.23]
Durable Medical Equipment	3.62 (8.65)	0 (0, 3)	4.67 (8.78)	0 (0, 6)	1.39* [1.18 - 1.63]	3.51 [3.07 - 3.95]	4.87 [4.31 - 5.44]
Other Part B Carrier Events	5.71 (11.53)	2 (0, 6)	10.57 (29.30)	4 (1, 10)	1.90* [1.66 - 2.17]	5.55 [4.99 - 6.12]	10.53 [9.42 - 11.65]
Number of 30-day day of supply	53.37 (38.90)	46.73 (25.33, 74.67)	62.53 (39.72)	57.10 (34.10, 85.63)	1.21* [1.15 - 1.27]	52.52 [50.54 - 54.50]	63.57 [59.60 - 67.53]
<b>Drug Class Utilization</b>							
	<b>N (%) with one claim</b>		<b>N (%) with one claim</b>		<b>Odds Ratio [95%CI]</b>	<b>Predicted Probabilities [95%CI]</b>	<b>Predicted Probabilities [95%CI]</b>
Any corticosteroid use	482 (34.93%)		851 (61.67%)		3.14* [2.64 - 3.73]	0.35 [0.32 - 0.37]	0.62 [0.59 - 0.64]
Any NSAID use	172 (12.46%)		167 (12.10%)		1.03 [0.81 - 1.31]	0.12 [0.10 - 0.14]	0.12 [0.11 - 0.14]
Any immunosuppressant use	37 (2.68%)		221 (16.01%)		6.91* [4.66 - 10.25]	0.03 [0.02 - 0.04]	0.16 [0.14 - 0.18]
Any opioid use	564 (40.87%)		661 (47.90%)		1.45* [1.23 - 1.70]	0.40 [0.38 - 0.43]	0.49 [0.46 - 0.51]

\*p <0.001

†Adjusted for age, sex, race, dual Medicaid enrollment or Part D low-income subsidy, entitlement due to disability, and US region  
AV: ANCA vasculitis, SD: standard deviation, IQR: interquartile range, IRR: incidence rate ratio, CI: confidence interval.

§Healthcare costs were measured in the one-year period prior to the index date in 2016, resulting in a combination of 2015 and 2016 USD

**SUPPLEMENTARY TABLE 7** Sensitivity Analysis: Total costs prior to diagnosis for beneficiaries with AV and matched controls, cost by quarter, using alternative case-finding algorithm

<b>AB Sample</b>						
<b>Payments (USD<sup>§</sup>)</b>	<b>Beneficiaries without AV N=615</b>		<b>Beneficiaries with AV N=615</b>		<b>Adjusted Regression Model†</b>	
	<b>Mean (SD)</b>	<b>Median (IQR)</b>	<b>Mean (SD)</b>	<b>Median (IQR)</b>	<b>IRR [95%CI]</b>	
Q1: 10-12 months prior to diagnosis	1,812 (4,951)	392 (75, 1,206)	4,304 (10,892)	665 (174, 2,653)	2.63*	[2.00 - 3.46]
Q2: 7-9 months prior to diagnosis	2,253 (5,389)	367 (89, 1,326)	4,221 (13,694)	669 (155, 2,850)	1.91*	[1.43 - 2.55]
Q3: 4-6 months prior to diagnosis	2,831 (12,876)	408 (73, 1,525)	4,753 (10,528)	778 (176, 3,726)	2.50*	[1.91 - 3.26]
Q4: 0-3 months prior to diagnosis	3,253 (13,546)	448 (100, 1,560)	8,470 (13,367)	2,990 (853, 12,690)	4.51*	[3.51 - 5.81]

  

<b>ABD Sample</b>						
<b>Payments (USD<sup>§</sup>)</b>	<b>Beneficiaries without AV N=1,380</b>		<b>Beneficiaries with AV N=1,380</b>		<b>Adjusted Regression Model†</b>	
	<b>Mean (SD)</b>	<b>Median (IQR)</b>	<b>Mean (SD)</b>	<b>Median (IQR)</b>	<b>IRR [95%CI]</b>	
Q1: 10-12 months prior to diagnosis	3,634 (7,898)	1,248 (428, 3,138)	6,425 (11,687)	2,165 (803, 6,502)	1.95*	[1.72 - 2.21]
Q2: 7-9 months prior to diagnosis	3,843 (9,292)	1,211 (468, 3,090)	6,517 (12,713)	2,246 (866, 7,011)	1.92*	[1.69 - 2.19]
Q3: 4-6 months prior to diagnosis	4,252 (9,762)	1,247 (443, 3,075)	7,488 (13,015)	2462 (967, 8,966)	2.21*	[1.93 - 2.51]
Q4: 0-3 months prior to diagnosis	4,286 (9,695)	1,283 (429, 3,283)	11,695 (16,641)	5,369 (1,923, 15,138)	3.62*	[3.19 - 4.10]

\*p <0.001

†Adjusted for age, sex, race, dual Medicaid enrollment or Part D low-income subsidy, entitlement due to disability, and US region  
 AV: ANCA-associated vasculitis, SD: standard deviation, IQR: interquartile range, IRR: incidence rate ratio, CI: confidence interval.

§Healthcare costs were measured in the one-year period prior to the index date in 2016, resulting in a combination of 2015 and 2016 USD

**SUPPLEMENTARY TABLE 8** Sensitivity Analysis: Total one-year utilization and costs prior to diagnosis for beneficiaries with AV and matched controls (AB Sample), excluding patients with ESKD

Adjusted Regression Model†	
Incidence Rate Ratios	
N=1,262	
IRR	
[95%CI]	
<b>Medical Service Payments (USD§)</b>	
Total Medicare Parts A and B Payments	2.48* [2.05 - 3.00]
Total Beneficiary Parts A and B Payments	2.07* [1.79 - 2.39]
<b>Drug Payments (USD§)</b>	
Total Medicare Part B Drug Payments	2.43* [1.70 - 3.45]
Total Beneficiary Part B Drug Payments	4.40* [2.60 - 7.45]
<b>Healthcare Utilization</b>	
Acute Inpatient Stays	2.76* [2.16 - 3.53]
Hospital Outpatient Visits	1.61* [1.36 - 1.91]
Emergency Room Visits	1.51* [1.20 - 1.91]
Part B Drug Events	1.46* [1.21 - 1.75]
Part B Physician Office Services	1.66* [1.50 - 1.84]
Imaging	2.43* [2.13 - 2.77]
Tests	2.12* [1.83 - 2.44]
Other Procedures	1.70* [1.38 - 2.10]
Durable Medical Equipment	1.47‡ [1.10 - 1.98]
Other Part B Carrier Events	1.70* [1.39 - 2.09]

\*p < 0.001

‡p=0.010

†Adjusted for age, sex, race, dual Medicaid enrollment or Part D low-income subsidy, entitlement due to disability, and US region  
 AV: ANCA vasculitis, SD: standard deviation, IQR: interquartile range, IRR: incidence rate ratio, CI: confidence interval, ESKD: end-stage kidney disease

§Healthcare costs were measured in the one-year period prior to the index date in 2016, resulting in a combination of 2015 and 2016 USD

**SUPPLEMENTARY TABLE 9** Sensitivity Analysis: Total one-year utilization and costs prior to diagnosis for beneficiaries with AV and matched controls (ABD Sample), excluding patients with ESKD

Adjusted Regression Model†	
Incidence Rate Ratios	
N=2,844	
IRR	
[95%CI]	
<b>Medical Service Payments (USD§)</b>	
Total Medicare Parts A and B Payments	2.46* [2.19 - 2.76]
Total Beneficiary Parts A and B Payments	2.18* [1.98 - 2.39]
<b>Drug Payments (USD§)</b>	
Total Medicare Part B Drug Payments	2.35* [1.87 - 2.94]
Total Beneficiary Part B Drug Payments	4.97* [3.45 - 7.16]
Total Medicare Part D Drug Payments	1.49* [1.29 - 1.73]
Total Beneficiary Part D Drug Payments	1.45* [1.30 - 1.61]
<b>Healthcare Utilization</b>	
Acute Inpatient Stays	2.41* [2.05 - 2.83]
Hospital Outpatient Visits	1.80* [1.62 - 2.00]
Emergency Room Visits	1.96* [1.66 - 2.30]
Part B Drug Events	1.63* [1.45 - 1.82]
Part B Physician Office Services	1.58* [1.49 - 1.68]
Imaging	2.37* [2.18 - 2.58]
Tests	1.92* [1.77 - 2.09]
Other Procedures	1.68* [1.48 - 1.90]
Durable Medical Equipment	1.50* [1.28 - 1.76]
Other Part B Carrier Events	1.94* [1.71 - 2.21]
Number of 30-day day of supply	1.21* [1.16 - 1.28]
<b>Drug Class Utilization</b>	
Any corticosteroid use	3.20* [2.70 - 3.79]
Any NSAID use	1.12‡ [0.89 - 1.41]
Any immunosuppressant use	6.91* [4.66 - 10.24]
Any opioid use	1.52* [1.30 - 1.78]

\*p < 0.001

‡p=0.347

†Adjusted for age, sex, race, dual Medicaid enrollment or Part D low-income subsidy, entitlement due to disability, and US region  
 AV: ANCA vasculitis, SD: standard deviation, IQR: interquartile range, IRR: incidence rate ratio, CI: confidence interval, ESKD: end-stage kidney disease

§Healthcare costs were measured in the one-year period prior to the index date in 2016, resulting in a combination of 2015 and 2016 USD

**SUPPLEMENTARY TABLE 10** Sensitivity Analysis: Total costs prior to diagnosis for beneficiaries with AV and matched controls, cost by quarter, excluding patients with ESKD

<b>AB Sample</b>					
<b>Payments (USD<sup>§</sup>)</b>	<b>Beneficiaries without AV N=631</b>		<b>Beneficiaries with AV N=631</b>		<b>Adjusted Regression Model†</b>
	<b>Mean (SD)</b>	<b>Median (IQR)</b>	<b>Mean (SD)</b>	<b>Median (IQR)</b>	<b>IRR [95% CI]</b>
Q1: 10-12 months prior to diagnosis	1,729 (4,265)	393 (82, 1,213)	3,580 (10,623)	606 (166, 2,077)	1.89* [1.45 - 2.46]
Q2: 7-9 months prior to diagnosis	2,226 (5,499)	394 (116, 1,372)	3,508 (13,325)	650 (142, 2,259)	1.46 <sup>‡</sup> [1.11 - 1.92]
Q3: 4-6 months prior to diagnosis	2,974 (12,987)	426 (102, 1,493)	3,609 (8,745)	638 (146, 2,522)	1.66* [1.28 - 2.15]
Q4: 0-3 months prior to diagnosis	3,350 (13,319)	476 (124, 1,787)	8,195 (12,886)	3,010 (938, 9,995)	3.93* [3.08 - 5.00]

  

<b>ABD Sample</b>					
<b>Payments (USD<sup>§</sup>)</b>	<b>Beneficiaries without AV N=1,422</b>		<b>Beneficiaries with AV N=1,422</b>		<b>Adjusted Regression Model†</b>
	<b>Mean (SD)</b>	<b>Median (IQR)</b>	<b>Mean (SD)</b>	<b>Median (IQR)</b>	<b>IRR [95% CI]</b>
Q1: 10-12 months prior to diagnosis	3,522 (7,762)	1,215 (421, 3,028)	5,182 (11,229)	1,870 (722, 4,601)	1.63* [1.44 - 1.84]
Q2: 7-9 months prior to diagnosis	3,732 (9,584)	1,183 (459, 3,020)	5,338 (11,595)	1,920 (748, 4,786)	1.63* [1.44 - 1.85]
Q3: 4-6 months prior to diagnosis	3,983 (9,373)	1,244 (420, 3,056)	6,422 (12,301)	2,157 (882, 6,086)	1.94* [1.71 - 2.20]
Q4: 0-3 months prior to diagnosis	4,147 (9,267)	1,246 (417, 3,277)	11,035 (16,970)	4,935 (1,926, 13,304)	3.51* [3.11 - 3.96]

\*p < 0.001

<sup>‡</sup>p = 0.007

†Adjusted for age, sex, race, dual Medicaid enrollment or Part D low-income subsidy, entitlement due to disability, and US region  
AV: ANCA vasculitis, SD: standard deviation, IQR: interquartile range, IRR: incidence rate ratio, CI: confidence interval, ESKD: end-stage kidney disease

<sup>§</sup>Healthcare costs were measured in the one-year period prior to the index date in 2016, resulting in a combination of 2015 and 2016 USD