SITE NEUTRAL PAYMENT REFORM HAS THE POTENTIAL TO SIGNIFICANTLY REDUCE OUT-OF-POCKET PATIENT SPEND

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This paper is intended to summarize an analysis on Medicare and commercial data sets to better understand and document the potential patient out-of-pocket cost impact of implementing site-neutral payment policies for certain outpatient services. Specifically, this analysis focuses on eight disease groups: breast cancer, colitis, chronic obstructive pulmonary disease (COPD), Crohn's disease, multiple myeloma, multiple sclerosis, non-Hodgkin lymphoma, and rheumatoid arthritis.

Executive Summary

The Centers for Medicare & Medicaid Services (CMS) pays different amounts for medical services based on where those services are performed. The payment levels can be very different across service settings such as hospitals, surgery centers, or physician offices, with hospitals usually receiving the highest payment amounts. Patient out-of-pocket costs (e.g. copays, deductibles, or coinsurance amounts) are calculated as a function of Medicare payment rates. This means that patients who seek care in one setting may be responsible for more out-of-pocket cost sharing than patients who seek care in another setting, all else equal (e.g. same medical conditions, same procedure, etc.).

Studies have shown that there are multiple procedures that can be performed safely and efficiently, regardless of the place of service. The cost of care varies depending on where it is provided, although the service can be performed across all settings. This disparity impacts multiple stakeholders: patients, payers, state and federal government agencies and taxpayers. This paper focuses on the potential for patient out-of-pocket cost savings if changes were made to require equal payments for certain outpatient services amongst different service settings.

The analysis found that if policy reform were implemented such that payment rates across settings were set equal to the lowest rate for those services deemed safe and appropriate to perform in all settings, beneficiaries could experience significant savings in out-of-pocket costs. The study found a differential impact based on disease grouping. Those patients with higher levels of medical need will typically experience the greatest amounts of savings. Depending on the conditions patients have and the specific treatment plans they require, savings could be as large as thousands of dollars if site neutral payment reform were implemented.

> *"For services that are safe and appropriate to be performed in all settings, the Wakely analysis found that hospital outpatient payment rates were often 1.5 to 4 times higher than free standing office payment rates for the same services."*

For the Ambulatory Payment Classification (APC) payment codes included in this analysis, the hospital outpatient department (HOPD) payment rates were often 1.5 to 4 times higher than the freestanding

office payment rates for the same services. Some of the studied APCs showed HOPD payment rates that were much higher than 4 times the level of the freestanding office rates. The Wakely analysis of commercial payment rate differentials across the three settings demonstrated similar results as those discussed for Medicare, although the observed differences tended to be even greater since Medicare has implemented some reform related to cost containment for off-campus settings that has not been similarly adopted by commercial payors.

The analysis was limited to only services deemed safe and appropriate to perform in all settings. Details can be found in the Analysis and Methodology section below.

As an example, a commercial breast cancer patient receiving one radiation treatment per day, five times a week, for five weeks at an off-campus HOPD would spend $23,160. By contrast, if the same treatments were performed in the freestanding office setting out-of-pocket spending would amount to $4,065. Therefore, receiving these treatments in a freestanding office would save the patient $19,095 across the entire treatment schedule.

In another example, Wakely found that a non-transplant multiple myeloma patient receiving a standard treatment plan (treatment plan details in Results section below) for one year at an on-campus HOPD would spend about $2,029. If the same treatments were performed in the office setting a beneficiary would spend about $809. This produces about $1,220 in out-of-pocket savings for one cycle of treatment.

The Wakely analysis found a geographic impact related to site payment issues for Medicare beneficiaries, such that the average impact was more significant for rural patients than urban patients. In addition, we saw there was a greater impact to beneficiaries in areas with relatively low Medicare Advantage (MA) penetration compared to higher MA penetration areas. However, the analysis also found that in the commercial payer data the average impact was more significant in urban than rural areas.

The Wakely analysis focused on detailed data groupings and comparisons, rather than focusing on any potential reform solutions. Site neutral payment reform would likely produce significant beneficiary cost savings. One potential way in which these beneficiary savings could be realized would be to expand upon the Bipartisan Budget Act (BBA) to eliminate the grandfathering effect which allows off-campus outpatient departments who billed as provider-based departments before November 2, 2015, to continue qualifying for reimbursement under the Outpatient Prospective Payment System (OPPS). Similarly, the BBA could be expanded to include more services than just office visits as explored in a study published by MedPAC.

Background

Historical studies show that Medicare payment rates vary, sometimes significantly, for the same service offered in different settings. Generally, Medicare payments are higher for services performed in a hospital outpatient department (HOPD) setting as compared to payments for services performed in ambulatory surgical centers (ASC) and physician offices. Studies show there are multiple procedures that can be performed safely and efficiently, regardless of the place of service. The cost of care varies depending on where it is provided, although the service can be performed across all settings. This disparity impacts multiple stakeholders: patients, payers, state and federal government agencies and taxpayers.

Different Payment Structures

Medicare Physician Fee Schedule (MPFS)	HOPD Outpatient Prospective Payment System (OPPS)	Ambulatory Surgical Center Prospective Payment System (ASC PPS)
•Uses National Coversion Factor, Relative Value Units (RVU), and Geographic Practice Cost Index (GPCI) to determine rate. •RVUs have three components •Work (time and intensity) •Practice Expense (PE) •Malpractice (MP) •Calculated Rate is sumproduct of RVU and GPCI times the conversion factor.	•Uses Ambulatory Payment Classification (APC) to group similar services (based on clinical characteristics and severity) •Payments for each claim line are dependent on the other codes included in the grouping. •Current Procedural Terminology (CPT) and Healthcare Common Procedure Coding System (HCPCS) codes can be paid differently between diferent claims. •Each APC assigned a complexity weight, conversion factor, and geographic adjustment	•Uses APC system •Similar to OPPS with less complexities due to limited services

The Centers for Medicare & Medicaid Services (CMS) maintains many different payment systems that are applicable to a claim based on the setting in which the care is delivered. The terms, rules and payment rates vary between the various payment systems and each system is updated annually and independently to address changes to cost of care, reasonableness and equity. CMS also maintains rules regarding certain services that can only be delivered in specific care settings; however, the majority of services are not subject to those rules and are delivered in the care setting deemed appropriate by the practitioner.

Physician services are paid based on the Medicare Physician Fee Schedule (MPFS.) The reimbursement rate is comprised of 3 main components: the national conversion factor, the Relative Value Units (RVUs) and Geographic Practice Cost Indices (GPCIs.) There are 3 separate RVUs, which are weights used to adjust payments based on the level of care being provided to the patient. The Work RVU relates to the relative time and intensity for each service. The Practice Expense (PE) RVU applies to the cost of running the practice such as office space, supplies and staff and this RVU can vary depending on where the service is rendered. The Malpractice (MP) RVU is based on the cost of malpractice insurance. Each RVU has its own GPCI. The calculated rate is the sum of the RVUs (after being multiplied by their

respective GPCI) and then multiplied by the conversion factor. MPFS services can be delivered in any care setting. For services delivered in an office setting, the physician reimbursement would be the full payment rate.

The payment system for HOPD services is the Outpatient Prospective Payment System (OPPS.) The OPPS incorporates an editor, group and priced to establish reimbursement which is based mainly on the Ambulatory Payment Classification (APC) payment code. The APC, in simplified terms, is a group of services similar in clinical intensity and resource utilization. Not all lines are assigned an APC. Some claim lines are "packaged" into an accompanying claim line to which the service is supportive. The determination of how each line is paid or packaged is dependent on the codes on other claim lines. Therefore, the same Current Procedural Terminology (CPT) / Healthcare Common Procedure Coding System (HCPCS) code can be paid differently between different claims. Each APC is assigned a relative weight according to complexity. The weight is multiplied by a conversion factor and is then adjusted for geographic wage differences to determine facility payment.

In addition to OPPS reimbursement, certain services delivered in the hospital setting such as outpatient therapy, screening and diagnostic mammography are reimbursed using the MPFS, Clinical Lab and other fee schedules. In addition to those services, under the Bipartisan Budget Act of 2015, certain outpatient off-campus provider-based department items and services are paid under the MPFS.

When care is provided in the outpatient on-campus and outpatient off-campus facility, physician services are paid for separate from the HOPD payment. Therefore, patient care delivered in the outpatient setting, an HOPD claim, and payment are generated and a separate PFS claim, and payment are generated.

The ASC Prospective Payment System (ASC PPS) is similar to OPPS but with much less complexity relative to the OPPS due to the limited services available at an ASC. ASCs receive a single payment for a covered surgical procedure that is inclusive of facility services provided as part of that procedure. Certain ancillary services may be covered separately. Like the outpatient setting, when care is provided in an ASC, physician services are billed and reimbursed separately and both an ASC and a physician claim and payment are generated for a single service.

Hospitals incur costs that other settings do not to maintain 24/7 emergency care, standby capacity, access to care for low-income patients, community outreach and efforts to improve care coordination. These additional costs are spread across all HOPD services, including those that are unrelated to the additional hospital expenses.

Current Policies and Reform

Hospitals can, and often do, purchase free standing physician practices and convert them into HOPDs. Doing so enables the hospital to collect both a PFS payment and a HOPD payment for a single service for the same staffing and overhead costs as before the physician practice acquisition.

Several recent publications have highlighted the current trends of services at different locations as well as the payment differences between them. In a recent Blue Cross Blue Shield Association publication, they state that as of 2021 only 30% of physicians are practicing independently, and 70% are employed

by a hospital system or other corporate entity. In addition, the Congressional Budget Office (CBO) projects Medicare fee-for-service (FFS) payments to HOPD will increase by 100% over the next ten years, whereas payments to physicians will only grow by 28%.

Bipartisan Budget Act of 2015

The Bipartisan Budget Act of 2015 enacted significant changes in how Medicare handles payments for specific off-campus hospital departments. Prior to the implementation of this law, physician practices operating as provider-based extensions of hospitals received reimbursement under the OPPS and the PFS for a single service, resulting in higher total Medicare payments than just receiving PFS payment as a freestanding physician practice. Critics argued that this created financial incentives for hospitals to convert freestanding practices into provider-based departments. This also resulted in increased cost-sharing for beneficiaries and greater overall spending for the Medicare program.

Effective January 1, 2017, services offered to Medicare beneficiaries by off-campus outpatient departments, not previously billing as provider-based departments before November 2, 2015, would no longer qualify for reimbursement under the OPPS. This strategic shift was designed to eliminate future incentives that might drive the creation of new off-campus outpatient hospital departments, aiming for a more cost-effective approach.

Furthermore, in 2019, CMS introduced additional adjustments by further aligning the OPPS and ASC payment systems with the PFS rates. This alignment applied specifically to office visits taking place in any off-campus provider-based department (PDB). These modifications aimed to create a more equitable and consistent reimbursement structure across various healthcare settings, streamlining payments and potentially contributing to cost savings within the Medicare system.

Wakely reviewed 2021 Medicare data to evaluate how these changes were showing in actual experience and confirmed for office visits the off-campus outpatient hospital costs aligned more closely to office costs than to on-campus outpatient hospital costs. However, Medicare has additional cost containment for off-campus settings through the BBA that similarly have not been fully adopted by commercial payors. In fact, in the commercial data we see that the off-campus outpatient hospital costs align more closely with on-campus outpatient hospital costs than to office costs.

Published Studies on Site Neutral Payment Reforms

MedPAC

In the June 2023 Report to Congress[1], the Medicare Payment Advisory Commission (MedPAC) recommended Congress expand Medicare site neutral policy by more closely aligning payment rates across ambulatory settings for selected services that are safe and appropriate to provide in all settings. They further state that Medicare payment rates should be set equal to the payment rate associated with the setting that has the lowest payment rate, which is usually free-standing offices. Of the 169 APCs used

[1] https://www.medpac.gov/wp-content/uploads/2023/06/Jun23_MedPAC_Report_To_Congress_SEC.pdf

in the OPPS to pay for services provided in HOPD, MedPAC identified 57 for which it would be reasonable to align payment rates across the three settings.

Blue Cross Blue Shield Association

The BCBSA recently published a brief on Site Neutral Medicare Payment Reform. 2 Specifically, they recommend eliminating the grandfathering provision of the BBA and expanding the site-neutral payment policies for services that are commonly delivered outside the hospital. They estimate that these two changes could produce a combined savings of $471 billion over a ten-year period.

Analysis and Methodology

Payments were analyzed for a Medicare population using the 2021 Medicare Limited Data Set (LDS) and for a commercial population using the 2021 commercial MarketScan data set.

These data were analyzed by two categories:

Ambulatory Payment Classifications (APC): In this exercise, services performed in an ASC or physician office were re-processed through the OPPS to assign them APCs to allow for more direct comparisons to OPPS data.

Current Procedural Terminology or Healthcare Common Procedure Coding System (CPT/HCPCS): CPT/HCPCS level data were reviewed for all settings. Using status indicators as published in Addendum B, certain professional lines were combined with related service lines on the claim to prevent comparisons of individual services with outpatient packaged lines.

For both categories of results, claims were grouped by setting and facility vs. professional form type, such that the total cost of a given code that had both facility and professional claims could be analyzed by adding the average unit cost of the two components. This helped smooth out uncertainty in the data around whether professional and facility claims with the same CPT should be considered part of the same service due to issues with service dates not matching or other minor billing issues from the providers.

As discussed above, the CPT portion of the analysis included a rolling up of claims to better capture total event cost. Only CPTs that were typically paired with a status code (if they were OPPS claims) were included in the analysis for ASC or OPPS. CPTs with status codes indicating no grouping (such as status codes K, A, and G) were analyzed at the line level without any grouping, while CPTs with status codes indicating grouping (T, J1, J2, S, and V) would have dollars on the same claim mapped to CPTs that were not typically paired with a status code rolled up into them.

To strengthen the APC analysis, medical events were summarized by APC by "repricing" ASC and physician office claims through the OPPS logic (with mock values added to make them look like OPPS claims) allowing APCs to be assigned to claims taking place in those places of service. This provided a much closer comparison between OPPS and the other service locations. Line level comparisons were

[2] BCBSA_Issue_Brief_Site_Neutral_Payment_Proposal_2.28.23.pdf

made by allocating physician payments that would be unpaid ("packaged") under OPPS to the payment line(s) based on the OPPS Payment.

Note that some services were ignored in the study, such as:

- Services that cannot be safely performed in an ASC or physician office setting. For example, emergency care, critical care and trauma care.
- Services in which Medicare already pays the same amount regardless of setting. For example, dialysis, outpatient therapy, mammography test.

Our analysis was performed only on beneficiaries in a set of targeted disease groupings. We reviewed the following conditions which are defined using the diagnosis codes included in the HHS-HCC 2021 DIY Model Table 3 mapping: breast cancer, rheumatoid arthritis, COPD, multiple sclerosis, non-Hodgkin lymphoma, multiple myeloma and Crohn's disease. Please note that the disease groupings are not mutually exclusive.

In addition to condition mappings, we reviewed results based on county level Medicare Advantage penetration level, urban vs rural status, and risk score band.

Results

After reviewing utilization levels for different services at the APC level, Wakely identified the same 57 APCs included in the MedPAC report for inclusion in this study. In addition, Wakely identified one APC that was not included in the MedPAC list: APC 5491, Level 1 Intraocular Procedures. These 58 APCs had significant amounts of utilization in the office setting, implying that they are likely safe and appropriate services to be performed across all settings of care.

Wakely calculated the overall impact to the allowed per beneficiary per year (PBPY) expenditures by assuming the utilization for the on-campus hospital outpatient and off-campus hospital outpatient would be billed the same as if it had been incurred in the office setting. For select APCs we also included the impact of moving ASC utilization to align with the office unit cost. The Medicare beneficiary costs were assumed to be 20% of the overall allowed dollars, similar to traditional Medicare. The commercial beneficiary costs were modeled using 30% cost share, similar to a Marketplace Silver plan.

As an example, Table 1 displays the Medicare utilization and unit cost for APC 5012, Clinic Visits and Related Services, for on-campus outpatient hospital and office. The unit cost for clinic visits in the on-campus outpatient hospital is 1.5 times higher than the unit cost for clinic visits in the office setting ($238 versus $158). The allowed PBPY is calculated by taking the unit cost times the utilization per 1,000 divided by 1,000. To measure the impact on beneficiary costs if payments across all settings were set equal to the lowest unit cost, we recalculated the on-campus outpatient hospital allowed PBPY using the office unit cost. In the example below, the impact to allowed PBPY is $212 less $140, or $72. The average savings for beneficiaries is 20% of the allowed or $14 per year.

Table 1 – Example Allowed and Impact Calculations (LDS)

APC 5012 – Clinic Visits and Related Services	On Campus Outpatient Hospital	Office
Unit Cost	$238.13	$157.57
Utilization/1,000	889	600
Allowed PBPY	$211.76	$94.53
Revised Allowed PBPY	$140.13	
Beneficiary Impact (20%)	**$14.33**	

Appendix A.1 and A.2 include a comprehensive list of the 58 APCs, their description and the beneficiary cost PBPY impact by disease grouping, for the LDS and MarketScan data, respectively. Across all 58 APCs identified the average savings for Medicare beneficiaries would be $10.79 per month or $130 annually and for commercial beneficiaries $19.02 per month or $228 annually. Results vary depending on disease grouping and overall acuity which are explored further below.

Table 2 displays the assumed beneficiary impact per year across all 58 APCs by disease grouping.

Table 2 – Total Beneficiary Impact PBPY Across all 58 APCs

Disease Grouping	Medicare	Commercial
Breast cancer	$217.79	$374.70
Colitis	$111.39	$125.41
COPD	$126.11	$218.26
Crohn's disease	$135.18	$155.12
Multiple myeloma	$303.48	$665.10
Multiple sclerosis	$109.66	$170.07
Non-Hodgkin lymphoma	$209.52	$563.00
Rheumatoid arthritis	$116.98	$126.03
All Disease Groups	**$129.52**	**$228.67**

The overall beneficiary impact calculated using the commercial data is significantly higher than the impact calculated using the Medicare data. This is likely driven by hospital contracting differences between Commercial and Medicare. As mentioned above, Medicare has stricter cost controls through OPPS that have not extended fully into commercial hospital contracts yet. Therefore, the variance between the office and outpatient unit costs are higher, and the volume of services performed in outpatient hospitals is greater in commercial than Medicare (as compared to office setting).

The impact varies by disease grouping and service category. In Table 2, we observe the average Medicare beneficiary with multiple myeloma or non-Hodgkin lymphoma could experience even greater savings from site neutral payment reform than the average Medicare beneficiary with multiple sclerosis or colitis. This is driven by the utilization patterns and overall acuity of beneficiaries within these disease groupings.

Table 3 displays the top APCs with the largest beneficiary impact and utilization levels, and the average savings to each grouping of Medicare beneficiaries per year. The impact for drug administration is higher for the multiple myeloma and non-Hodgkin lymphoma than other disease groupings. This is primarily driven by higher utilization. Although the average unit cost for a given APC can vary by disease groupings, the relativity between the office setting and outpatient setting is similar for all studied disease groupings.

Table 3 – Medicare Beneficiary Impact by APC and Disease Grouping (PBPY)

Disease Grouping	Intraocular Procedures (APC:5491)	Clinic Visits (APC: 5012)	Drug Administration (APC: 5691-5694)	Imaging without Contrast (APC: 5521-5694)	Nerve Injections (APC: 5441-5443)
Total Beneficiary Impact	**$18.90**	**$14.33**	**$39.62**	**$26.38**	**$7.53**
Breast cancer	$21.83	$20.12	$34.68	$22.89	$6.12
Colitis	$19.51	$10.82	$36.38	$19.98	$7.78
COPD	$17.82	$11.95	$35.50	$29.17	$7.15
Crohn's disease	$20.66	$13.40	$54.51	$18.84	$7.43
Multiple myeloma	$24.03	$65.70	$156.34	$29.12	$5.95
Multiple sclerosis	$13.17	$12.41	$33.10	$18.99	$8.83
Non-Hodgkin lymphoma	$24.15	$33.71	$91.55	$27.43	$5.60
Rheumatoid arthritis	$20.43	$12.55	$31.81	$21.80	$10.92

Note, Intraocular procedures has a significant amount of utilization in the ASC setting. The unit cost at the ASC setting is about half of the cost at the outpatient setting. The results above show the impact if all utilization moved to the office setting. However, even aligning the outpatient costs with the ASC payment rate would produce about $3.60 beneficiary savings PBPY.

Table 4 displays the top utilized APCs and the average impact to Commercial beneficiaries by disease grouping. The impact to the commercial beneficiaries for these services is greater than the impact for the Medicare beneficiaries. Similar to the Medicare data, we see a variation depending on disease grouping.

Table 4 – Commercial Beneficiary Impact by APC and Disease Grouping (PBPY)

Disease Grouping	Drug Administration (5691-5694)	Imaging without Contrast (5521-5524)	Therapeutic Radiation Treatment (5611)	Clinic Visits (5012)	Nerve Injections (5441-5443)
Total Beneficiary Impact	**$78.79**	**$62.66**	**$15.67**	**$11.11**	**$13.69**
Breast cancer	$151.23	$77.30	$61.30	$23.31	$11.21
Colitis	$48.13	$35.11	$1.06	$4.28	$6.61
COPD	$29.94	$85.10	$4.17	$6.82	$15.60
Crohn's disease	$73.11	$34.61	$0.37	$4.86	$8.01

Disease Grouping	Drug Administration (5691-5694)	Imaging without Contrast (5521-5524)	Therapeutic Radiation Treatment (5611)	Clinic Visits (5012)	Nerve Injections (5441-5443)
Multiple myeloma	$385.33	$126.19	$24.70	$52.35	$12.81
Multiple sclerosis	$72.50	$44.35	$1.06	$6.22	$18.85
Non-Hodgkin lymphoma	$329.00	$96.09	$23.27	$41.78	$14.30
Rheumatoid arthritis	$21.34	$50.63	$1.01	$4.77	$17.56

Results were also analyzed at the CPT level to review more granular services and to model specific examples of an episode of care for a given disease group. Table 5 displays the top 10 CPT codes for a commercial breast cancer beneficiary by risk score cohort, ranked by total beneficiary impact in descending order.

Table 5 – Commercial Breast Cancer Beneficiary PBPY Impact by Risk Score Cohort

CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
77412	Radiation treatment delivery, complex	$97.57	$268.19	$536.90	$322.39
96413	Infusion of chemotherapy into a vein up to 1 hour	$4.41	$60.39	$433.52	$169.89
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$4.16	$37.85	$225.15	$94.80
77334	Radiation treatment devices, design and construction, complex	$26.98	$66.08	$176.22	$90.60
19083	Biopsy of breast accessed through the skin with ultrasound guidance, first lesion	$42.71	$57.62	$98.75	$66.82
77295	Management of radiation therapy, 3D	$22.99	$52.39	$118.87	$66.72
77385	Intensity modulated radiation therapy delivery, simple	$1.67	$23.61	$173.88	$60.44
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$6.88	$24.26	$121.61	$47.25
78306	Bone and/or joint imaging, whole body	$5.61	$18.42	$129.49	$45.27
85025	Complete blood cell count (red cells, white blood cell, platelets), automated test and automated differential white blood cell count	$2.99	$19.38	$101.04	$38.58

Higher acuity beneficiaries will on average experience higher out of pocket costs, due to both a higher frequency and intensity of care utilized. Table 5 illustrates that the average commercial breast cancer beneficiary with risk scores above 5.0 would experience a much greater impact to out-of-pocket costs than the average beneficiary with a risk score below 2.0 if site-neutral payment reform was adopted for the CPT codes displayed.

The average radiation (CPT 77412) and chemotherapy (CPT 96413) unit cost for commercial breast cancer beneficiaries with a risk score between 2.0 and 5.0 is displayed in Table 6.

Table 6 – Average Unit Cost for Commercial Breast Cancer Beneficiary (Risk Score Cohort >2.0 and < 5.0)

CPT Code	CPT Definition	On-Campus Outpatient Hospital	Off-Campus Outpatient Hospital	Office
77412	Radiation treatment delivery, complex	$4,274	$3,088	$542
96413	Infusion of chemotherapy into a vein up to 1 hour	$1,818	$1,802	$758

A breast cancer patient that needs one radiation treatment per day, five times a week, for five weeks would spend about $23,160 in an off-campus hospital. If the same treatment was performed in the office setting a beneficiary would spend about $4,065. This equals about $19,095 in savings for one schedule of treatment.

- 5 per treatment X 5 weeks = 25 days of treatment
- 25 X $3.088 X 30% cost sharing = $23,160
- 25 X $542 X 30% cost sharing = $4,065
- Difference = $19,095

Similarly, a breast cancer patient needing chemotherapy once every three weeks for six months would spend on average about $4,325 in the off-campus outpatient hospital setting and about $1,820 in the office setting, which equals about $2,505 in savings.

- Assumed 8 total infusions
- 8 X $1,802 X 30% cost sharing = $4,325
- 8 X $758 X 30% cost sharing = $1,820
- Difference = $2,505

Table 7 includes five CPT codes for a common treatment regimen used for a beneficiary with multiple myeloma.

Table 7 – Average Unit Cost for Medicare Multiple Myeloma Beneficiary

CPT Code	CPT Definition	On-Campus Outpatient Hospital	Off-Campus Outpatient Hospital	Office
85025	Complete Blood Count (CBC)	$30	$8	$8
80053	Comprehensive Metabolic Panel	$21	$12	$11
99214	Office Visit	$301	$97	$130
86334	Immunofixation	$46	$42	$21
96372	Subcutaneous Drug Administration	$65	$52	$16

Using the National Comprehensive Cancer Network (NCCN) treatment guidelines and US Food and Drug Administration (FDA) labels, the Leukemia and Lymphoma Society (LLS) created an example treatment plan for a non-transplant multiple myeloma patient which includes a regimen of daratumumab (administered via subcutaneous injection), in combination with lenalidomide and dexamethasone (oral pills). This regimen is administered in 28-day cycles until disease progression or until it can no longer be tolerated by the patient.

Using the first cycle of treatment as an example, a beneficiary would have the following utilization and costs:

- 4 CBCs:
  - On-Campus Outpatient Hospital $30 X 4 X 20% = $24
  - Office $8 X 4 X 20% = $6
- 4 Comp metabolic panels:
  - On-Campus Outpatient Hospital $21 X 4 X 20% = $17
  - Office $11 X 4 X 20% = $8
- 4 drug administrations (subcutaneous):
  - On-Campus Outpatient Hospital $65 X 4 X 20% = $52
  - Office $16 X 4 X 20% = $13
- 4 office visits
  - On-Campus Outpatient Hospital $301 X 4 X 20% = $241
  - Office $130 X 4 X 20% = $104
- 1 immunofixation (to start the new cycle)

- On-Campus Outpatient Hospital $46 X 20% = $9
- Office $21X 20% = $4

The beneficiary out-of-pocket cost for the above treatments in an on-campus outpatient hospital is about $343. If the same treatments were performed in the office setting a beneficiary would spend about $135. This produces about $207 in out-of-pocket savings for one cycle of treatment. As mentioned above, the protocol for treatment plan is to continue cycles until the disease progresses or the patient cannot tolerate the drugs. The FDA[3] indicates the first two cycles of this regimen are administered weekly, cycles three through six are administered every two weeks and cycle six and onward are administered every four weeks. Therefore, a multiple myeloma patient could continue this cycle for years incurring additional out-of-pocket costs. If the example above is expanded to represent a patient with multiple myeloma needing treatment for one year, the annual costs would vary by as much as $6,096 between settings and the patient could save as much as $1,220 from site neutral payment reform, absent any budget neutrality adjustments.

Please note the examples above are for illustrative purposes only and are not intended to be comprehensive of all costs associated with cancer treatment plans.

Appendix B.1 and B.2 display the top 10 CPT codes and the beneficiary impact by disease grouping and risk score cohort, for Medicare and Commercial, respectively.

Geographic location also plays a role in the overall impact to the beneficiary. Within the LDS data, we found that the average impact was more significant in the rural setting than in the metro setting. In addition, we saw there was a greater impact to beneficiaries in low MA penetration areas than higher MA penetration areas. Note, there is likely to be correlation between rural counties and counties with low MA penetration.

Tables 8 and 9 display the impact to an MA beneficiary with Non-Hodgkin Lymphoma by area location and MA penetration levels. Appendix C.1 and C.2 display the top 10 CPT codes and the beneficiary impact by disease grouping and area, for Medicare and Commercial, respectively. Appendix C.3 includes the top 10 CPT codes and the beneficiary impact by disease grouping and MA penetration levels for Medicare.

Table 8 – Medicare Non-Hodgkin Lymphoma Beneficiary PBPY Impact by Area

CPT Code	CPT Definition	Rural	Urban	Total
66984	Removal of cataract with insertion of lens, simple	$27.52	$22.03	$23.80
38222	Diagnostic aspirations and biopsies of bone marrow	$24.04	$20.06	$21.37
36561	Insertion of central venous catheter and implanted device for infusion beneath the skin, patient 5 years or older	$22.89	$18.86	$19.74

[3] https://www.accessdata.fda.gov/drugsatfda_docs/label/2019/761036s020lbl.pdf

CPT Code	CPT Definition	Rural	Urban	Total
99214	Established patient office or other outpatient, visit typically 25 minutes	$19.03	$8.03	$13.14
71260	CT scan chest with contrast	$13.80	$10.34	$11.47
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$11.29	$11.33	$11.25
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$18.07	$5.99	$8.87
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$17.98	$5.58	$8.03
74177	CT scan of abdomen and pelvis with contrast	$13.35	$4.42	$7.49
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$7.95	$6.36	$7.04

Table 9 – Medicare Non-Hodgkin Lymphoma Beneficiary PBPY Impact by MA Penetration

CPT Code	CPT Definition	< 40%	40% - 50%	> 50%
66984	Removal of cataract with insertion of lens, simple	$28.45	$21.39	$17.96
38222	Diagnostic aspirations and biopsies of bone marrow	$21.58	$20.45	$22.49
36561	Insertion of central venous catheter and implanted device for infusion beneath the skin, patient 5 years or older	$20.72	$17.82	$19.97
99214	Established patient office or other outpatient, visit typically 25 minutes	$15.19	$9.75	$8.79
71260	CT scan chest with contrast	$12.29	$13.20	$7.86
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$10.63	$10.95	$12.91
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$15.14	$9.95	$0.00
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$9.93	$12.37	$0.64
74177	CT scan of abdomen and pelvis with contrast	$8.42	$8.12	$4.84
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$8.09	$7.57	$4.91

The opposite observation is made in the Commercial data, where the beneficiary impact is greater in metro areas vs. rural areas. This is likely driven by contracting differences between hospitals and payors within commercial and Medicare. Table 10 displays the impact of a commercial beneficiary with Multiple Myeloma by area location.

The relative difference in the average Medicare beneficiary per year impact is about one to three times higher in a rural area than metro. However, in the commercial data the impact is about 1-8 times higher, depending on the CPT.

Table 10 – Commercial Multiple Myeloma Beneficiary PBPY Impact by Area

CPT Code	CPT Definition	Rural	Metro	Total
96413	Infusion of chemotherapy into a vein up to 1 hour	$83.24	$682.79	$519.71
38222	Diagnostic aspirations and biopsies of bone marrow	$152.44	$616.32	$476.06
36430	Transfusion of blood or blood products	$74.23	$278.11	$216.26
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$160.40	$203.74	$189.49
80053	Blood test, comprehensive group of blood chemicals	$51.67	$227.58	$174.64
78816	Nuclear medicine study with CT imaging whole body	$70.03	$190.24	$151.24
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$34.16	$172.91	$133.50
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$45.85	$127.39	$102.53
36415	Insertion of needle into vein for collection of blood sample	$97.54	$82.01	$86.73
85025	Complete blood cell count (red cells, white blood cell, platelets), automated test and automated differential white blood cell count	$26.83	$105.57	$81.70

Conclusion

In conclusion, the Wakely analysis found that beneficiaries in the eight studied disease groupings would experience significant savings, sometimes thousands of dollars, in out-of-pocket cost sharing dollars if policy reform were implemented such that payment rates across ambulatory service settings were set equal to the lowest rate for those services deemed safe and appropriate to be performed in all settings.

The beneficiary impact varies depending on disease type and is higher for those with higher acuity. The beneficiary impact also varies depending on geographic location.

While there have been some site-neutral policies implemented in recent years (mainly in Medicare), there are other opportunities to produce additional beneficiary savings such as expanding upon the BBA to eliminate the grandfathering act or include more services than just office visits.

Disclosures and Limitations

Rachel Stewart is the actuary responsible for this communication. She is a Member of the American Academy of Actuaries and an Associate of the Society of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to issue this report.

This analysis uses the 2021 Medicare 5% Sample Limited Data Set and the Marketscan commercial data sources. We have reviewed the data for reasonableness but have not performed any independent audit or otherwise verified the accuracy of the data/information. If the underlying information is incomplete or inaccurate, our estimates may be impacted, potentially significantly.

The assumptions and resulting estimates included in this analysis are inherently uncertain. Users of the results should be qualified to use it and understand the results and the inherent uncertainty.

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Wakely's STORY

Five decades. Wakely began in 1969 and eventually evolved into several successful divisions. In 1999, the actuarial arm became the current-day Wakely Consulting Group, LLC, which specializes in providing actuarial expertise in the healthcare industry. Today, there are few healthcare topics our actuaries cannot tackle.

Wakely is now a subsidiary of Health Management Associates. HMA is an independent, national research and consulting firm specializing in publicly funded healthcare and human services policy, programs, financing, and evaluation. We serve government, public and private providers, health systems, health plans, community-based organizations, institutional investors, foundations, and associations. Every client matters. Every client gets our best. With more than 20 offices and over 400 multidisciplinary consultants coast to coast, our expertise, our services, and our team are always within client reach.

Broad healthcare knowledge. Wakely is experienced in all facets of the healthcare industry, from carriers to providers to governmental agencies. Our employees excel at providing solutions to parties across the spectrum.

Your advocate. Our actuarial experts and policy analysts continually monitor and analyze potential changes to inform our clients' strategies – and propel their success.

Our Vision: To partner with clients to drive business growth, accelerate success, and propel the health care industry forward.

Our Mission: We empower our unique team to serve as trusted advisors with a foundation of robust data, advanced analytics, and a comprehensive understanding of the health care industry.

Learn more about Wakely Consulting Group at www.wakely.com

Leukemia & Lymphoma Society's STORY

The Leukemia & Lymphoma Society® (LLS) is a global leader in the fight against blood cancer.

The LLS Mission: Cure leukemia, lymphoma, Hodgkin disease and myeloma, and improve the quality of life of patients and their families. LLS funds lifesaving blood cancer research around the world, provides free information and support services, and is the voice for all blood cancer patients seeking access to quality, affordable, coordinated care.

Lean more about the Leukemia & Lymphoma Society at www.lls.org

Appendix A.1 - Beneficiary Cost PBPY Impact - Medicare					
Disease Grouping					
APC Code	APC Definition	Breast Cancer	Colitis	COPD	Crohns Disease
Total Beneficiary Impact		$127.79	$111.39	$126.11	$135.18
5491	Level 1 Intraocular Procedures	$21.83	$19.51	$17.82	$20.66
5012	Clinic Visits and Related Services	$20.12	$10.82	$11.95	$13.40
5691	Level 1 Drug Administration	$6.33	$9.97	$16.03	$11.29
5693	Level 3 Drug Administration	$6.98	$16.59	$11.29	$22.31
5694	Level 4 Drug Administration	$17.84	$8.76	$6.19	$16.51
5522	Level 2 Imaging without Contrast	$7.61	$6.18	$8.60	$6.03
5524	Level 4 Imaging without Contrast	$8.50	$5.46	$8.28	$5.12
5523	Level 3 Imaging without Contrast	$3.41	$6.06	$5.90	$5.24
5521	Level 1 Imaging without Contrast	$3.37	$2.27	$6.38	$2.46
5593	Level 3 Nuclear Medicine and Related Services	$2.90	$3.03	$4.68	$2.80
5443	Level 3 Nerve Injections	$2.78	$3.48	$3.57	$3.14
5692	Level 2 Drug Administration	$3.53	$1.06	$1.98	$4.40
5052	Level 2 Skin Procedures	$1.12	$1.46	$3.06	$1.46
5442	Level 2 Nerve Injections	$2.13	$2.49	$2.42	$3.15
5373	Level 3 Urology and Related Services	$1.07	$2.03	$2.57	$3.45
5724	Level 4 Diagnostic Tests and Related Services	$0.76	$1.27	$1.77	$1.13
5441	Level 1 Nerve Injections	$1.21	$1.81	$1.16	$1.14
5722	Level 2 Diagnostic Tests and Related Services	$0.52	$0.75	$1.76	$0.49
5153	Level 3 Airway Endoscopy	$0.42	$0.61	$1.53	$0.37
5611	Level 1 Therapeutic Radiation Treatment Preparation	$5.73	$0.38	$0.34	$0.00
5071	Level 1 Excision/ Biopsy/ Incision and Drainage	$3.16	$0.76	$0.65	$0.70
5733	Level 3 Minor Procedures	$0.23	$0.18	$1.03	$0.16
5823	Level 3 Health and Behavior Services	$0.40	$0.43	$0.80	$1.99
5051	Level 1 Skin Procedures	$0.38	$0.40	$0.72	$0.43
5101	Level 1 Strapping and Cast Application	$0.14	$0.06	$0.65	$0.17
5372	Level 2 Urology and Related Services	$0.24	$0.60	$0.59	$0.36
5481	Laser Eye Procedures	$0.65	$0.57	$0.46	$0.46
5734	Level 4 Minor Procedures	$0.54	$0.32	$0.35	$0.56
5164	Level 4 ENT Procedures	$0.18	$0.28	$0.48	$0.54
5723	Level 3 Diagnostic Tests and Related Services	$0.23	$0.40	$0.39	$0.72
5822	Level 2 Health and Behavior Services	$0.36	$0.20	$0.31	$0.15
5671	Level 1 Pathology	$0.43	$0.50	$0.36	$0.44
5371	Level 1 Urology and Related Services	$0.08	$0.47	$0.30	$0.21
5731	Level 1 Minor Procedures	$0.06	$0.00	$0.35	$0.15
5053	Level 3 Skin Procedures	$0.21	$0.14	$0.22	$0.29
5721	Level 1 Diagnostic Tests and Related Services	$0.12	$0.16	$0.30	$0.00
5732	Level 2 Minor Procedures	$0.18	$0.05	$0.23	$0.05
5054	Level 4 Skin Procedures	$0.75	$1.50	$0.00	$1.35
5163	Level 3 ENT Procedures	$0.06	$0.06	$0.12	$0.25
5161	Level 1 ENT Procedures	$0.03	$0.05	$0.12	$0.18
5111	Level 1 Musculoskeletal Procedures	$0.08	$0.09	$0.07	$0.09
5102	Level 2 Strapping and Cast Application	$0.04	$0.00	$0.06	$0.01

Appendix A.1 - Beneficiary Cost PBPY Impact - Medicare					
		Disease Grouping			
APC Code	APC Definition	Breast Cancer	Colitis	COPD	Crohns Disease
5152	Level 2 Airway Endoscopy	$0.03	$0.02	$0.05	$0.00
5412	Level 2 Gynecologic Procedures	$0.08	$0.00	$0.03	$0.03
5821	Level 1 Health and Behavior Services	$0.03	$0.01	$0.03	$0.01
5162	Level 2 ENT Procedures	$0.01	$0.01	$0.04	$0.00
5413	Level 3 Gynecologic Procedures	$0.06	$0.01	$0.02	$0.05
5811	Manipulation Therapy	$0.01	$0.06	$0.03	$0.00
5411	Level 1 Gynecologic Procedures	$0.05	$0.02	$0.01	$0.01
5621	Level 1 Radiation Therapy	$0.06	$0.00	$0.01	$0.00
5501	Level 1 Extraocular, Repair, and Plastic Eye Procedures	$0.03	$0.01	$0.01	$0.01
5735	Level 5 Minor Procedures	$0.01	$0.00	$0.01	$0.03
5742	Level 2 Electronic Analysis of Devices	$0.02	$0.00	$0.01	$0.01
5502	Level 2 Extraocular, Repair, and Plastic Eye Procedures	$0.01	$0.00	$0.00	$0.00
5741	Level 1 Electronic Analysis of Devices	$0.00	$0.00	$0.00	$0.00
5151	Level 1 Airway Endoscopy	$0.00	$0.00	$0.00	$0.00
5743	Level 3 Electronic Analysis of Devices	$0.00	$0.03	$0.00	$0.01
5055	Level 5 Skin Procedures	$0.69	$0.02	$0.00	$1.21

Appendix A.1 - Beneficiary Cost PBPY Impact - Medicare						
Disease Grouping						
APC Code	APC Definition	Multiple Myeloma	Multiple Sclerosis	Non-Hodgkin Lymphoma	Rheumatoid Arthritis	Total
Total Beneficiary Impact		$303.48	$109.66	$209.52	$116.98	$129.52
5491	Level 1 Intraocular Procedures	$24.03	$13.17	$24.15	$20.43	$18.90
5012	Clinic Visits and Related Services	$65.70	$12.41	$33.71	$12.55	$14.33
5691	Level 1 Drug Administration	$40.36	$7.54	$16.14	$8.88	$13.68
5693	Level 3 Drug Administration	$36.18	$13.49	$20.36	$12.67	$12.06
5694	Level 4 Drug Administration	$66.86	$9.57	$33.22	$8.19	$10.54
5522	Level 2 Imaging without Contrast	$7.37	$5.86	$7.24	$6.91	$7.99
5524	Level 4 Imaging without Contrast	$10.95	$3.93	$10.87	$6.43	$7.90
5523	Level 3 Imaging without Contrast	$6.16	$6.12	$5.72	$5.54	$5.49
5521	Level 1 Imaging without Contrast	$4.64	$3.08	$3.60	$2.92	$5.01
5593	Level 3 Nuclear Medicine and Related Services	$3.31	$1.90	$3.28	$3.71	$4.08
5443	Level 3 Nerve Injections	$2.91	$3.13	$2.53	$5.29	$3.63
5692	Level 2 Drug Administration	$12.93	$2.49	$21.83	$2.07	$3.33
5052	Level 2 Skin Procedures	$2.67	$2.72	$1.65	$3.30	$2.67
5442	Level 2 Nerve Injections	$2.24	$4.16	$2.12	$3.56	$2.59
5373	Level 3 Urology and Related Services	$2.24	$6.23	$4.33	$1.71	$2.39
5724	Level 4 Diagnostic Tests and Related Services	$0.84	$1.32	$1.06	$1.23	$1.49
5441	Level 1 Nerve Injections	$0.79	$1.53	$0.95	$2.06	$1.30
5722	Level 2 Diagnostic Tests and Related Services	$0.52	$0.30	$0.56	$0.66	$1.28
5153	Level 3 Airway Endoscopy	$0.95	$0.08	$1.38	$0.58	$1.14
5611	Level 1 Therapeutic Radiation Treatment Preparation	$0.49	$0.44	$1.77	$0.19	$1.10
5071	Level 1 Excision/ Biopsy/ Incision and Drainage	$0.98	$0.54	$1.49	$0.69	$1.07
5733	Level 3 Minor Procedures	$0.43	$0.20	$0.65	$0.26	$0.72
5823	Level 3 Health and Behavior Services	$0.32	$1.05	$0.30	$0.44	$0.70
5051	Level 1 Skin Procedures	$0.80	$1.07	$0.47	$0.72	$0.66
5101	Level 1 Strapping and Cast Application	$0.09	$0.51	$0.11	$0.68	$0.53
5372	Level 2 Urology and Related Services	$0.58	$0.91	$0.86	$0.39	$0.52
5481	Laser Eye Procedures	$0.44	$0.33	$0.54	$0.57	$0.50
5734	Level 4 Minor Procedures	$2.68	$0.32	$2.24	$0.31	$0.43
5164	Level 4 ENT Procedures	$0.22	$0.49	$0.64	$0.38	$0.42
5723	Level 3 Diagnostic Tests and Related Services	$0.33	$0.34	$0.71	$0.46	$0.39
5822	Level 2 Health and Behavior Services	$0.21	$0.20	$0.18	$0.71	$0.36
5671	Level 1 Pathology	$0.38	$0.13	$0.74	$0.24	$0.36
5371	Level 1 Urology and Related Services	$0.17	$1.01	$0.55	$0.17	$0.28
5731	Level 1 Minor Procedures	$0.35	$0.01	$0.09	$0.11	$0.27
5053	Level 3 Skin Procedures	$0.16	$0.29	$0.47	$0.24	$0.22
5721	Level 1 Diagnostic Tests and Related Services	$0.16	$0.03	$0.01	$0.09	$0.21
5732	Level 2 Minor Procedures	$0.00	$0.05	$0.43	$0.09	$0.21
5054	Level 4 Skin Procedures	$2.23	$0.56	$1.47	$0.62	$0.18
5163	Level 3 ENT Procedures	$0.19	$0.00	$0.06	$0.07	$0.11
5161	Level 1 ENT Procedures	$0.06	$0.01	$0.02	$0.05	$0.09
5111	Level 1 Musculoskeletal Procedures	$0.09	$0.05	$0.04	$0.07	$0.07
5102	Level 2 Strapping and Cast Application	$0.00	$0.17	$0.02	$0.06	$0.05

Appendix A.1 - Beneficiary Cost PBPY Impact - Medicare						
Disease Grouping						
APC Code	APC Definition	Multiple Myeloma	Multiple Sclerosis	Non-Hodgkin Lymphoma	Rheumatoid Arthritis	Total
5152	Level 2 Airway Endoscopy	$0.01	$0.03	$0.09	$0.04	$0.05
5412	Level 2 Gynecologic Procedures	$0.03	$0.06	$0.00	$0.03	$0.04
5821	Level 1 Health and Behavior Services	$0.00	$0.06	$0.01	$0.03	$0.03
5162	Level 2 ENT Procedures	$0.02	$0.00	$0.01	$0.02	$0.03
5413	Level 3 Gynecologic Procedures	$0.06	$0.00	$0.02	$0.03	$0.03
5811	Manipulation Therapy	$0.02	$0.00	$0.00	$0.04	$0.03
5411	Level 1 Gynecologic Procedures	$0.03	$0.21	$0.00	$0.02	$0.02
5621	Level 1 Radiation Therapy	$0.08	$0.00	$0.17	$0.01	$0.02
5501	Level 1 Extraocular, Repair, and Plastic Eye Procedures	$0.05	$0.01	$0.02	$0.03	$0.02
5735	Level 5 Minor Procedures	$0.03	$0.01	$0.00	$0.01	$0.01
5742	Level 2 Electronic Analysis of Devices	$0.00	$0.00	$0.04	$0.01	$0.01
5502	Level 2 Extraocular, Repair, and Plastic Eye Procedures	$0.00	$0.01	$0.00	$0.00	$0.00
5741	Level 1 Electronic Analysis of Devices	$0.00	$0.00	$0.00	$0.00	$0.00
5151	Level 1 Airway Endoscopy	$0.07	$0.00	$0.00	$0.00	$0.00
5743	Level 3 Electronic Analysis of Devices	$0.00	$0.53	$0.04	$0.04	$0.00
5055	Level 5 Skin Procedures	$0.04	$0.99	$0.53	$0.35	$0.00

Appendix A.2 - Beneficiary Cost PBPY Impact - Commercial					
APC Code	CPT Definition	Breast Cancer	Colitis	COPD	Crohns Disease
Total Beneficiary Impact		$374.70	$125.41	$218.26	$155.12
5694	Level 4 Drug Administration	$63.71	$21.19	$11.20	$38.44
5522	Level 2 Imaging without Contrast	$23.69	$11.50	$27.05	$12.61
5524	Level 4 Imaging without Contrast	$32.24	$7.01	$22.37	$5.98
5692	Level 2 Drug Administration	$41.15	$5.41	$4.85	$10.23
5691	Level 1 Drug Administration	$37.02	$7.99	$7.60	$8.58
5611	Level 1 Therapeutic Radiation Treatment Preparation	$61.30	$1.06	$4.17	$0.37
5523	Level 3 Imaging without Contrast	$11.08	$12.77	$19.80	$11.63
5012	Clinic Visits and Related Services	$23.31	$4.28	$6.82	$4.86
5693	Level 3 Drug Administration	$9.35	$13.53	$6.30	$15.85
5521	Level 1 Imaging without Contrast	$10.29	$3.83	$15.88	$4.39
5442	Level 2 Nerve Injections	$6.53	$2.77	$6.21	$2.45
5443	Level 3 Nerve Injections	$3.08	$2.62	$7.45	$4.45
5491	Level 1 Intraocular Procedures	$4.61	$1.86	$10.10	$3.12
5071	Level 1 Excision/ Biopsy/ Incision and Drainage	$16.36	$1.06	$1.91	$1.43
5724	Level 4 Diagnostic Tests and Related Services	$1.80	$2.08	$11.23	$2.88
5593	Level 3 Nuclear Medicine and Related Services	$2.34	$2.22	$11.42	$1.62
5671	Level 1 Pathology	$3.04	$10.31	$1.98	$8.53
5052	Level 2 Skin Procedures	$2.54	$1.30	$5.96	$1.26
5722	Level 2 Diagnostic Tests and Related Services	$1.15	$1.08	$6.99	$1.56
5441	Level 1 Nerve Injections	$1.60	$1.22	$1.94	$1.12
5723	Level 3 Diagnostic Tests and Related Services	$1.06	$0.90	$2.98	$1.59
5721	Level 1 Diagnostic Tests and Related Services	$1.10	$0.76	$2.52	$1.11
5373	Level 3 Urology and Related Services	$0.50	$1.01	$2.10	$1.92
5164	Level 4 ENT Procedures	$0.52	$1.00	$1.56	$1.58
5733	Level 3 Minor Procedures	$1.31	$0.27	$2.19	$0.34
5055	Level 5 Skin Procedures	$3.94	$0.21	$0.46	$0.00
5153	Level 3 Airway Endoscopy	$0.45	$0.27	$2.78	$0.36
5054	Level 4 Skin Procedures	$1.77	$0.53	$1.31	$0.30
5051	Level 1 Skin Procedures	$0.76	$0.34	$1.75	$0.52
5734	Level 4 Minor Procedures	$0.81	$0.33	$1.39	$0.28
5823	Level 3 Health and Behavior Services	$0.66	$0.58	$0.72	$1.16
5053	Level 3 Skin Procedures	$1.25	$0.32	$0.64	$0.28
5732	Level 2 Minor Procedures	$1.18	$0.08	$0.76	$0.07
5822	Level 2 Health and Behavior Services	$0.45	$0.28	$0.77	$0.94
5151	Level 1 Airway Endoscopy	$0.20	$1.19	$0.51	$0.20
5101	Level 1 Strapping and Cast Application	$0.12	$0.09	$0.99	$0.07
5411	Level 1 Gynecologic Procedures	$0.27	$0.46	$0.09	$0.73
5372	Level 2 Urology and Related Services	$0.29	$0.25	$0.52	$0.37
5111	Level 1 Musculoskeletal Procedures	$0.25	$0.21	$0.27	$0.29
5413	Level 3 Gynecologic Procedures	$0.35	$0.29	$0.05	$0.29
5371	Level 1 Urology and Related Services	$0.08	$0.28	$0.25	$0.34
5161	Level 1 ENT Procedures	$0.09	$0.16	$0.33	$0.24
5412	Level 2 Gynecologic Procedures	$0.20	$0.17	$0.23	$0.24

Appendix A.2 - Beneficiary Cost PBPY Impact - Commercial					
APC Code	CPT Definition	Breast Cancer	Colitis	COPD	Crohns Disease
5163	Level 3 ENT Procedures	$0.06	$0.00	$0.27	$0.08
5481	Laser Eye Procedures	$0.22	$0.10	$0.18	$0.05
5741	Level 1 Electronic Analysis of Devices	$0.09	$0.04	$0.18	$0.07
5743	Level 3 Electronic Analysis of Devices	$0.07	$0.01	$0.10	$0.04
5152	Level 2 Airway Endoscopy	$0.04	$0.01	$0.12	$0.04
5102	Level 2 Strapping and Cast Application	$0.05	$0.05	$0.13	$0.03
5821	Level 1 Health and Behavior Services	$0.01	$0.00	$0.18	$0.11
5742	Level 2 Electronic Analysis of Devices	$0.03	$0.04	$0.10	$0.01
5735	Level 5 Minor Procedures	$0.17	$0.02	$0.02	$0.00
5621	Level 1 Radiation Therapy	$0.07	$0.00	$0.02	$0.00
5502	Level 2 Extraocular, Repair, and Plastic Eye Procedures	$0.01	$0.00	$0.12	$0.02
5162	Level 2 ENT Procedures	$0.02	$0.02	$0.06	$0.06
5501	Level 1 Extraocular, Repair, and Plastic Eye Procedures	$0.03	$0.04	$0.00	$0.04
5811	Manipulation Therapy	$0.02	$0.00	$0.02	$0.00
5731	Level 1 Minor Procedures	$0.00	$0.00	$0.39	$0.00

Appendix A.2 - Beneficiary Cost PBPY Impact - Commercial						
APC Code	CPT Definition	Multiple Myeloma	Multiple Sclerosis	Non-Hodgkin Lymphoma	Rheumatoid Arthritis	Total
	Total Beneficiary Impact	$665.10	$170.07	$563.00	$126.03	$228.67
5694	Level 4 Drug Administration	$151.55	$29.36	$120.10	$7.61	$33.40
5522	Level 2 Imaging without Contrast	$34.27	$14.26	$24.32	$17.76	$20.15
5524	Level 4 Imaging without Contrast	$48.64	$6.77	$46.37	$9.98	$18.06
5692	Level 2 Drug Administration	$105.60	$11.95	$100.12	$3.20	$17.77
5691	Level 1 Drug Administration	$57.13	$16.51	$74.05	$5.38	$16.69
5611	Level 1 Therapeutic Radiation Treatment Preparation	$24.70	$1.06	$23.27	$1.01	$15.67
5523	Level 3 Imaging without Contrast	$30.75	$18.75	$16.24	$15.79	$15.31
5012	Clinic Visits and Related Services	$52.35	$6.22	$41.78	$4.77	$11.11
5693	Level 3 Drug Administration	$71.04	$14.68	$34.74	$5.16	$10.93
5521	Level 1 Imaging without Contrast	$12.54	$4.57	$9.16	$7.10	$9.13
5442	Level 2 Nerve Injections	$6.26	$11.47	$10.37	$6.46	$6.18
5443	Level 3 Nerve Injections	$5.14	$4.36	$2.28	$7.33	$5.30
5491	Level 1 Intraocular Procedures	$7.86	$3.24	$4.13	$4.03	$5.26
5071	Level 1 Excision/ Biopsy/ Incision and Drainage	$2.09	$1.54	$6.11	$1.07	$5.09
5724	Level 4 Diagnostic Tests and Related Services	$3.16	$3.50	$3.05	$3.52	$4.72
5593	Level 3 Nuclear Medicine and Related Services	$4.72	$2.09	$3.24	$3.70	$4.72
5671	Level 1 Pathology	$2.38	$1.25	$3.08	$1.52	$3.46
5052	Level 2 Skin Procedures	$9.23	$1.26	$6.21	$1.92	$2.97
5722	Level 2 Diagnostic Tests and Related Services	$2.85	$2.29	$3.76	$1.99	$2.81
5441	Level 1 Nerve Injections	$1.41	$3.03	$1.65	$3.77	$2.20
5723	Level 3 Diagnostic Tests and Related Services	$2.01	$2.27	$1.72	$2.07	$1.91
5721	Level 1 Diagnostic Tests and Related Services	$1.85	$1.00	$1.71	$1.25	$1.43
5373	Level 3 Urology and Related Services	$2.53	$1.97	$1.79	$1.08	$1.37
5164	Level 4 ENT Procedures	$3.23	$0.51	$5.03	$0.93	$1.13
5733	Level 3 Minor Procedures	$1.42	$0.52	$2.34	$0.63	$1.10
5055	Level 5 Skin Procedures	$0.00	$0.19	$0.37	$0.15	$1.05
5153	Level 3 Airway Endoscopy	$1.69	$0.13	$2.35	$0.60	$1.03
5054	Level 4 Skin Procedures	$1.29	$0.34	$1.07	$0.67	$1.01
5051	Level 1 Skin Procedures	$1.53	$0.53	$1.08	$0.55	$0.87
5734	Level 4 Minor Procedures	$2.79	$0.41	$1.24	$0.65	$0.86
5823	Level 3 Health and Behavior Services	$0.41	$0.66	$0.80	$0.46	$0.67
5053	Level 3 Skin Procedures	$3.36	$0.14	$0.81	$0.33	$0.63
5732	Level 2 Minor Procedures	$2.56	$0.10	$2.32	$0.10	$0.60
5822	Level 2 Health and Behavior Services	$0.50	$0.30	$0.57	$0.59	$0.58
5151	Level 1 Airway Endoscopy	$0.45	$0.05	$0.70	$0.24	$0.38
5101	Level 1 Strapping and Cast Application	$0.12	$0.07	$0.24	$0.45	$0.38
5411	Level 1 Gynecologic Procedures	$0.22	$0.56	$0.29	$0.53	$0.37
5372	Level 2 Urology and Related Services	$1.28	$0.36	$0.96	$0.24	$0.37
5111	Level 1 Musculoskeletal Procedures	$0.00	$0.11	$0.00	$0.27	$0.24
5413	Level 3 Gynecologic Procedures	$0.06	$0.23	$1.20	$0.15	$0.23
5371	Level 1 Urology and Related Services	$0.29	$0.46	$0.24	$0.15	$0.22

Appendix A.2 - Beneficiary Cost PBPY Impact - Commercial						
APC Code	CPT Definition	Multiple Myeloma	Multiple Sclerosis	Non-Hodgkin Lymphoma	Rheumatoid Arthritis	Total
5161	Level 1 ENT Procedures	$1.84	$0.01	$0.08	$0.14	$0.19
5412	Level 2 Gynecologic Procedures	$0.06	$0.06	$0.04	$0.08	$0.16
5163	Level 3 ENT Procedures	$0.50	$0.13	$1.24	$0.13	$0.16
5481	Laser Eye Procedures	$0.04	$0.12	$0.46	$0.11	$0.15
5741	Level 1 Electronic Analysis of Devices	$0.12	$0.06	$0.12	$0.08	$0.10
5743	Level 3 Electronic Analysis of Devices	$0.17	$0.39	$0.01	$0.04	$0.09
5152	Level 2 Airway Endoscopy	$0.00	$0.02	$0.09	$0.08	$0.07
5102	Level 2 Strapping and Cast Application	$0.16	$0.00	$0.00	$0.04	$0.06
5821	Level 1 Health and Behavior Services	$0.04	$0.02	$0.00	$0.01	$0.06
5742	Level 2 Electronic Analysis of Devices	$0.08	$0.07	$0.00	$0.04	$0.05
5735	Level 5 Minor Procedures	$0.00	$0.05	$0.01	$0.02	$0.05
5621	Level 1 Radiation Therapy	$0.68	$0.00	$0.00	$0.01	$0.04
5502	Level 2 Extraocular, Repair, and Plastic Eye Procedures	$0.00	$0.00	$0.00	$0.01	$0.04
5162	Level 2 ENT Procedures	$0.00	$0.02	$0.05	$0.03	$0.04
5501	Level 1 Extraocular, Repair, and Plastic Eye Procedures	$0.02	$0.00	$0.03	$0.04	$0.03
5811	Manipulation Therapy	$0.00	$0.01	$0.00	$0.00	$0.01
5731	Level 1 Minor Procedures	$0.13	$0.00	$0.00	$0.00	$0.00

Appendix B.1 - Total Beneficiary Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
66984	Removal of cataract with insertion of lens, simple	$21.96	$20.50	$18.25	$20.11
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$1.65	$6.33	$23.86	$11.98
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$4.67	$7.08	$17.17	$10.49
99214	Established patient office or other outpatient, visit typically 25 minutes	$6.59	$8.13	$10.40	$8.39
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$5.83	$7.17	$8.81	$7.36
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$5.12	$4.65	$8.21	$6.34
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$3.47	$4.64	$7.58	$5.44
99213	Established patient office or other outpatient visit, typically 15 minutes	$4.51	$4.95	$5.98	$5.22
96413	Infusion of chemotherapy into a vein up to 1 hour	$4.10	$3.43	$6.07	$4.97
G0008	Administration of influenza virus vaccine CARRIER JUDGMENT	$0.44	$1.51	$8.40	$3.97

Appendix B.1 - Breast Cancer Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
66984	Removal of cataract with insertion of lens, simple	$24.99	$22.39	$24.12	$24.41
77334	Radiation treatment devices, design and construction, complex	$13.55	$10.80	$15.15	$13.54
96413	Infusion of chemotherapy into a vein up to 1 hour	$7.63	$7.18	$31.55	$13.08
19083	Biopsy of breast accessed through the skin with ultrasound guidance, first lesion	$13.21	$8.39	$5.86	$10.83
99214	Established patient office or other outpatient, visit typically 25 minutes	$7.04	$8.07	$13.55	$8.71
77295	Management of radiation therapy, 3D	$8.96	$6.42	$9.02	$8.61
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$5.49	$8.42	$11.99	$7.39
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$4.76	$7.11	$10.33	$6.44
71260	CT scan chest with contrast	$2.47	$3.37	$11.90	$4.77
99213	Established patient office or other outpatient visit, typically 15 minutes	$4.04	$4.61	$6.23	$4.62

Appendix B.1 - Colitis Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
66984	Removal of cataract with insertion of lens, simple	$21.54	$16.23	$21.73	$20.67
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$20.75	$21.66	$16.87	$19.52
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$5.48	$8.45	$15.12	$8.64
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$5.14	$7.56	$15.30	$7.60
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$3.21	$6.05	$13.01	$6.25
99214	Established patient office or other outpatient, visit typically 25 minutes	$4.26	$6.15	$9.14	$5.84
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$0.72	$3.70	$17.27	$5.56
96360	Hydration infusion into a vein 31 minutes to 1 hour	$0.00	$2.18	$17.90	$5.43
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$3.28	$4.91	$7.88	$4.74
99213	Established patient office or other outpatient visit, typically 15 minutes	$3.30	$3.70	$4.32	$3.83

Appendix B.1 - COPD Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
66984	Removal of cataract with insertion of lens, simple	$21.10	$19.47	$16.81	$18.78
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$2.03	$8.70	$28.69	$15.85
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$4.49	$7.60	$18.96	$12.00
99214	Established patient office or other outpatient, visit typically 25 minutes	$6.81	$8.48	$9.96	$8.58
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$6.31	$8.42	$8.76	$7.85
99213	Established patient office or other outpatient visit, typically 15 minutes	$5.10	$5.47	$6.07	$5.62
G0008	Administration of influenza virus vaccine CARRIER JUDGMENT	$0.56	$2.02	$9.43	$4.96
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$1.98	$3.89	$6.87	$4.72
78452	Nuclear medicine study of vessels of heart using drugs or exercise multiple studies	$4.60	$4.66	$3.98	$4.32
97535	Self-care or home management training, each 15 minutes	$0.46	$2.31	$6.82	$3.99

Appendix B.1 - Crohns Disease Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
66984	Removal of cataract with insertion of lens, simple	$24.17	$27.15	$19.35	$23.10
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$20.57	$16.88	$13.75	$17.16
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$9.48	$8.40	$12.79	$10.30
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$7.60	$0.00	$13.28	$9.56
96413	Infusion of chemotherapy into a vein up to 1 hour	$1.17	$10.81	$12.88	$8.11
99214	Established patient office or other outpatient, visit typically 25 minutes	$3.95	$5.45	$8.47	$6.06
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$3.73	$4.73	$9.10	$6.00
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$3.74	$4.01	$5.56	$4.50
96360	Hydration infusion into a vein 31 minutes to 1 hour	$0.81	$2.72	$7.92	$3.86
99213	Established patient office or other outpatient visit, typically 15 minutes	$2.59	$3.23	$5.26	$3.76

Appendix B.1 - Multiple Myeloma Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
38222	Diagnostic aspirations and biopsies of bone marrow	$130.47	$76.55	$75.48	$86.23
96413	Infusion of chemotherapy into a vein up to 1 hour	$35.80	$90.12	$68.76	$62.81
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$31.46	$24.23	$21.91	$24.03
66984	Removal of cataract with insertion of lens, simple	$19.75	$0.00	$26.02	$23.78
99214	Established patient office or other outpatient, visit typically 25 minutes	$14.45	$16.22	$19.91	$18.63
99215	Established patient office or other outpatient, visit typically 40 minutes	$11.19	$10.16	$17.94	$16.80
36430	Transfusion of blood or blood products	$0.00	$0.00	$10.56	$12.34
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$14.21	$10.89	$9.93	$10.82
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$9.49	$9.28	$10.48	$10.25
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$6.70	$6.62	$10.79	$9.65

Appendix B.1 - Multiple Sclerosis Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$3.56	$5.96	$38.66	$21.31
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$8.13	$7.52	$26.00	$16.55
66984	Removal of cataract with insertion of lens, simple	$19.89	$12.94	$11.35	$13.52
96413	Infusion of chemotherapy into a vein up to 1 hour	$0.32	$8.94	$21.69	$13.08
70553	MRI scan of brain before and after contrast	$10.48	$13.13	$13.33	$12.71
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$19.55	$9.67	$6.03	$9.90
99214	Established patient office or other outpatient, visit typically 25 minutes	$3.31	$5.36	$7.10	$5.83
97112	Therapeutic procedure to re-educate brain-to-nerve-to-muscle function, each 15 minutes	$2.29	$2.00	$9.14	$5.46
96415	Infusion of chemotherapy into a vein	$1.08	$4.99	$7.33	$5.38
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$4.03	$4.39	$6.36	$5.35

Appendix B.1 - Non-Hodgkin Lymphoma Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
66984	Removal of cataract with insertion of lens, simple	$16.43	$24.59	$26.26	$23.80
38222	Diagnostic aspirations and biopsies of bone marrow	$38.53	$16.01	$17.19	$21.37
36561	Insertion of central venous catheter and implanted device for infusion beneath the skin, patient 5 years or older	$49.14	$12.65	$10.59	$19.74
99214	Established patient office or other outpatient, visit typically 25 minutes	$10.38	$9.26	$14.71	$13.14
71260	CT scan chest with contrast	$9.86	$9.70	$12.83	$11.47
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$18.12	$7.23	$10.37	$11.25
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$0.00	$9.53	$20.55	$8.87
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$17.91	$5.04	$5.70	$8.03
74177	CT scan of abdomen and pelvis with contrast	$9.67	$6.48	$7.06	$7.49
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$5.47	$5.81	$8.04	$7.04

Appendix B.1 - Rheumatoid Arthritis Cost PBPY Impact by Risk Score Cohort - Medicare					
CPT Code	CPT Definition	< 1.0	1.0 - 1.4	> 1.4	Total
66984	Removal of cataract with insertion of lens, simple	$20.47	$23.49	$20.32	$21.40
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$14.74	$8.41	$9.28	$10.93
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$5.09	$6.28	$13.18	$8.70
99214	Established patient office or other outpatient, visit typically 25 minutes	$5.75	$6.90	$9.99	$7.93
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$1.34	$2.94	$12.30	$5.91
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$4.00	$4.83	$8.39	$5.89
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$4.75	$3.13	$6.70	$4.92
99213	Established patient office or other outpatient visit, typically 15 minutes	$3.89	$4.43	$5.53	$4.67
96413	Infusion of chemotherapy into a vein up to 1 hour	$5.08	$2.47	$6.25	$4.57
11042	Removal of skin and tissue first 20 sq cm or less	$1.57	$1.32	$7.86	$3.81

Appendix B.2 - Total Beneficiary Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
96413	Infusion of chemotherapy into a vein up to 1 hour	$3.28	$44.60	$164.35	$83.44
77412	Radiation treatment delivery, complex	$6.02	$132.98	$82.27	$75.29
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$5.42	$22.77	$66.93	$37.00
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$26.01	$31.92	$45.71	$35.93
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$10.49	$22.49	$43.55	$27.68
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$4.83	$0.05	$51.81	$26.47
77334	Radiation treatment devices, design and construction, complex	$1.67	$33.22	$30.18	$22.80
80053	Blood test, comprehensive group of blood chemicals	$7.63	$16.28	$37.72	$22.62
70553	MRI scan of brain before and after contrast	$5.37	$14.10	$39.76	$22.19
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$1.78	$8.04	$43.96	$21.01

Appendix B.2 - Breast Cancer Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
77412	Radiation treatment delivery, complex	$97.57	$268.19	$536.90	$322.39
96413	Infusion of chemotherapy into a vein up to 1 hour	$4.41	$60.39	$433.52	$169.89
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$4.16	$37.85	$225.15	$94.80
77334	Radiation treatment devices, design and construction, complex	$26.98	$66.08	$176.22	$90.60
19083	Biopsy of breast accessed through the skin with ultrasound guidance, first lesion	$42.71	$57.62	$98.75	$66.82
77295	Management of radiation therapy, 3D	$22.99	$52.39	$118.87	$66.72
77385	Intensity modulated radiation therapy delivery, simple	$1.67	$23.61	$173.88	$60.44
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$6.88	$24.26	$121.61	$47.25
78306	Bone and/or joint imaging, whole body	$5.61	$18.42	$129.49	$45.27
85025	Complete blood cell count (red cells, white blood cell, platelets), automated test and automated differential white blood cell count	$2.99	$19.38	$101.04	$38.58

Appendix B.2 - Colitis Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$89.68	$131.67	$152.15	$129.90
43239	Biopsy of the esophagus, stomach, and/or upper small bowel using an endoscope	$24.12	$21.21	$46.43	$32.39
96413	Infusion of chemotherapy into a vein up to 1 hour	$2.29	$0.00	$78.31	$32.35
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$4.90	$4.93	$60.67	$27.83
88305	Pathology examination of tissue using a microscope, intermediate complexity	$12.02	$18.40	$22.96	$18.70
80053	Blood test, comprehensive group of blood chemicals	$8.96	$7.13	$25.56	$15.08
74177	CT scan of abdomen and pelvis with contrast	$8.35	$7.65	$18.56	$12.32
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$4.86	$4.69	$21.68	$11.78
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$5.57	$6.27	$11.99	$9.95
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$4.63	$6.62	$14.62	$9.36

Appendix B.2 - COPD Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
77386	Intensity modulated radiation therapy delivery, complex	$0.00	$14.10	$163.08	$50.87
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$15.21	$44.73	$64.29	$34.88
96413	Infusion of chemotherapy into a vein up to 1 hour	$0.00	$0.00	$86.34	$25.72
78452	Nuclear medicine study of vessels of heart using drugs or exercise multiple studies	$16.84	$29.66	$37.79	$25.29
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$3.15	$8.40	$52.27	$18.57
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$4.52	$7.10	$43.79	$17.21
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$3.89	$14.08	$40.23	$16.43
80053	Blood test, comprehensive group of blood chemicals	$7.28	$13.20	$32.72	$15.83
94060	Measurement and graphic recording of the amount and speed of breathed air, before and following medication administration	$11.51	$14.58	$21.52	$15.01
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$10.79	$13.93	$22.83	$14.92

Appendix B.2 - Crohns Disease Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$87.85	$103.57	$144.34	$122.35
96413	Infusion of chemotherapy into a vein up to 1 hour	$3.28	$1.83	$110.25	$64.11
43239	Biopsy of the esophagus, stomach, and/or upper small bowel using an endoscope	$35.71	$38.00	$67.03	$53.97
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$12.05	$8.06	$78.33	$49.57
74177	CT scan of abdomen and pelvis with contrast	$12.90	$14.60	$22.08	$18.42
88305	Pathology examination of tissue using a microscope, intermediate complexity	$10.79	$16.16	$20.50	$17.20
74183	MRI scan of abdomen before and after contrast	$8.14	$10.01	$23.11	$16.98
72197	MRI scan of pelvis before and after contrast	$8.56	$9.13	$22.64	$16.71
80053	Blood test, comprehensive group of blood chemicals	$7.85	$10.16	$20.37	$15.39
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$3.94	$5.73	$20.23	$13.68

Appendix B.2 - Multiple Myeloma Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
96413	Infusion of chemotherapy into a vein up to 1 hour	$55.99	$20.79	$575.70	$519.71
38222	Diagnostic aspirations and biopsies of bone marrow	$176.59	$70.77	$515.61	$476.06
36430	Transfusion of blood or blood products	$0.00	$0.00	$242.04	$216.26
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$6.36	$7.17	$211.52	$189.49
80053	Blood test, comprehensive group of blood chemicals	$37.17	$23.64	$191.51	$174.64
78816	Nuclear medicine study with CT imaging whole body	$75.17	$36.69	$162.13	$151.24
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$20.01	$13.06	$146.98	$133.50
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$21.92	$33.09	$112.15	$102.53
36415	Insertion of needle into vein for collection of blood sample	$6.79	$11.63	$96.29	$86.73
85025	Complete blood cell count (red cells, white blood cell, platelets), automated test and automated differential white blood cell count	$12.67	$10.58	$90.13	$81.70

Appendix B.2 - Multiple Sclerosis Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
70553	MRI scan of brain before and after contrast	$142.70	$108.63	$150.84	$138.54
96413	Infusion of chemotherapy into a vein up to 1 hour	$0.00	$84.85	$55.12	$61.07
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$7.46	$7.45	$32.39	$24.23
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$16.53	$15.86	$25.87	$22.54
96415	Infusion of chemotherapy into a vein	$0.93	$6.35	$25.11	$20.79
70551	MRI scan brain	$20.53	$14.79	$16.95	$16.57
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$14.65	$8.28	$11.97	$11.11
72156	MRI scan of upper spinal canal before and after contrast	$10.81	$10.16	$11.45	$11.08
36415	Insertion of needle into vein for collection of blood sample	$20.08	$6.23	$8.68	$8.66
80053	Blood test, comprehensive group of blood chemicals	$6.36	$6.53	$9.66	$8.62

Appendix B.2 - Non-Hodgkin Lymphoma Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
96413	Infusion of chemotherapy into a vein up to 1 hour	$15.07	$722.39	$483.67	$465.57
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$52.30	$527.45	$355.40	$341.84
77386	Intensity modulated radiation therapy delivery, complex	$0.00	$0.00	$215.95	$205.56
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$28.38	$264.91	$197.15	$189.11
38222	Diagnostic aspirations and biopsies of bone marrow	$11.86	$0.00	$147.05	$135.26
96415	Infusion of chemotherapy into a vein	$8.61	$14.98	$119.87	$108.28
74177	CT scan of abdomen and pelvis with contrast	$30.07	$147.38	$100.27	$97.64
80053	Blood test, comprehensive group of blood chemicals	$25.06	$74.04	$98.99	$93.10
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$8.95	$12.93	$88.19	$80.01
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$31.54	$109.69	$80.80	$78.77

Appendix B.2 - Rheumatoid Arthritis Cost PBPY Impact by Risk Score Cohort - Commercial					
CPT Code	CPT Definition	< 2.0	2.0 - 5.0	> 5.0	Total
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$14.69	$16.60	$17.99	$16.46
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$7.44	$19.31	$20.96	$15.33
96413	Infusion of chemotherapy into a vein up to 1 hour	$3.53	$9.33	$24.11	$14.63
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$3.66	$14.68	$18.44	$10.95
80053	Blood test, comprehensive group of blood chemicals	$7.05	$11.22	$14.17	$10.90
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$4.27	$8.65	$15.47	$10.00
85025	Complete blood cell count (red cells, white blood cell, platelets), automated test and automated differential white blood cell count	$3.45	$6.23	$12.98	$8.18
78452	Nuclear medicine study of vessels of heart using drugs or exercise multiple studies	$4.91	$9.98	$9.54	$7.76
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$4.90	$10.48	$8.52	$7.18
36415	Insertion of needle into vein for collection of blood sample	$3.45	$4.93	$9.18	$6.28

Appendix C.1 - Total Beneficiary Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
66984	Removal of cataract with insertion of lens, simple	$21.46	$19.19	$20.11
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$11.85	$12.10	$11.98
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$11.11	$9.85	$10.49
99214	Established patient office or other outpatient, visit typically 25 minutes	$13.96	$4.78	$8.39
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$9.12	$6.34	$7.36
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$11.85	$3.80	$6.34
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$6.66	$4.61	$5.44
99213	Established patient office or other outpatient visit, typically 15 minutes	$9.90	$2.15	$5.22
96413	Infusion of chemotherapy into a vein up to 1 hour	$6.26	$4.51	$4.97
G0008	Administration of influenza virus vaccine CARRIER JUDGMENT	$3.48	$4.33	$3.97

Appendix C.1 - Breast Cancer Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
66984	Removal of cataract with insertion of lens, simple	$26.47	$23.19	$24.41
77334	Radiation treatment devices, design and construction, complex	$14.98	$12.83	$13.54
96413	Infusion of chemotherapy into a vein up to 1 hour	$18.67	$10.67	$13.08
19083	Biopsy of breast accessed through the skin with ultrasound guidance, first lesion	$13.15	$9.81	$10.83
99214	Established patient office or other outpatient, visit typically 25 minutes	$14.91	$5.50	$8.71
77295	Management of radiation therapy, 3D	$9.60	$8.13	$8.61
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$8.68	$6.90	$7.39
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$7.44	$5.83	$6.44
71260	CT scan chest with contrast	$6.02	$4.18	$4.77
99213	Established patient office or other outpatient visit, typically 15 minutes	$9.16	$2.52	$4.62

Appendix C.1 - Colitis Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
66984	Removal of cataract with insertion of lens, simple	$19.82	$21.13	$20.67
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$30.34	$16.54	$19.52
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$13.66	$6.64	$8.64
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$11.82	$6.12	$7.60
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$6.59	$6.06	$6.25
99214	Established patient office or other outpatient, visit typically 25 minutes	$9.75	$4.00	$5.84
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$3.30	$6.77	$5.56
96360	Hydration infusion into a vein 31 minutes to 1 hour	$5.35	$5.36	$5.43
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$6.04	$4.21	$4.74
99213	Established patient office or other outpatient visit, typically 15 minutes	$7.86	$1.58	$3.83

Appendix C.1 - COPD Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
66984	Removal of cataract with insertion of lens, simple	$20.54	$17.43	$18.78
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$14.74	$16.73	$15.85
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$11.89	$11.84	$12.00
99214	Established patient office or other outpatient, visit typically 25 minutes	$14.20	$4.36	$8.58
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$9.86	$6.51	$7.85
99213	Established patient office or other outpatient visit, typically 15 minutes	$10.36	$2.09	$5.62
G0008	Administration of influenza virus vaccine CARRIER JUDGMENT	$4.10	$5.64	$4.96
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$5.82	$3.94	$4.72
78452	Nuclear medicine study of vessels of heart using drugs or exercise multiple studies	$5.69	$3.41	$4.32
97535	Self-care or home management training, each 15 minutes	$3.61	$4.09	$3.99

Appendix C.1 - Crohns Disease Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
66984	Removal of cataract with insertion of lens, simple	$27.18	$21.05	$23.10
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$14.89	$17.91	$17.16
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$17.54	$6.43	$10.30
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$10.24	$9.09	$9.56
96413	Infusion of chemotherapy into a vein up to 1 hour	$8.22	$7.59	$8.11
99214	Established patient office or other outpatient, visit typically 25 minutes	$10.58	$3.92	$6.06
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$8.19	$4.89	$6.00
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$5.16	$4.24	$4.50
96360	Hydration infusion into a vein 31 minutes to 1 hour	$4.37	$3.49	$3.86
99213	Established patient office or other outpatient visit, typically 15 minutes	$7.54	$2.03	$3.76

Appendix C.1 - Multiple Myeloma Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
38222	Diagnostic aspirations and biopsies of bone marrow	$97.25	$81.25	$86.23
96413	Infusion of chemotherapy into a vein up to 1 hour	$52.21	$67.20	$62.81
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$34.33	$19.92	$24.03
66984	Removal of cataract with insertion of lens, simple	$23.28	$23.97	$23.78
99214	Established patient office or other outpatient, visit typically 25 minutes	$26.43	$14.43	$18.63
99215	Established patient office or other outpatient, visit typically 40 minutes	$18.90	$12.57	$16.80
36430	Transfusion of blood or blood products	$0.00	$12.69	$12.34
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$13.61	$9.80	$10.82
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$14.93	$8.19	$10.25
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$14.30	$7.59	$9.65

Appendix C.1 - Multiple Sclerosis Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$21.08	$21.44	$21.31
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$18.89	$15.21	$16.55
66984	Removal of cataract with insertion of lens, simple	$13.53	$13.51	$13.52
96413	Infusion of chemotherapy into a vein up to 1 hour	$9.49	$15.76	$13.08
70553	MRI scan of brain before and after contrast	$18.71	$9.54	$12.71
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$10.18	$9.89	$9.90
99214	Established patient office or other outpatient, visit typically 25 minutes	$9.61	$3.62	$5.83
97112	Therapeutic procedure to re-educate brain-to-nerve-to-muscle function, each 15 minutes	$4.36	$6.08	$5.46
96415	Infusion of chemotherapy into a vein	$2.90	$6.83	$5.38
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$6.75	$4.68	$5.35

Appendix C.1 - Non-Hodgkin Lymphoma Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
66984	Removal of cataract with insertion of lens, simple	$27.52	$22.03	$23.80
38222	Diagnostic aspirations and biopsies of bone marrow	$24.04	$20.06	$21.37
36561	Insertion of central venous catheter and implanted device for infusion beneath the skin, patient 5 years or older	$22.89	$18.86	$19.74
99214	Established patient office or other outpatient, visit typically 25 minutes	$19.03	$8.03	$13.14
71260	CT scan chest with contrast	$13.80	$10.34	$11.47
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$11.29	$11.33	$11.25
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$18.07	$5.99	$8.87
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$17.98	$5.58	$8.03
74177	CT scan of abdomen and pelvis with contrast	$13.35	$4.42	$7.49
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$7.95	$6.36	$7.04

Appendix C.1 - Rheumatoid Arthritis Cost PBPY Impact by Area - Medicare				
CPT Code	CPT Definition	Rural	Metro	Total
66984	Removal of cataract with insertion of lens, simple	$21.72	$21.26	$21.40
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$19.30	$6.64	$10.93
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$10.49	$7.31	$8.70
99214	Established patient office or other outpatient, visit typically 25 minutes	$13.45	$4.30	$7.93
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$6.57	$5.52	$5.91
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$7.08	$5.26	$5.89
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$5.81	$4.38	$4.92
99213	Established patient office or other outpatient visit, typically 15 minutes	$9.27	$1.91	$4.67
96413	Infusion of chemotherapy into a vein up to 1 hour	$5.60	$4.26	$4.57
11042	Removal of skin and tissue first 20 sq cm or less	$3.88	$3.85	$3.81

Appendix C.2 - Total Beneficiary Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
96413	Infusion of chemotherapy into a vein up to 1 hour	$26.53	$111.71	$83.44
77412	Radiation treatment delivery, complex	$18.21	$103.81	$75.29
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$10.57	$50.34	$37.00
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$13.53	$47.78	$35.93
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$14.28	$34.81	$27.68
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$13.74	$32.63	$26.47
77334	Radiation treatment devices, design and construction, complex	$7.72	$30.77	$22.80
80053	Blood test, comprehensive group of blood chemicals	$9.49	$29.49	$22.62
70553	MRI scan of brain before and after contrast	$8.57	$29.33	$22.19
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$10.56	$26.70	$21.01

Appendix C.2 - Breast Cancer Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
77412	Radiation treatment delivery, complex	$86.95	$421.18	$322.39
96413	Infusion of chemotherapy into a vein up to 1 hour	$57.58	$214.51	$169.89
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$25.18	$124.81	$94.80
77334	Radiation treatment devices, design and construction, complex	$34.57	$115.53	$90.60
19083	Biopsy of breast accessed through the skin with ultrasound guidance, first lesion	$24.71	$85.73	$66.82
77295	Management of radiation therapy, 3D	$25.26	$85.19	$66.72
77385	Intensity modulated radiation therapy delivery, simple	$14.44	$81.45	$60.44
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$19.37	$59.66	$47.25
78306	Bone and/or joint imaging, whole body	$15.24	$58.66	$45.27
85025	Complete blood cell count (red cells, white blood cell, platelets), automated test and automated differential white blood cell count	$12.01	$50.39	$38.58

Appendix C.2 - Colitis Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$51.35	$164.17	$129.90
43239	Biopsy of the esophagus, stomach, and/or upper small bowel using an endoscope	$13.07	$40.60	$32.39
96413	Infusion of chemotherapy into a vein up to 1 hour	$9.45	$41.96	$32.35
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$13.67	$33.16	$27.83
88305	Pathology examination of tissue using a microscope, intermediate complexity	$5.88	$24.31	$18.70
80053	Blood test, comprehensive group of blood chemicals	$5.21	$19.34	$15.08
74177	CT scan of abdomen and pelvis with contrast	$6.87	$14.61	$12.32
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$4.94	$14.74	$11.78
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$1.98	$13.02	$9.95
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$3.65	$11.87	$9.36

Appendix C.2 - COPD Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
77386	Intensity modulated radiation therapy delivery, complex	$15.81	$77.58	$50.87
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$22.43	$44.39	$34.88
96413	Infusion of chemotherapy into a vein up to 1 hour	$9.71	$37.09	$25.72
78452	Nuclear medicine study of vessels of heart using drugs or exercise multiple studies	$18.81	$29.97	$25.29
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$10.65	$24.79	$18.57
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$6.83	$23.90	$17.21
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$13.34	$19.93	$16.43
80053	Blood test, comprehensive group of blood chemicals	$8.77	$21.15	$15.83
94060	Measurement and graphic recording of the amount and speed of breathed air, before and following medication administration	$8.77	$19.75	$15.01
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$10.13	$18.56	$14.92

Appendix C.2 - Crohns Disease Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$43.71	$158.30	$122.35
96413	Infusion of chemotherapy into a vein up to 1 hour	$25.22	$81.82	$64.11
43239	Biopsy of the esophagus, stomach, and/or upper small bowel using an endoscope	$14.97	$71.82	$53.97
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$11.32	$62.17	$49.57
74177	CT scan of abdomen and pelvis with contrast	$9.46	$22.27	$18.42
88305	Pathology examination of tissue using a microscope, intermediate complexity	$4.60	$23.01	$17.20
74183	MRI scan of abdomen before and after contrast	$5.85	$22.00	$16.98
72197	MRI scan of pelvis before and after contrast	$2.65	$23.04	$16.71
80053	Blood test, comprehensive group of blood chemicals	$5.34	$19.95	$15.39
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$6.49	$16.84	$13.68

Appendix C.2 - Multiple Myeloma Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
96413	Infusion of chemotherapy into a vein up to 1 hour	$83.24	$682.79	$519.71
38222	Diagnostic aspirations and biopsies of bone marrow	$152.44	$616.32	$476.06
36430	Transfusion of blood or blood products	$74.23	$278.11	$216.26
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$160.40	$203.74	$189.49
80053	Blood test, comprehensive group of blood chemicals	$51.67	$227.58	$174.64
78816	Nuclear medicine study with CT imaging whole body	$70.03	$190.24	$151.24
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$34.16	$172.91	$133.50
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$45.85	$127.39	$102.53
36415	Insertion of needle into vein for collection of blood sample	$97.54	$82.01	$86.73
85025	Complete blood cell count (red cells, white blood cell, platelets), automated test and automated differential white blood cell count	$26.83	$105.57	$81.70

Appendix C.2 - Multiple Sclerosis Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
70553	MRI scan of brain before and after contrast	$60.09	$175.22	$138.54
96413	Infusion of chemotherapy into a vein up to 1 hour	$22.61	$77.55	$61.07
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$5.38	$32.90	$24.23
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$8.40	$29.25	$22.54
96415	Infusion of chemotherapy into a vein	$3.57	$27.39	$20.79
70551	MRI scan brain	$3.99	$22.60	$16.57
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$4.64	$14.21	$11.11
72156	MRI scan of upper spinal canal before and after contrast	$5.23	$13.83	$11.08
36415	Insertion of needle into vein for collection of blood sample	$2.42	$11.52	$8.66
80053	Blood test, comprehensive group of blood chemicals	$3.75	$10.91	$8.62

Appendix C.2 - Non-Hodgkin Lymphoma Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
96413	Infusion of chemotherapy into a vein up to 1 hour	$103.11	$600.76	$465.57
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$150.30	$424.51	$341.84
77386	Intensity modulated radiation therapy delivery, complex	$0.00	$263.57	$205.56
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$44.17	$247.45	$189.11
38222	Diagnostic aspirations and biopsies of bone marrow	$41.28	$175.61	$135.26
96415	Infusion of chemotherapy into a vein	$24.85	$141.49	$108.28
74177	CT scan of abdomen and pelvis with contrast	$46.20	$119.62	$97.64
80053	Blood test, comprehensive group of blood chemicals	$34.72	$117.31	$93.10
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$17.93	$106.51	$80.01
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$31.53	$98.99	$78.77

Appendix C.2 - Rheumatoid Arthritis Cost PBPY Impact by Area - Commercial				
CPT Code	CPT Definition	Rural	Metro	Total
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$9.87	$19.85	$16.46
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$7.60	$19.35	$15.33
96413	Infusion of chemotherapy into a vein up to 1 hour	$5.32	$19.35	$14.63
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$9.03	$12.31	$10.95
80053	Blood test, comprehensive group of blood chemicals	$5.43	$13.70	$10.90
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$4.01	$13.13	$10.00
85025	Complete blood cell count (red cells, white blood cell, platelets), automated test and automated differential white blood cell count	$2.94	$10.89	$8.18
78452	Nuclear medicine study of vessels of heart using drugs or exercise multiple studies	$5.52	$8.96	$7.76
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$3.52	$9.13	$7.18
36415	Insertion of needle into vein for collection of blood sample	$8.97	$4.85	$6.28

Appendix C.3 - Total Beneficiary Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
66984	Removal of cataract with insertion of lens, simple	$21.47	$20.21	$17.33	$20.11
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$10.70	$12.04	$14.13	$11.98
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$11.00	$9.61	$10.42	$10.49
99214	Established patient office or other outpatient, visit typically 25 minutes	$10.46	$8.37	$6.39	$8.39
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$8.20	$6.99	$6.26	$7.36
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$7.94	$6.39	$3.12	$6.34
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$5.90	$5.05	$5.04	$5.44
99213	Established patient office or other outpatient visit, typically 15 minutes	$7.02	$4.32	$3.54	$5.22
96413	Infusion of chemotherapy into a vein up to 1 hour	$7.00	$2.57	$3.95	$4.97
G0008	Administration of influenza virus vaccine CARRIER JUDGMENT	$3.40	$4.21	$4.84	$3.97

Appendix C.3 - Breast Cancer Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
66984	Removal of cataract with insertion of lens, simple	$24.27	$25.80	$23.02	$24.41
77334	Radiation treatment devices, design and construction, complex	$13.17	$15.53	$12.11	$13.54
96413	Infusion of chemotherapy into a vein up to 1 hour	$16.46	$9.50	$10.59	$13.08
19083	Biopsy of breast accessed through the skin with ultrasound guidance, first lesion	$10.36	$10.94	$11.60	$10.83
99214	Established patient office or other outpatient, visit typically 25 minutes	$9.55	$6.73	$10.01	$8.71
77295	Management of radiation therapy, 3D	$8.52	$9.43	$7.87	$8.61
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$8.17	$7.21	$6.23	$7.39
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$7.22	$5.70	$4.95	$6.44
71260	CT scan chest with contrast	$4.95	$4.60	$4.59	$4.77
99213	Established patient office or other outpatient visit, typically 15 minutes	$5.73	$3.61	$3.71	$4.62

Appendix C.3 - Colitis Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
66984	Removal of cataract with insertion of lens, simple	$22.03	$18.98	$19.95	$20.67
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$21.00	$15.13	$25.84	$19.52
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$9.74	$4.82	$10.90	$8.64
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$8.70	$7.87	$6.78	$7.60
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$7.52	$5.50	$4.65	$6.25
99214	Established patient office or other outpatient, visit typically 25 minutes	$6.85	$4.96	$4.74	$5.84
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$5.97	$5.69	$4.71	$5.56
96360	Hydration infusion into a vein 31 minutes to 1 hour	$6.09	$0.00	$7.47	$5.43
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$4.60	$5.93	$3.70	$4.74
99213	Established patient office or other outpatient visit, typically 15 minutes	$4.77	$2.96	$2.22	$3.83

Appendix C.3 - COPD Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
66984	Removal of cataract with insertion of lens, simple	$20.65	$18.52	$15.40	$18.78
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$13.96	$15.63	$19.43	$15.85
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$12.08	$10.57	$12.97	$12.00
99214	Established patient office or other outpatient, visit typically 25 minutes	$10.98	$8.01	$5.67	$8.58
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$8.89	$7.37	$6.53	$7.85
99213	Established patient office or other outpatient visit, typically 15 minutes	$7.81	$4.35	$3.32	$5.62
G0008	Administration of influenza virus vaccine CARRIER JUDGMENT	$4.18	$5.23	$6.19	$4.96
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$4.81	$4.61	$4.47	$4.72
78452	Nuclear medicine study of vessels of heart using drugs or exercise multiple studies	$5.16	$3.96	$3.13	$4.32
97535	Self-care or home management training, each 15 minutes	$3.44	$3.41	$5.34	$3.99

Appendix C.3 - Crohns Disease Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
66984	Removal of cataract with insertion of lens, simple	$23.72	$21.96	$23.57	$23.10
45380	Biopsy of the large bowel using an endoscope (colonoscopy)	$18.64	$15.71	$16.08	$17.16
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$15.49	$3.52	$14.46	$10.30
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$8.11	$11.22	$10.08	$9.56
96413	Infusion of chemotherapy into a vein up to 1 hour	$9.42	$6.29	$7.38	$8.11
99214	Established patient office or other outpatient, visit typically 25 minutes	$7.13	$5.01	$5.19	$6.06
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$6.31	$6.93	$4.40	$6.00
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$4.76	$4.29	$4.30	$4.50
96360	Hydration infusion into a vein 31 minutes to 1 hour	$1.82	$5.30	$4.60	$3.86
99213	Established patient office or other outpatient visit, typically 15 minutes	$4.82	$3.15	$2.43	$3.76

Appendix C.3 - Multiple Myeloma Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
38222	Diagnostic aspirations and biopsies of bone marrow	$83.79	$91.90	$83.34	$86.23
96413	Infusion of chemotherapy into a vein up to 1 hour	$78.85	$37.34	$64.40	$62.81
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$18.60	$32.07	$24.80	$24.03
66984	Removal of cataract with insertion of lens, simple	$26.47	$23.52	$19.45	$23.78
99214	Established patient office or other outpatient, visit typically 25 minutes	$20.36	$16.64	$18.60	$18.63
99215	Established patient office or other outpatient, visit typically 40 minutes	$11.41	$20.44	$13.30	$16.80
36430	Transfusion of blood or blood products	$0.00	$0.00	$14.72	$12.34
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$11.36	$12.39	$8.41	$10.82
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$13.01	$7.90	$6.79	$10.25
96375	Injection of different drug or substance into a vein for therapy, diagnosis, or prevention	$13.11	$3.56	$10.36	$9.65

Appendix C.3 - Multiple Sclerosis Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$19.39	$24.67	$21.42	$21.31
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$18.25	$16.66	$13.37	$16.55
66984	Removal of cataract with insertion of lens, simple	$13.68	$15.28	$10.69	$13.52
96413	Infusion of chemotherapy into a vein up to 1 hour	$18.02	$7.56	$10.10	$13.08
70553	MRI scan of brain before and after contrast	$14.67	$12.06	$9.59	$12.71
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$7.67	$6.29	$14.90	$9.90
99214	Established patient office or other outpatient, visit typically 25 minutes	$7.56	$3.86	$4.68	$5.83
97112	Therapeutic procedure to re-educate brain-to-nerve-to-muscle function, each 15 minutes	$5.56	$5.67	$5.10	$5.46
96415	Infusion of chemotherapy into a vein	$7.42	$2.94	$4.22	$5.38
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$6.03	$4.57	$5.40	$5.35

Appendix C.3 - Non-Hodgkin Lymphoma Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
66984	Removal of cataract with insertion of lens, simple	$28.45	$21.39	$17.96	$23.80
38222	Diagnostic aspirations and biopsies of bone marrow	$21.58	$20.45	$22.49	$21.37
36561	Insertion of central venous catheter and implanted device for infusion beneath the skin, patient 5 years or older	$20.72	$17.82	$19.97	$19.74
99214	Established patient office or other outpatient, visit typically 25 minutes	$15.19	$9.75	$8.79	$13.14
71260	CT scan chest with contrast	$12.29	$13.20	$7.86	$11.47
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$10.63	$10.95	$12.91	$11.25
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$15.14	$9.95	$0.00	$8.87
78815	Nuclear medicine study with CT imaging skull base to mid-thigh	$9.93	$12.37	$0.64	$8.03
74177	CT scan of abdomen and pelvis with contrast	$8.42	$8.12	$4.84	$7.49
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$8.09	$7.57	$4.91	$7.04

Appendix C.3 - Rheumatoid Arthritis Cost PBPY Impact by Penetration - Medicare					
CPT Code	CPT Definition	< 40%	40% - 50%	> 50%	Total
66984	Removal of cataract with insertion of lens, simple	$21.85	$22.54	$19.43	$21.40
96365	Infusion into a vein for therapy, prevention, or diagnosis up to 1 hour	$16.05	$10.35	$2.50	$10.93
97110	Therapeutic exercise to develop strength, endurance, range of motion, and flexibility, each 15 minutes	$9.66	$8.46	$6.22	$8.70
99214	Established patient office or other outpatient, visit typically 25 minutes	$9.39	$7.67	$5.42	$7.93
97530	Therapeutic activities to improve function, with one-on-one contact between patient and provider, each 15 minutes	$5.60	$6.12	$6.29	$5.91
93306	Ultrasound examination of heart including color-depicted blood flow rate, direction, and valve function	$6.53	$5.15	$5.50	$5.89
96374	Injection of drug or substance into a vein for therapy, diagnosis, or prevention	$5.15	$3.92	$5.21	$4.92
99213	Established patient office or other outpatient visit, typically 15 minutes	$6.29	$3.58	$2.67	$4.67
96413	Infusion of chemotherapy into a vein up to 1 hour	$4.62	$4.58	$4.37	$4.57
11042	Removal of skin and tissue first 20 sq cm or less	$4.07	$3.03	$4.26	$3.81