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Evaluation of the Part D Enhanced Medication Therapy Management (MTM) Model: Second Evaluation Report

Appendix B: Methodology and Supplemental Information

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APPENDIX B METHODOLOGY AND SUPPLEMENTAL FINDINGS

This appendix contains detailed information on the methodology and supplemental findings from the analyses presented in the report. Sections B.1 through B.3 discuss methodology, including impact analyses methodology (Section B.1), qualitative methods (Section B.2), and prescriber survey methodology (Section B.3). Section B.4 contains details on data reporting requirements of the Model. Section B.5 presents supplemental findings from the prescriber survey on communication methods between PDPs and prescribers. Sections B.6 to B.8 present supplemental findings on beneficiary enrollment in Enhanced MTM plans (Section B.6), beneficiary eligibility for Enhanced MTM programs (Section B.7), and the comparison of Enhanced MTM plans and non-participating plans (Section B.8). Finally, Section B.9 provides descriptive statistics on Enhanced MTM service delivery, and Section B.10 provides supplementary findings regarding Model impacts on Medicare expenditures.

B.1 Impact Analyses Methodology

This appendix provides additional methodological details on analyses to estimate the effect of the Enhanced MTM Model on expenditures of beneficiaries enrolled in participating contract-plans. Section B.1.1 presents the approach used to select the analytic cohort, including the treatment group and appropriate comparators. Section B.1.2 summarizes the outcome measures examined in this report and provides information about how these measures are defined. Section B.1.3 presents the analytic models that produced the impact estimates and Section B.1.4 details the additional analyses that test whether the findings in this report are sensitive to the inclusion of outliers. Finally, Section B.1.5 presents the algorithm that calculates changes in net expenditures for the Model.

B.1.1 Selection of Analytic Cohort and Covariate Summaries

To select the analytic cohort, enrollees in Model-participating plans were identified and a propensity score matching approach was used to select appropriate comparators based on their demographic and baseline health characteristics. This process consists of the following three steps:

(1) Identify Pre-matching Matching Treatment Group and Eligible Treatment Beneficiary-months

The treatment cohort consists of all beneficiaries enrolled in Model-participating plans in 2017 or 2018 who had at least one month of exposure to the Model (i.e., were enrolled in a

Model-participating plan after the Model's launch), and 12 months of continuous Medicare Parts A, B, and D enrollment prior to their exposure to the Model. Beneficiaries in the treatment cohort also must not receive hospice care prior to or in the first month of their exposure to the Model, because beneficiaries in hospice have short life expectancies and are not expected to benefit from the Model. These enrollment restrictions ensure data availability for matching and estimation of Model impacts.[1] After exclusions were applied, about 67 percent of beneficiaries enrolled in participating plans remained in the treatment cohort (see Appendix Table B.1).

Appendix Table B.1: Population Exclusion Table, Treatment Cohort

	Modelwide		SilverScript/ CVS		Humana		BCBS NPA		UnitedHealth		WellCare		BCBS FL	
	Count	**Prop.**	**Count**	**Prop.**	**Count**	**Prop.**	**Count**	**Prop.**	**Count**	**Prop.**	**Count**	**Prop.**	**Count**	**Prop.**
Starting Sample	2,158,163	100%	974,467	100%	495,951	100%	261,061	100%	180,706	100%	177,550	100%	68,428	100%
Beneficiaries receiving hospice care	26,460	1.2%	12,699	1.3%	6,851	1.4%	2,120	0.8%	2,027	1.1%	2,136	1.2%	627	0.9%
Beneficiaries without 12 months of continuous enrollment (all reasons)	683,539	31.7%	363,811	37.3%	132,170	26.6%	83,725	32.1%	33,812	18.7%	61,337	34.5%	8,684	12.7%
Beneficiaries with Medicare Advantage (Part C) enrollment	*244,096*	*11.3%*	*105,928*	*10.9%*	*50,893*	*10.3%*	*54,254*	*20.8%*	*11,028*	*6.1%*	*20,832*	*11.7%*	*1,161*	*1.7%*
Beneficiaries with other types of enrollment (e.g., Part A only)	*265,532*	*12.3%*	*155,336*	*15.9%*	*52,690*	*10.6%*	*14,686*	*5.6%*	*13,572*	*7.5%*	*25,244*	*14.2%*	*4,004*	*5.9%*
Beneficiaries newly enrolled in Medicare	*173,911*	*8.1%*	*102,547*	*10.5%*	*28,587*	*5.8%*	*14,785*	*5.7%*	*9,212*	*5.1%*	*15,261*	*8.6%*	*3,519*	*5.1%*
Total beneficiaries included in treatment cohort	1,448,164	67.1%	597,957	61.4%	356,930	72.0%	175,216	67.1%	144,867	80.2%	114,077	64.3%	59,117	86.4%

Note: Prop.: Proportion.

Enhanced MTM program start dates ("index dates") were set to either January 1, 2017 (which is when Model implementation began) for beneficiaries who were enrolled in Enhanced MTM plans on or prior to January 2017, or the beneficiary's first date of enrollment in an Enhanced MTM plan for enrollees who joined Enhanced MTM plans after January 2017. Index dates determine the cutoff between the "baseline" (pre-exposure to Enhanced MTM) and "treatment" (post-exposure to Enhanced MTM) periods.

[1] Previous sensitivity analyses, which relaxed the enrollment criteria to only require 6 months of continuous Medicare Parts A, B, and D enrollment prior to exposure to the Model, found that the results from difference-in-differences (DiD) estimation were consistent with results that utilized 12 months of enrollment.

Because quantitative analyses of Model impacts use beneficiary-months as the unit of observation, eligible beneficiary-months for inclusion in analyses were identified for the beneficiaries who satisfied the enrollment restrictions outlined above. All baseline months are included in analyses, and post-exposure months are included in analyses conditional on availability of complete fee-for-service claims data (e.g., beneficiaries have not died or switched to Medicare Part C).[2] Post-exposure beneficiary-months are censored from analyses after beneficiaries switch to an Enhanced MTM-participating plan of a different sponsor than their original Part D plan, because in that case it is not possible to attribute any estimated impacts to a specific sponsor.

(2) Identify Potential Comparators and Assign Pseudo Index Dates

To select appropriate comparison beneficiaries for the treatment cohort, potential comparators who were not exposed to the Model were identified using similar enrollment restrictions to those placed on the treatment cohort. Potential comparators resided in PDP Regions that do not offer the Model, and were enrolled in plan types that are eligible for participation in the Enhanced MTM Model (i.e., Defined Standard, Basic Alternative, or Actuarially Equivalent Standard PDPs). Geographic restrictions were applied to the potential comparison group to remove beneficiaries who reside in regions far from the Enhanced MTM Model's test area (i.e., New England, New York, New Jersey, Hawaii, and Alaska) and those who reside in Maryland (due to a statewide waiver currently in place for hospital payments).

Potential comparators must not be enrolled in plans participating in the Enhanced MTM Model after the Model launched on January 1, 2017. To determine baseline and treatment periods for analyses, potential comparators were assigned pseudo index dates. The distribution of pseudo index dates mirrored the distribution of index dates in the pre-matching treatment cohort. Similar to the inclusion criteria for the pre-matching treatment cohort, potential comparator beneficiaries were also required to have continuous Parts A, B, and D enrollment for 12 months in the baseline period and for at least one month post-pseudo index date. Beneficiaries who switch into Medicare Advantage plans or other types of enrollment or receive hospice care in the baseline period or immediately following their index date were excluded from analyses.

To identify eligible beneficiary-months among potential comparators, restrictions similar to those placed for eligible beneficiary-months in the treatment cohort were imposed. All baseline months are included in analyses, and beneficiary-months following the pseudo index

[2] A supplemental analysis found that death or switching to non-Medicare Parts A, B, and D enrollment is not associated with enrollment in Enhanced MTM plans. The percentage of beneficiaries who were censored from the treatment population is similar to that of the comparison group. Additionally, the lengths of enrollment during the treatment period for the treatment group and comparison group are very similar.

date are included in analyses conditional on availability of complete fee-for-service claims data (e.g., beneficiaries have not died or switched to Medicare Part C).

(3) Conduct Matching to Select Comparison Cohort

After identifying eligible beneficiary-months for the treatment cohort and the cohort of potential comparators, propensity score estimation using baseline information was conducted at the beneficiary level, and separately for each sponsor. The propensity score model included both individual characteristics (e.g., variables related to demographic and clinical characteristics, past medical expenditures, past health care and drug utilization) as well as regional variables (e.g., urban/rural status based on zip code information, medical expenditures and healthcare utilization in Hospital Referral Region of residence, etc).

The propensity score was used to match eligible beneficiary-months in the treatment cohort to eligible beneficiary-months in the potential comparison cohort. Matching was conducted separately for each contract-plan participating in the Model, to ensure that potential comparators were enrolled in plans of the same type, and resided geographically close to the PDP region of the relevant Enhanced MTM plan. The matching process used propensity score caliper matching with replacement, combined with exact matching on select variables (e.g., age, race). Each treatment beneficiary-month was matched to up to four comparison beneficiary-months, and weights were applied to account for many-to-many matching. This process identified comparison beneficiaries for 98.6 percent of all Enhanced MTM plan enrollees in Model Years 1 and 2 who met enrollment restrictions. Appendix Table B.2 shows the number of unique beneficiaries eligible for inclusion in analyses prior to applying the matching process, and the number of those beneficiaries that were successfully matched to at least one comparator.

Appendix Table B.2: Beneficiary-level Match Rates

	Pre-matching Treatment Cohort	Post-matching Treatment Cohort	Match Rate
Modelwide	*1,448,164*	*1,427,816*	*98.59%*
SilverScript/CVS	597,957	590,342	98.73%
Humana	356,930	352,407	98.73%
BCBS NPA	175,216	173,745	99.16%
UnitedHealth	144,867	141,157	97.44%
WellCare	114,077	112,572	98.68%
BCBS FL	59,117	57,593	97.42%

The tables below assess match quality using covariate summaries that show pre- and post-matching averages and standard mean deviations for the treatment and comparison cohort and for select important beneficiary characteristics. Standard mean deviations are a conventional

diagnostic tool in propensity score matching, with a 10% maximum threshold commonly used to assess good balance in characteristics between the treatment and the comparison cohort. The covariate summaries displayed below show balance in baseline characteristics between the treatment and the comparison cohort both for the Model as a whole and for each sponsor sample (e.g., see Appendix Table B.3 for Modelwide covariate summaries).[3] Pre- and post-matching common support graphs for the propensity score are also shown for each sponsor (e.g., see Appendix Figure B.2, for SilverScript/CVS).

Difference-in-differences (DiD) estimation is appropriate only when the treatment and comparison groups share common trends in the baseline. This assumption was assessed by fitting linear trends in quarterly Medicare expenditures for the 12-month baseline period and testing whether these trends are equal for the matched treatment and the comparison cohort. Estimated differences in trends and associated p-values that test the null hypothesis of equality in baseline trends are shown below, along with graphs of baseline quarterly trends in Medicare Parts A and B expenditures, for the Model as a whole and separately for each sponsor. As shown, the null hypothesis of parallel trends cannot be rejected (at the 5 percent significance level), indicating that DiD estimation is not inappropriate. See Appendix Figure B.1 and Appendix Table B.4 for Modelwide trends and corresponding tables that follow for each sponsor.

Appendix Table B.3: Pre-matched and Post-matched Summary, Modelwide

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
Number of Beneficiaries		6,480,259	1,448,164		2,944,397	1,427,816	
% Female	E	57.26	57.86	1.20	57.99	57.99	0.00
Age							
% Under 65 Years Old	E	33.28	26.60	14.63	25.81	25.81	0.00
% 65-69 Years Old	N	20.68	19.66	2.54	20.17	20.17	0.00
% 70-74 Years Old	E	17.87	19.54	4.28	20.05	20.05	0.00
% 75-79 Years Old	E	11.62	13.62	6.04	13.83	13.83	0.00
% 80+ Years Old	E	16.55	20.59	10.38	20.15	20.15	0.00
Race							
% White	E	75.26	79.41	9.92	80.71	80.71	0.00
% Black	E	13.55	11.78	5.32	11.04	11.04	0.00
% Other	N	11.18	8.80	7.94	8.24	8.24	0.00
% Dual Eligible	E	53.42	43.61	19.72	41.21	41.21	0.00
% Urban	P	86.02	81.20	13.06	77.90	80.59	6.64
% Disabled	E	42.29	34.21	16.70	33.12	33.12	0.00
% with ESRD	E	0.81	0.72	1.03	0.61	0.61	0.00
% with LIS	E	60.25	48.47	23.81	45.81	45.81	0.00

[3] The averages shown in Appendix Table B.2 are weighted based on matching weights adjusted to account for comparison beneficiary-months matched to treatment beneficiary-months from multiple sponsors.

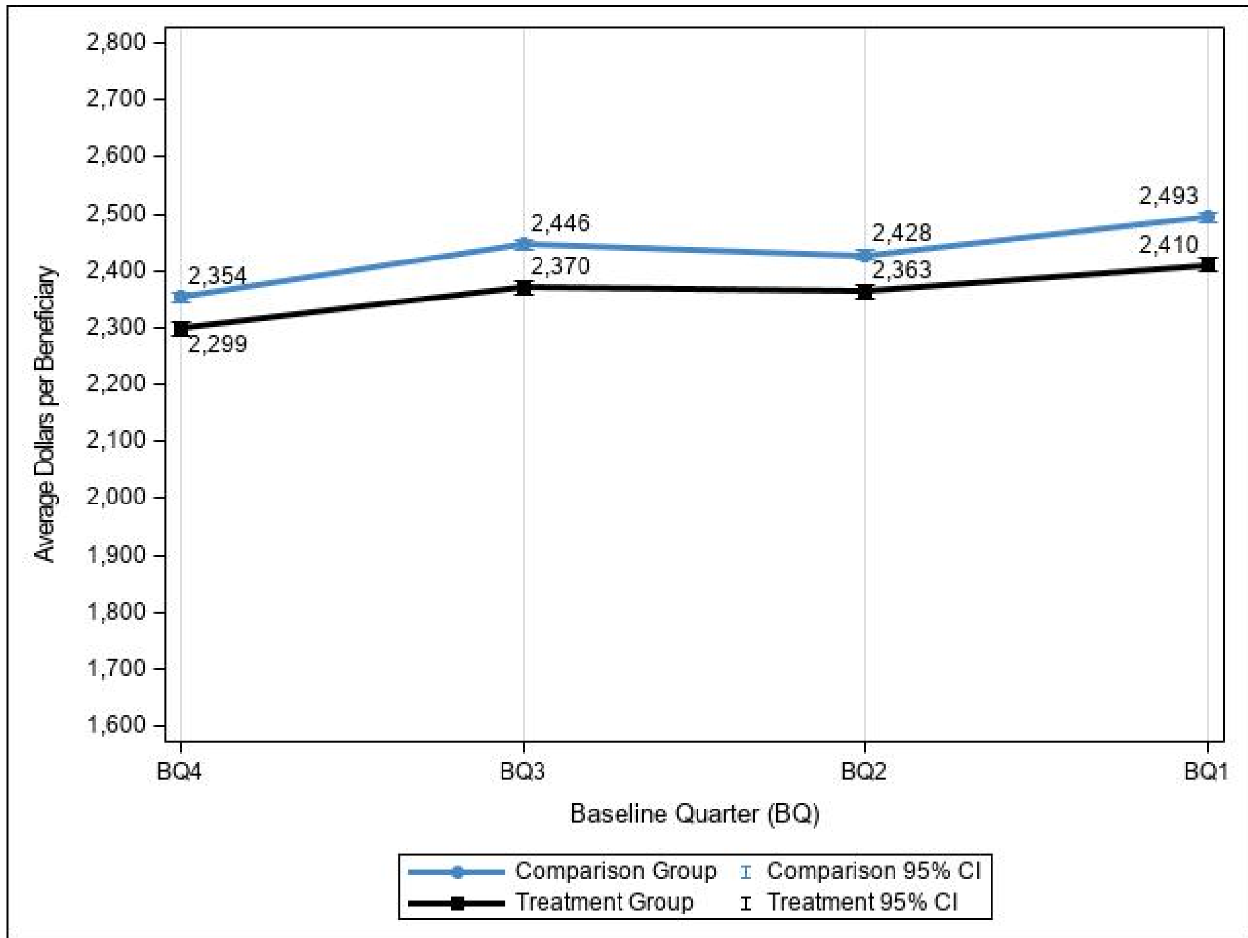
Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
Income Level in Zip Code							
% below $30,000	P	5.07	4.06	4.83	4.36	3.84	2.61
% $30,000-$60,000	N	62.31	62.87	1.16	63.61	62.38	2.55
% above $60,000	P	29.98	30.28	0.66	28.87	31.05	4.76
Health Service Utilization							
% with 0 E&M Visits	P	9.87	8.81	3.63	7.35	8.25	3.34
% with 1-5 E&M Visits	P	34.73	34.68	0.11	35.14	35.22	0.16
% with 6-10 E&M Visits	P	26.55	26.62	0.15	27.39	27.03	0.81
% with 11-15 E&M Visits	P	14.83	14.81	0.04	15.12	14.80	0.90
% with 16+ E&M Visits	P	14.02	15.08	2.99	14.99	14.70	0.82
% with 0 IP Stays	P	81.94	81.56	0.98	82.55	82.62	0.18
% with 1 IP Stay	P	11.24	11.55	0.98	11.05	11.16	0.37
% with 2+ IP Stays	P	6.82	6.89	0.27	6.41	6.22	0.76
% with 0 ED Visits	P	68.10	70.00	4.11	70.00	70.97	2.12
% with 1 ED Visit	P	17.81	17.40	1.07	17.37	17.10	0.72
% with 2+ ED Visits	P	14.09	12.60	4.39	12.62	11.92	2.13
Medical and Drug Expenditures							
Annual Medicare Parts A and B Expenditures per beneficiary	N	$11,773	$12,134	1.39	$11,623	$11,323	1.24
Expenditures in BQ 1	P	$2,997	$3,083	0.92	$2,937	$2,847	1.04
Expenditures in BQ 2	P	$2,908	$3,011	1.15	$2,875	$2,805	0.82
Expenditures in BQ 3	P	$2,924	$3,022	1.11	$2,914	$2,832	0.97
Expenditures in BQ 4	P	$2,943	$3,018	0.83	$2,897	$2,839	0.69
Annual IP Expenditures per beneficiary	N	$3,351	$3,360	0.07	$3,136	$3,062	0.61%
Expenditures in BQ 1	P	$898	$892	0.10	$814	$794	0.39
Expenditures in BQ 2	P	$817	$829	0.22	$768	$756	0.25
Expenditures in BQ 3	P	$809	$811	0.04	$773	$745	0.55
Expenditures in BQ 4	P	$827	$828	0.01	$781	$768	0.27
Annual Drug Expenditures per beneficiary	N	$4,603	$4,293	2.24	$4,206	$4,117	0.68
Expenditures in BQ 1	P	$1,183	$1,093	2.21	$1,070	$1,050	0.54
Expenditures in BQ 2	P	$1,156	$1,077	1.97	$1,054	$1,032	0.59
Expenditures in BQ 3	P	$1,139	$1,065	1.83	$1,043	$1,021	0.61
Expenditures in BQ 4	P	$1,115	$1,046	1.74	$1,027	$1,004	0.62
Drug Utilization (number of fills per category)							
Analgesics – Opioid	N	2.83	2.34	8.48	2.37	2.26	2.09
Antiasthmatic and Bronchodilator Agents	N	1.52	1.28	5.28	1.25	1.22	0.77
Anticoagulants	N	0.70	0.77	2.00	0.75	0.74	0.40
Antidiabetics	P	2.56	2.30	4.06	2.30	2.23	1.10
Antihypertensives	P	3.23	3.09	2.90	3.12	3.06	1.46
Antipsychotics/ Antimanic Agents	P	1.37	1.31	1.08	1.23	1.27	0.80
Beta Blockers	P	2.13	2.14	0.18	2.12	2.09	0.89
Calcium Channel Blockers	N	1.46	1.40	1.74	1.42	1.37	1.49
Corticosteroids	N	0.47	0.48	0.59	0.46	0.47	0.27
Musculoskeletal Therapy Agents	P	0.58	0.45	5.79	0.46	0.44	1.18

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
Number of Concurrent Medications	P	3.86	3.77	3.02	3.79	3.70	2.99
HCC score	P	1.24	1.24	0.36	1.19	1.18	0.62
Clinical Profile							
% Chronic Kidney Disease	P	23.53	23.33	0.48	23.05	22.26	1.87
% Chronic Obstructive Pulmonary Disease	P	13.93	12.97	2.82	12.43	12.19	0.72
% Congestive Heart Failure	N	12.22	12.02	0.62	11.33	11.26	0.21
% Depression	N	22.84	22.44	0.94	20.93	21.59	1.61
% Diabetes	P	30.83	29.27	3.40	29.20	28.48	1.58
% HIV/AIDS	E	0.67	0.93	3.01	0.75	0.75	0.00
% Hyperlipidemia	P	44.61	47.21	5.20	47.78	47.00	1.56
% Hypertension	P	58.86	58.89	0.06	59.57	58.21	2.76
% Osteoporosis	N	6.06	6.76	2.86	6.72	6.67	0.20
% Vascular Disease	P	14.06	14.54	1.39	13.89	13.88	0.04

Notes: E: Exact Match; P: Propensity Score Match; N: Not included in propensity score model.
BQ: Baseline Quarter; ESRD: End Stage Renal Disease; LIS: Low Income Subsidy; E&M: Evaluation and Management; IP: Inpatient; ED: Emergency Department; HCC: CMS Hierarchical Condition Categories; Comp.: Comparison Group; Treat.: Treatment Group; SMD: Standardized mean difference.
Health service utilization characteristics were added to the propensity score model as quarterly variables, but are also reported in this table as total annual averages across the 12-month baseline period. Medical expenditures correspond to total allowed costs, and drug expenditures are gross drug costs. Variables are considered well-balanced if their SMD is less than 10 percent.

Sources: Common Medicare Environment (CME; for age, sex, race, Medicare Part D enrollment, and LIS status), accessed in June 2019; Enrollment Database (EDB; for dual eligibility, urban/rural, disability, and ESRD status, residence zip code and state), accessed June 2019; Part D Drug Event File (PDE; for number of medications, drug costs), accessed July 2019; Common Working File (CWF; for healthcare utilization, medical expenditures, and CMS Hierarchical Condition Categories [HCC] risk score), accessed August 2019; the 2016 and 2017 Master Beneficiary Summary File (MBSF; for chronic condition indicators); Long Term Care Minimum Data Set (MDS; for long-term institutional status), accessed June 2019; and 2014-2016 Dartmouth Atlas HRR-Zip Code Crosswalk File (for Hospital Referral Region [HRR] of residence), accessed January 2019. The HCC Risk Score is calculated based on January-December 2016 data for 2017 beneficiaries, and January-December 2017 data for 2018 beneficiaries.

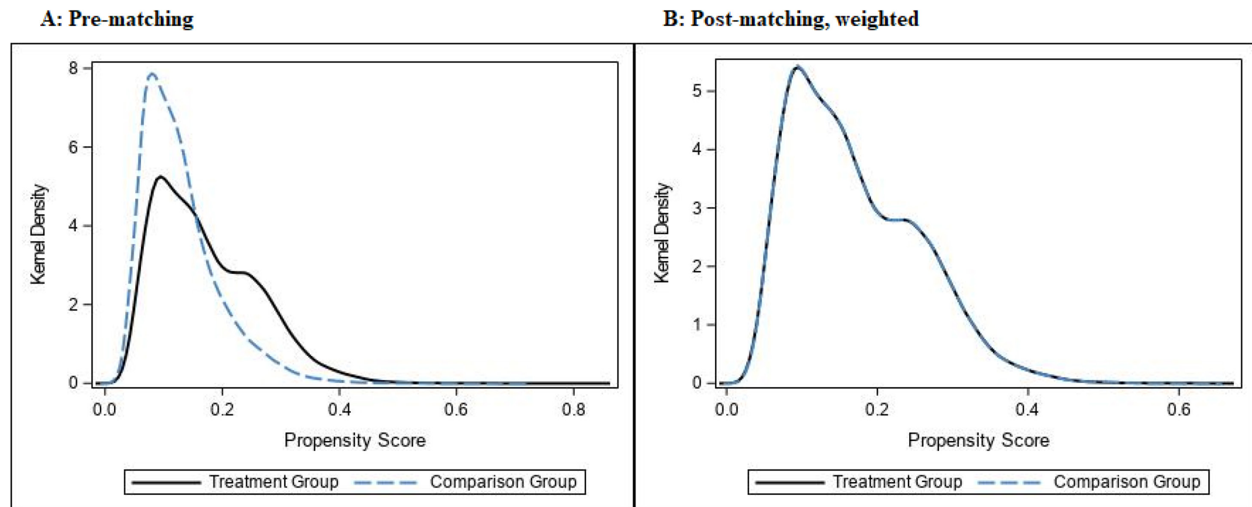
Appendix Figure B.1: Average Baseline Medicare Parts A and B Expenditures per Beneficiary, Modelwide



Appendix Table B.4: Baseline Trends in Medicare Parts A and B Expenditures per Beneficiary, Modelwide

	Linear Trend for Treatment	Linear Trend for Comparison	Difference in Trends (Treatment – Comparison)
Estimate (per beneficiary per quarter)	$32.69	$40.04	-$7.35
Confidence Interval	(27.80, 37.59)	(31.50, 48.59)	(-17.20, 2.50)
P-value	< 0.001	< 0.001	0.143

Appendix Figure B.2: Common Support Graphs for Propensity Score Matching, SilverScript/CVS



Appendix Table B.5: Pre-matched and Post-matched Summary, SilverScript/CVS

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
Number of Beneficiaries		3,852,118	597,957		1,522,292	590,342	
% Female	E	57.60	57.69	0.19	57.74	57.74	0.00
Age							
% Under 65 Years Old	E	31.99	31.32	1.44	31.63	31.63	0.00
% 65-69 Years Old	N	20.33	19.31	2.55	19.55	19.55	0.00
% 70-74 Years Old	E	17.52	17.81	0.75	17.93	17.93	0.00
% 75-79 Years Old	E	12.28	12.63	1.06	12.59	12.59	0.00
% 80+ Years Old	E	17.88	18.92	2.71	18.30	18.30	0.00
Race							
% White	E	76.14	77.48	3.16	77.93	77.93	0.00
% Black	E	13.67	13.54	0.40	13.25	13.25	0.00
% Other	E	10.18	8.99	4.06	8.82	8.82	0.00
% Dual Eligible	E	51.30	50.50	1.60	50.22	50.22	0.00
% Urban	P	85.29	80.98	11.53	77.96	80.68	6.73
% Disabled	E	41.56	40.47	2.21	40.53	40.53	0.00
% with ESRD	E	0.76	0.73	0.40	0.67	0.67	0.00
% with LIS	E	58.07	55.77	4.64	55.31	55.31	0.00
Income Level in Zip Code							
% below $30,000	P	5.22	4.88	1.55	5.68	4.81	3.90
% $30,000-$60,000	N	63.47	63.20	0.57	63.78	63.06	1.51
% above $60,000	P	28.67	28.92	0.55	27.34	29.12	3.94
Health Service Utilization							
% with 0 E&M Visits	P	9.32	8.90	1.44	7.76	8.58	2.98
% with 1-5 E&M Visits	P	34.98	34.26	1.51	35.07	34.63	0.93
% with 6-10 E&M Visits	P	27.09	26.75	0.77	27.31	27.01	0.68

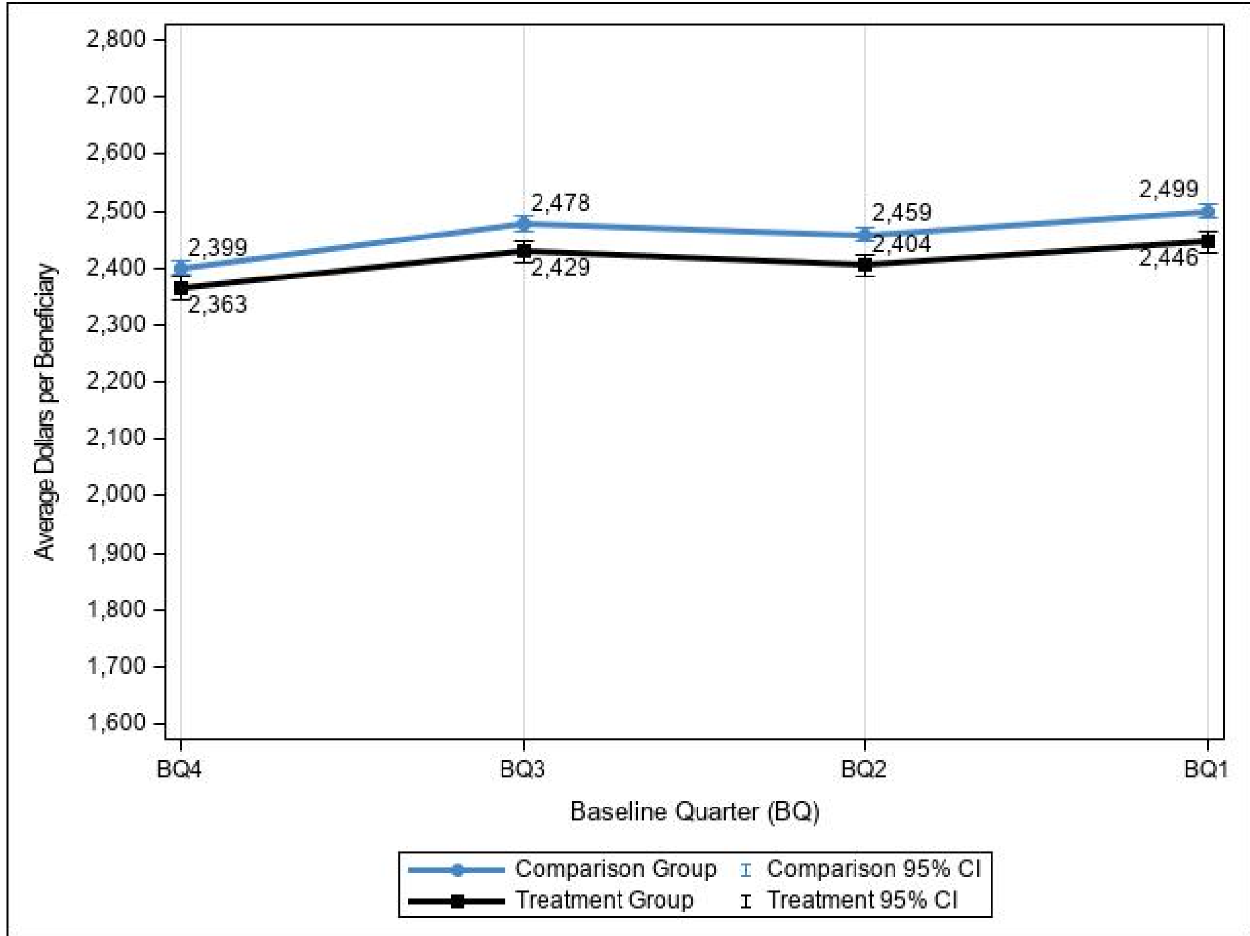
Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% with 11-15 E&M Visits	P	14.92	15.01	0.24	15.11	14.99	0.32
% with 16+ E&M Visits	P	13.69	15.08	3.96	14.75	14.79	0.12
% with 0 IP Stays	P	82.11	81.34	1.98	82.15	82.26	0.27
% with 1 IP Stay	P	11.21	11.54	1.05	11.15	11.20	0.14
% with 2+ IP Stays	P	6.68	7.11	1.70	6.70	6.55	0.60
% with 0 ED Visits	P	68.45	68.91	1.00	68.73	69.62	1.93
% with 1 ED Visit	P	17.77	17.64	0.35	17.69	17.41	0.72
% with 2+ ED Visits	P	13.78	13.45	0.96	13.59	12.97	1.82
Medical and Drug Expenditures							
Annual Medicare Parts A and B Expenditures per beneficiary	N	$11,586	$12,278	2.70	$11,754	$11,555	0.80
Expenditures in BQ 1	P	$2,951	$3,105	1.70	$2,944	$2,889	0.64
Expenditures in BQ 2	P	$2,863	$3,044	2.02	$2,910	$2,854	0.66
Expenditures in BQ 3	P	$2,879	$3,064	2.07	$2,950	$2,899	0.58
Expenditures in BQ 4	P	$2,893	$3,066	1.91	$2,949	$2,914	0.40
Annual IP Expenditures per beneficiary	N	$3,286	$3,463	1.34	$3,248	$3,195	0.42
Expenditures in BQ 1	P	$880	$910	0.53	$834	$819	0.28
Expenditures in BQ 2	P	$802	$855	0.99	$800	$787	0.27
Expenditures in BQ 3	P	$794	$838	0.82	$801	$783	0.35
Expenditures in BQ 4	P	$810	$859	0.89	$813	$807	0.11
Annual Drug Expenditures per beneficiary	N	$4,584	$4,796	1.57	$4,708	$4,719	0.09
Expenditures in BQ 1	P	$1,176	$1,219	1.09	$1,194	$1,201	0.18
Expenditures in BQ 2	P	$1,151	$1,195	1.14	$1,174	$1,176	0.04
Expenditures in BQ 3	P	$1,133	$1,188	1.41	$1,167	$1,168	0.01
Expenditures in BQ 4	P	$1,112	$1,180	1.72	$1,160	$1,162	0.05
Drug Utilization (number of fills)							
Analgesics – Opioid	N	2.78	2.57	3.50	2.63	2.52	1.85
Antiasthmatic and Bronchodilator Agents	N	1.49	1.42	1.52	1.38	1.37	0.25
Anticoagulants	N	0.72	0.78	1.85	0.75	0.74	0.04
Antidiabetics	P	2.62	2.56	0.85	2.59	2.52	1.06
Antihypertensives	P	3.34	3.15	3.88	3.19	3.12	1.43
Antipsychotics/Antimanic Agents	P	1.38	1.66	4.97	1.61	1.68	1.22
Beta Blockers	P	2.20	2.16	1.08	2.14	2.12	0.56
Calcium Channel Blockers	N	1.52	1.42	2.65	1.45	1.40	1.41
Corticosteroids	N	0.47	0.48	0.58	0.47	0.47	0.26
Musculoskeletal Therapy Agents	P	0.55	0.51	1.79	0.54	0.51	1.05
Number of Concurrent Medications	P	3.89	3.88	0.32	3.90	3.84	1.99
HCC score	P	1.23	1.25	1.68	1.21	1.21	0.07
Clinical Profile							
% Chronic Kidney Disease	P	23.66	23.77	0.25	23.68	22.89	1.89
% Chronic Obstructive Pulmonary Disease	P	13.76	13.44	0.92	13.02	12.81	0.62
% Congestive Heart Failure	N	12.29	11.98	0.94	11.37	11.29	0.26
% Depression	N	22.35	23.78	3.40	22.44	23.20	1.82

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% Diabetes	P	31.23	30.61	1.34	30.81	30.07	1.61
% HIV/AIDS	E	0.65	0.95	3.31	0.84	0.84	0.00
% Hyperlipidemia	P	45.59	46.75	2.32	47.29	46.47	1.63
% Hypertension	P	60.12	58.72	2.86	59.36	58.07	2.63
% Osteoporosis	N	6.18	6.57	1.58	6.42	6.47	0.19
% Vascular Disease	P	14.29	14.35	0.18	13.75	13.81	0.17

Notes: E: Exact Match; P: Propensity Score Match; N: Not included in propensity score model.
BQ: Baseline Quarter; ESRD: End Stage Renal Disease; LIS: Low Income Subsidy; E&M: Evaluation and Management; IP: Inpatient; ED: Emergency Department; HCC: CMS Hierarchical Condition Categories; Comp.: Comparison Group; Treat.: Treatment Group; SMD: Standardized mean difference.
Health service utilization characteristics were added to the propensity score model as quarterly variables, but are also reported in this table as total annual averages across the 12-month baseline period. Medical expenditures correspond to total allowed costs, and drug expenditures are gross drug costs. Variables are considered well-balanced if their SMD is less than 10 percent.

Sources: Common Medicare Environment (CME; for age, sex, race, Medicare Part D enrollment, and LIS status), accessed in June 2019; Enrollment Database (EDB; for dual eligibility, urban/rural, disability, and ESRD status, residence zip code and state), accessed June 2019; Part D Drug Event File (PDE; for number of medications, drug costs), accessed July 2019; Common Working File (CWF; for healthcare utilization, medical expenditures, and CMS Hierarchical Condition Categories [HCC] risk score), accessed August 2019; the 2016 and 2017 Master Beneficiary Summary File (MBSF; for chronic condition indicators); Long Term Care Minimum Data Set (MDS; for long-term institutional status), accessed June 2019; and 2014-2016 Dartmouth Atlas HRR-Zip Code Crosswalk File (for Hospital Referral Region [HRR] of residence), accessed January 2019. The HCC Risk Score is calculated based on January-December 2016 data for 2017 beneficiaries, and January-December 2017 data for 2018 beneficiaries.

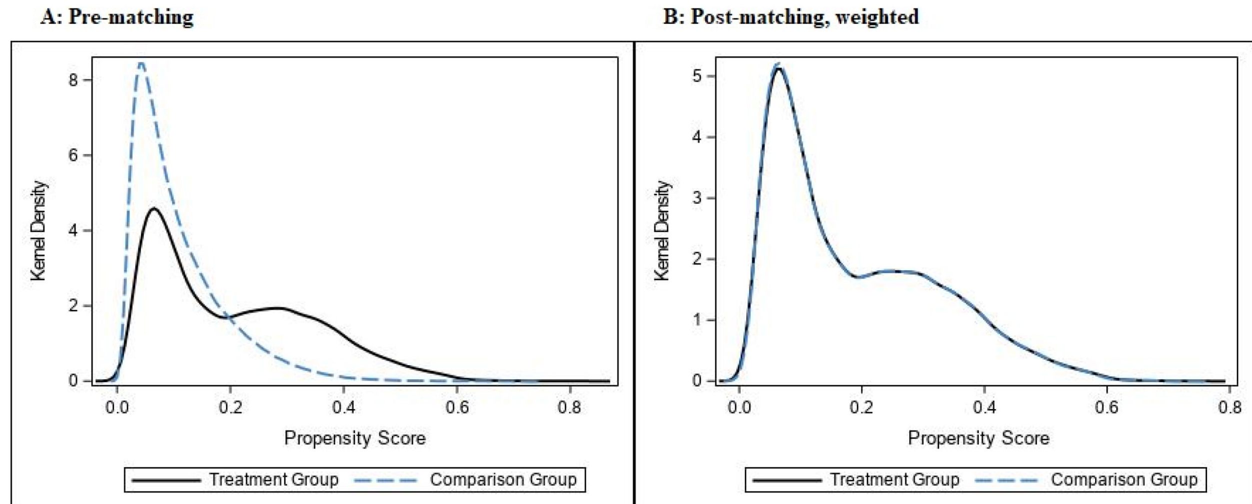
Appendix Figure B.3: Average Baseline Medicare Parts A and B Expenditures per Beneficiary, SilverScript/CVS



Appendix Table B.6: Baseline Trends in Medicare Parts A and B Expenditures per Beneficiary, SilverScript/CVS

	Linear Trend for Treatment	Linear Trend for Comparison	Difference in Trends (Treatment – Comparison)
Estimate (per beneficiary per quarter)	$22.29	$28.00	-$5.71
Confidence Interval	(14.35, 30.23)	(21.42, 34.58)	(-16.02, 4.60)
P-value	< 0.001	< 0.001	0.278

Appendix Figure B.4: Common Support Graphs for Propensity Score Matching, Humana



Appendix Table B.7: Pre-matched and Post-matched Summary, Humana

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
Number of Beneficiaries		2,628,141	356,930		813,558	352,407	
% Female	E	56.77	56.51	0.53	56.63	56.63	0.00
Age							
% Under 65 Years Old	E	35.16	38.34	6.59	37.09	37.09	0.00
% 65-69 Years Old	N	21.19	14.54	17.43	14.88	14.88	0.00
% 70-74 Years Old	E	18.38	18.89	1.32	20.04	20.04	0.00
% 75-79 Years Old	E	10.65	11.06	1.32	11.30	11.30	0.00
% 80+ Years Old	E	14.62	17.17	6.98	16.68	16.68	0.00
Race							
% White	E	73.98	71.00	6.68	73.33	73.33	0.00
% Black	E	13.38	16.06	7.58	14.66	14.66	0.00
% Other	E	12.64	12.94	0.89	12.01	12.01	0.00
% Dual Eligible	E	56.53	65.81	19.13	61.54	61.54	0.00
% Urban	P	87.10	84.71	6.88	78.77	83.39	11.83
% Disabled	E	43.38	45.68	4.64	44.10	44.10	0.00
% with ESRD	E	0.88	1.12	2.41	0.93	0.93	0.00
% with LIS	E	63.45	71.56	17.37	67.07	67.07	0.00
Income Level in Zip Code							
% below $30,000	P	4.85	5.05	0.92	4.86	4.70	0.77
% $30,000-$60,000	N	60.61	66.33	11.91	68.79	65.44	7.14
% above $60,000	P	31.90	25.36	14.51	22.67	26.76	9.51
Health Service Utilization							
% with 0 E&M Visits	P	10.68	13.02	7.25	10.04	12.06	6.46
% with 1-5 E&M Visits	P	34.37	34.27	0.21	35.39	34.90	1.03
% with 6-10 E&M Visits	P	25.75	24.30	3.37	25.20	24.84	0.83
% with 11-15 E&M Visits	P	14.68	13.83	2.45	14.43	13.84	1.70

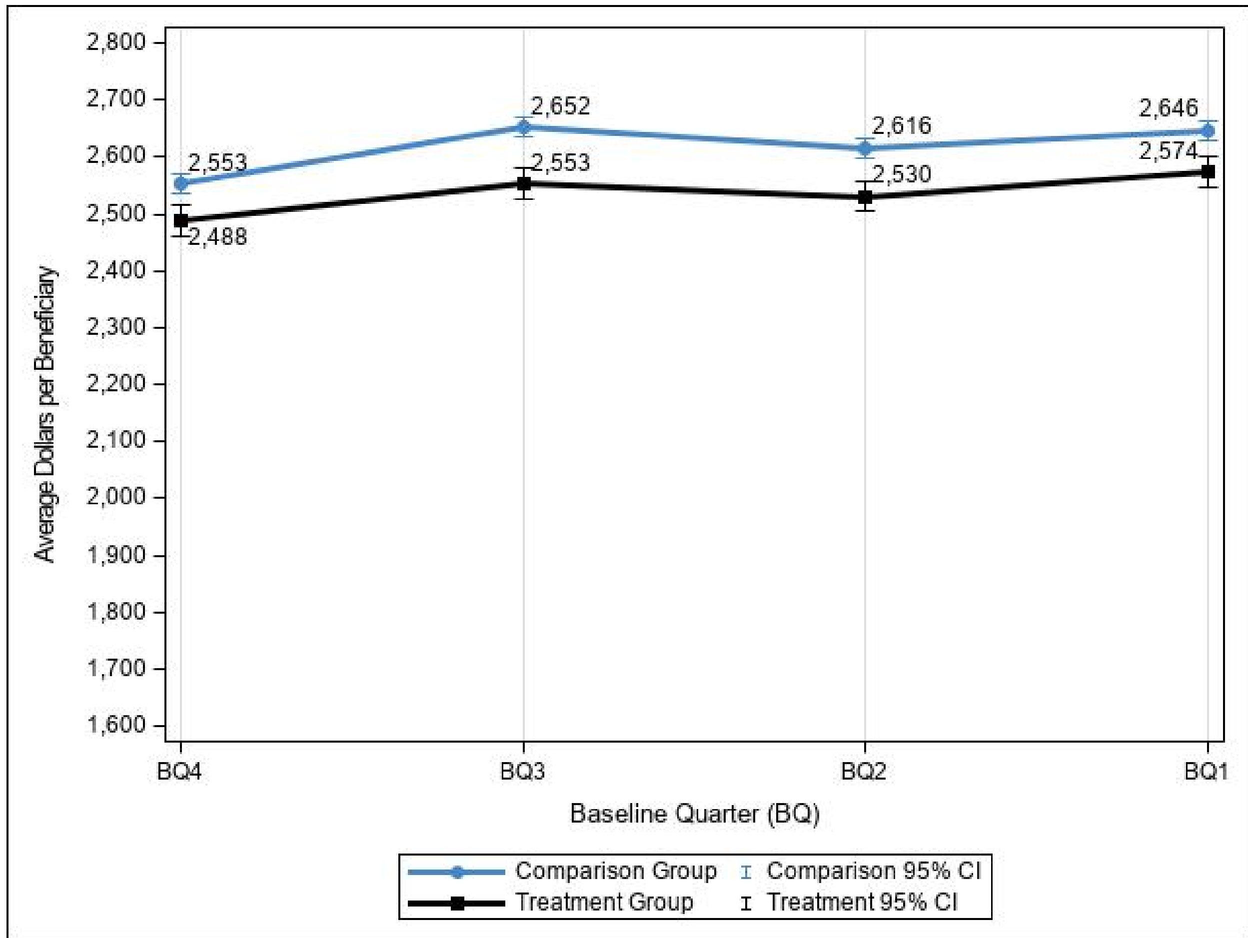
Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% with 16+ E&M Visits	P	14.52	14.59	0.21	14.94	14.36	1.64
% with 0 IP Stays	P	81.70	79.81	4.79	81.02	81.04	0.05
% with 1 IP Stay	P	11.29	12.03	2.32	11.44	11.61	0.55
% with 2+ IP Stays	P	7.02	8.16	4.32	7.54	7.34	0.75
% with 0 ED Visits	P	67.60	67.10	1.08	66.88	68.13	2.66
% with 1 ED Visit	P	17.86	17.95	0.24	17.99	17.65	0.88
% with 2+ ED Visits	P	14.54	14.95	1.17	15.13	14.22	2.57
Medical and Drug Expenditures							
Annual Medicare Parts A and B Expenditures per beneficiary	N	$12,047	$13,091	3.73	$12,460	$12,128	1.25
Expenditures in BQ 1	P	$3,064	$3,304	2.34	$3,108	$3,033	0.82
Expenditures in BQ 2	P	$2,975	$3,238	2.79	$3,085	$2,997	0.98
Expenditures in BQ 3	P	$2,990	$3,276	3.07	$3,145	$3,043	1.13
Expenditures in BQ 4	P	$3,017	$3,273	2.72	$3,121	$3,054	0.74
Annual IP Expenditures per beneficiary	N	$3,447	$3,842	2.87	$3,592	$3,479	0.86
Expenditures in BQ 1	P	$925	$1,024	1.56	$921	$908	0.23
Expenditures in BQ 2	P	$841	$941	1.79	$886	$853	0.62
Expenditures in BQ 3	P	$830	$933	1.88	$896	$848	0.88
Expenditures in BQ 4	P	$852	$944	1.68	$889	$869	0.37
Annual Drug Expenditures per beneficiary	N	$4,632	$4,630	0.01	$4,433	$4,372	0.46
Expenditures in BQ 1	P	$1,192	$1,181	0.24	$1,132	$1,119	0.33
Expenditures in BQ 2	P	$1,163	$1,165	0.05	$1,117	$1,099	0.47
Expenditures in BQ 3	P	$1,147	$1,146	0.03	$1,095	$1,080	0.36
Expenditures in BQ 4	P	$1,119	$1,127	0.18	$1,079	$1,063	0.42
Drug Utilization (number of fills)							
Analgesics – Opioid	N	2.91	2.65	4.28	2.70	2.56	2.43
Antiasthmatic and Bronchodilator Agents	N	1.57	1.31	5.46	1.31	1.25	1.29
Anticoagulants	N	0.68	0.69	0.26	0.63	0.66	0.78
Antidiabetics	P	2.48	2.44	0.67	2.38	2.35	0.51
Antihypertensives	P	3.08	3.02	1.19	3.00	2.96	0.73
Antipsychotics/Antimanic Agents	P	1.35	1.61	4.89	1.50	1.56	1.05
Beta Blockers	P	2.02	2.02	0.09	1.95	1.96	0.31
Calcium Channel Blockers	N	1.37	1.36	0.23	1.32	1.32	0.09
Corticosteroids	N	0.47	0.46	0.73	0.44	0.45	0.53
Musculoskeletal Therapy Agents	P	0.62	0.61	0.40	0.63	0.59	1.54
Number of Concurrent Medications	P	3.82	3.74	2.48	3.73	3.66	2.06
HCC score	P	1.26	1.33	5.35	1.27	1.27	0.54
Clinical Profile							
% Chronic Kidney Disease	P	23.34	24.52	2.77	24.28	23.18	2.58
% Chronic Obstructive Pulmonary Disease	P	14.19	14.24	0.15	13.60	13.35	0.75
% Congestive Heart Failure	N	12.12	12.39	0.83	11.50	11.55	0.17
% Depression	N	23.55	25.34	4.17	23.82	24.44	1.44
% Diabetes	P	30.26	30.37	0.24	30.00	29.25	1.63

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% HIV/AIDS	E	0.68	1.54	8.18	1.21	1.21	0.00
% Hyperlipidemia	P	43.18	43.73	1.12	44.99	43.31	3.39
% Hypertension	P	57.02	56.35	1.36	57.35	55.34	4.05
% Osteoporosis	N	5.87	6.07	0.83	6.29	5.98	1.31
% Vascular Disease	P	13.72	14.96	3.54	14.04	14.08	0.13

Notes: E: Exact Match; P: Propensity Score Match; N: Not included in propensity score model.
BQ: Baseline Quarter; ESRD: End Stage Renal Disease; LIS: Low Income Subsidy; E&M: Evaluation and Management; IP: Inpatient; ED: Emergency Department; HCC: CMS Hierarchical Condition Categories; Comp.: Comparison Group; Treat.: Treatment Group; SMD: Standardized mean difference.
Health service utilization characteristics were added to the propensity score model as quarterly variables, but are also reported in this table as total annual averages across the 12-month baseline period. Medical expenditures correspond to total allowed costs, and drug expenditures are gross drug costs. Variables are considered well-balanced if their SMD is less than 10 percent.

Sources: Common Medicare Environment (CME; for age, sex, race, Medicare Part D enrollment, and LIS status), accessed in June 2019; Enrollment Database (EDB; for dual eligibility, urban/rural, disability, and ESRD status, residence zip code and state), accessed June 2019; Part D Drug Event File (PDE; for number of medications, drug costs), accessed July 2019; Common Working File (CWF; for healthcare utilization, medical expenditures, and CMS Hierarchical Condition Categories [HCC] risk score), accessed August 2019; the 2016 and 2017 Master Beneficiary Summary File (MBSF; for chronic condition indicators); Long Term Care Minimum Data Set (MDS; for long-term institutional status), accessed June 2019; and 2014-2016 Dartmouth Atlas HRR-Zip Code Crosswalk File (for Hospital Referral Region [HRR] of residence), accessed January 2019. The HCC Risk Score is calculated based on January-December 2016 data for 2017 beneficiaries, and January-December 2017 data for 2018 beneficiaries.

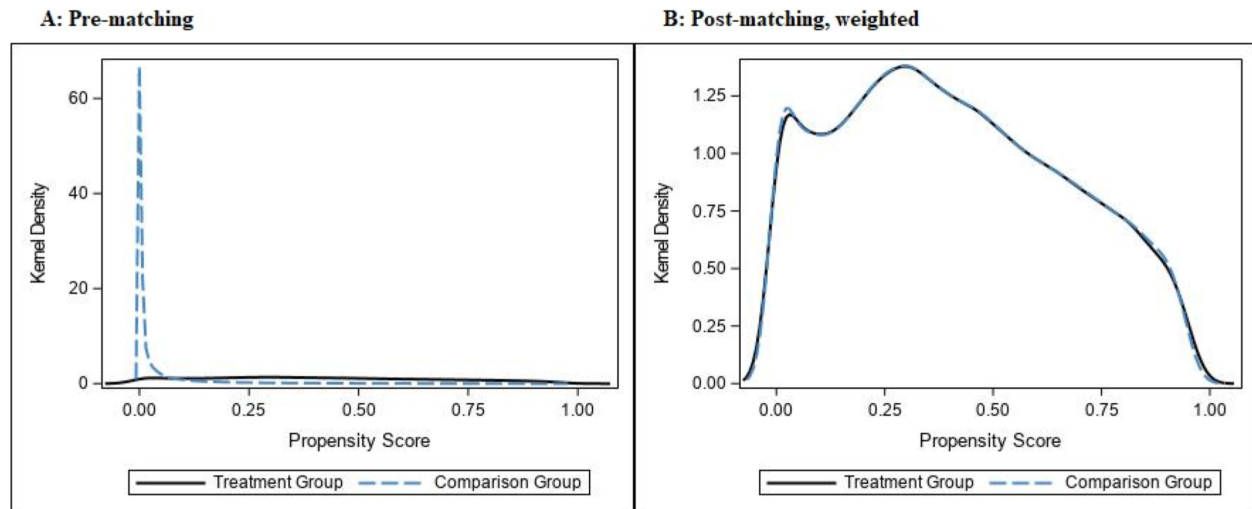
Appendix Figure B.5: Average Baseline Medicare Parts A and B Expenditures per Beneficiary, Humana



Appendix Table B.8: Baseline Trends in Medicare Parts A and B Expenditures per Beneficiary, Humana

	Linear Trend for Treatment	Linear Trend for Comparison	Difference in Trends (Treatment – Comparison)
Estimate (per beneficiary per quarter)	$23.22	$24.41	-$1.19
Confidence Interval	(12.96, 33.48)	(12.89, 35.93)	(-16.62, 14.24)
P-value	< 0.001	< 0.001	0.880

Appendix Figure B.6: Common Support Graphs for Propensity Score Matching, BCBS NPA



Appendix Table B.9: Pre-matched and Post-matched Summary, BCBS NPA

Characteristics	Matching Model Inclusion	Pre-Matching Comp.	Pre-Matching Treat.	Pre-Matching SMD (in %)	Post-Matching Comp.	Post-Matching Treat.	Post-Matching SMD (in %)
Number of Beneficiaries		2,713,493	175,216		288,141	173,745	
% Female	E	57.08	59.82	5.56	59.89	59.89	0.00
Age							
% Under 65 Years Old	E	31.96	3.80	79.02	3.67	3.67	0.00
% 65-69 Years Old	N	20.53	18.38	5.44	18.71	18.71	0.00
% 70-74 Years Old	E	17.51	22.78	13.15	23.26	23.26	0.00
% 75-79 Years Old	E	12.40	20.72	22.54	21.00	21.00	0.00
% 80+ Years Old	E	17.59	34.32	38.86	33.35	33.35	0.00
Race							
% White	E	77.34	97.43	63.49	97.49	97.49	0.00
% Black	E	9.79	0.34	44.13	0.32	0.32	0.00
% Other	E	12.87	2.23	41.12	2.18	2.18	0.00
% Dual Eligible	E	52.44	3.85	128.37	3.45	3.45	0.00
% Urban	P	85.65	64.42	50.61	64.89	64.77	0.26
% Disabled	E	41.23	7.95	83.82	7.67	7.67	0.00
% with ESRD	E	0.73	0.18	8.27	0.13	0.13	0.00
% with LIS	E	58.81	5.03	141.21	4.57	4.57	0.00
Income Level in Zip Code							
% below $30,000	P	4.55	0.27	28.22	0.27	0.26	0.19
% $30,000-$60,000	N	61.65	59.92	3.54	56.88	59.68	5.70
% above $60,000	P	31.17	38.87	16.20	40.94	39.11	3.72
Health Service Utilization							
% with 0 E&M Visits	P	9.71	5.06	17.85	5.16	4.92	1.06
% with 1-5 E&M Visits	P	35.17	43.37	16.85	39.94	43.84	7.89
% with 6-10 E&M Visits	P	26.70	29.02	5.17	30.00	29.16	1.84

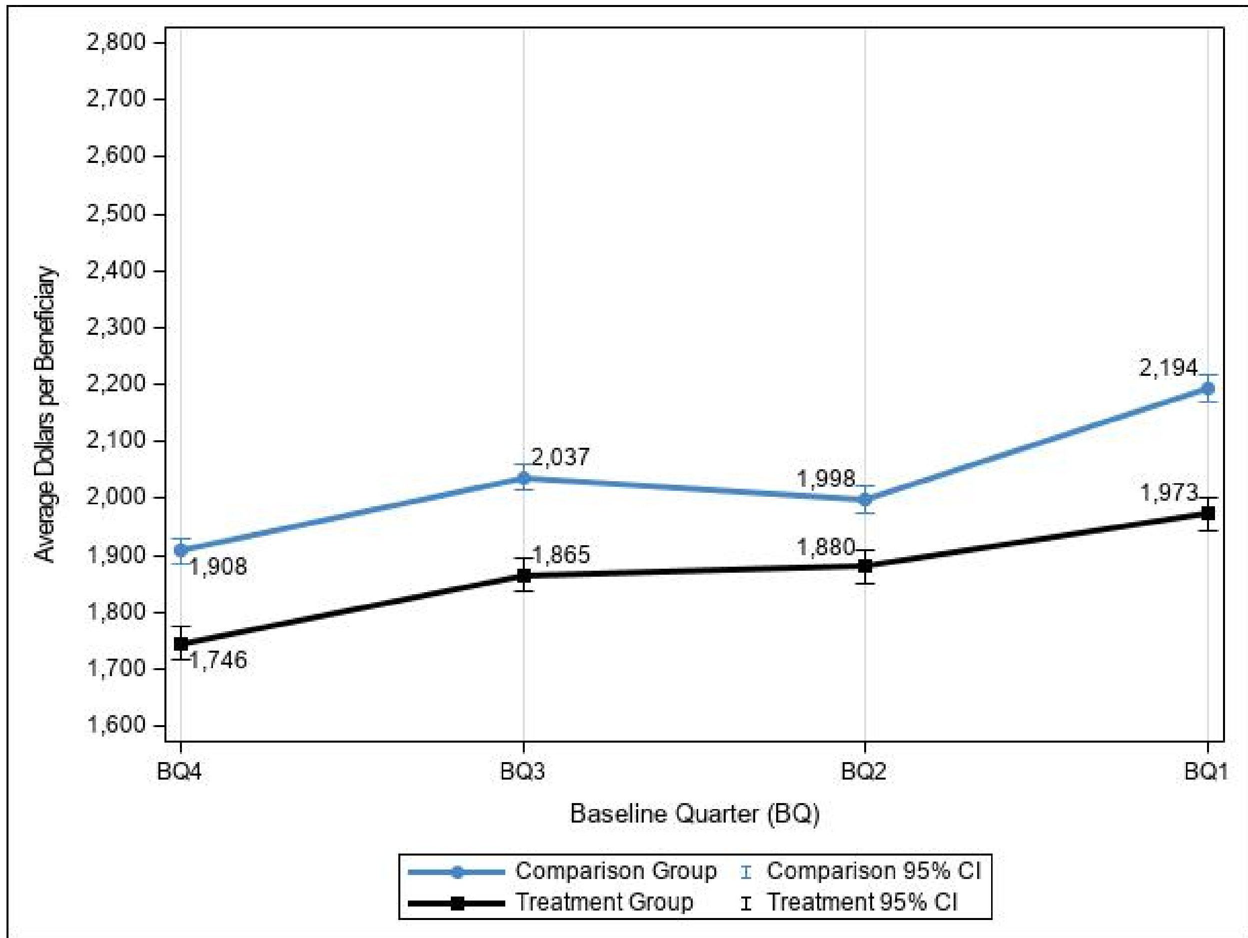
Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% with 11-15 E&M Visits	P	14.67	12.75	5.57	14.22	12.64	4.64
% with 16+ E&M Visits	P	13.75	9.80	12.28	10.68	9.44	4.12
% with 0 IP Stays	P	82.24	84.73	6.69	85.25	85.46	0.61
% with 1 IP Stay	P	11.11	11.03	0.24	10.43	10.67	0.77
% with 2+ IP Stays	P	6.65	4.24	10.63	4.32	3.87	2.29
% with 0 ED Visits	P	68.71	75.49	15.16	74.89	76.23	3.11
% with 1 ED Visit	P	17.68	16.36	3.51	16.54	16.09	1.20
% with 2+ ED Visits	P	13.61	8.15	17.62	8.57	7.68	3.27
Medical and Drug Expenditures							
Annual Medicare Parts A and B Expenditures per beneficiary	N	$11,623	$9,564	8.92	$9,856	$9,072	4.19
Expenditures in BQ 1	P	$2,955	$2,510	5.28	$2,605	$2,353	3.39
Expenditures in BQ 2	P	$2,871	$2,375	6.01	$2,401	$2,256	2.03
Expenditures in BQ 3	P	$2,892	$2,375	6.31	$2,462	$2,260	2.87
Expenditures in BQ 4	P	$2,905	$2,305	7.42	$2,389	$2,203	2.68
Annual IP Expenditures per beneficiary	N	$3,300	$2,320	8.57	$2,307	$2,177	1.54
Expenditures in BQ 1	P	$880	$632	4.89	$632	$580	1.32
Expenditures in BQ 2	P	$803	$564	5.00	$521	$531	0.28
Expenditures in BQ 3	P	$800	$561	5.05	$557	$528	0.76
Expenditures in BQ 4	P	$816	$563	5.52	$598	$538	1.60
Annual Drug Expenditures per beneficiary	N	$4,621	$2,532	17.71	$2,624	$2,434	2.03
Expenditures in BQ 1	P	$1,186	$659	15.22	$673	$632	1.53
Expenditures in BQ 2	P	$1,160	$638	15.37	$662	$613	1.83
Expenditures in BQ 3	P	$1,141	$628	15.09	$652	$603	1.90
Expenditures in BQ 4	P	$1,123	$600	15.90	$628	$577	2.07
Drug Utilization (number of fills)							
Analgesics – Opioid	N	2.73	1.27	29.22	1.30	1.22	2.30
Antiasthmatic and Bronchodilator Agents	N	1.49	0.90	14.21	0.90	0.86	1.20
Anticoagulants	N	0.69	1.00	8.91	1.07	0.93	3.60
Antidiabetics	P	2.60	1.76	14.16	1.82	1.71	2.16
Antihypertensives	P	3.22	3.08	2.97	3.05	3.04	0.12
Antipsychotics/Antimanic Agents	P	1.43	0.33	25.12	0.36	0.30	2.42
Beta Blockers	P	2.12	2.42	7.44	2.44	2.34	2.55
Calcium Channel Blockers	N	1.42	1.42	0.19	1.48	1.39	2.77
Corticosteroids	N	0.45	0.46	0.54	0.41	0.44	1.51
Musculoskeletal Therapy Agents	P	0.55	0.12	24.24	0.12	0.12	0.67
Number of Concurrent Medications	P	3.87	3.51	12.74	3.62	3.44	7.02
HCC score	P	1.24	1.06	15.89	1.06	1.02	4.31
Clinical Profile							
% Chronic Kidney Disease	P	23.45	18.86	11.25	18.68	18.12	1.46
% Chronic Obstructive Pulmonary Disease	P	13.80	8.52	16.85	8.12	8.08	0.16
% Congestive Heart Failure	N	12.20	11.33	2.69	10.92	10.61	0.99
% Depression	N	22.76	14.47	21.43	14.17	13.96	0.63

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% Diabetes	P	31.16	23.11	18.19	23.36	22.73	1.49
% HIV/AIDS	E	0.57	0.05	9.35	0.04	0.04	0.00
% Hyperlipidemia	P	44.34	42.44	3.84	42.13	42.35	0.44
% Hypertension	P	58.50	57.12	2.79	56.55	56.55	0.01
% Osteoporosis	N	6.36	6.98	2.47	7.17	6.81	1.42
% Vascular Disease	P	14.03	13.53	1.47	13.64	12.96	2.01

Notes: E: Exact Match; P: Propensity Score Match; N: Not included in propensity score model.
BQ: Baseline Quarter; ESRD: End Stage Renal Disease; LIS: Low Income Subsidy; E&M: Evaluation and Management; IP: Inpatient; ED: Emergency Department; HCC: CMS Hierarchical Condition Categories; Comp.: Comparison Group; Treat.: Treatment Group; SMD: Standardized mean difference. Health service utilization characteristics were added to the propensity score model as quarterly variables, but are also reported in this table as total annual averages across the 12-month baseline period. Medical expenditures correspond to total allowed costs, and drug expenditures are gross drug costs. Variables are considered well-balanced if their SMD is less than 10 percent.

Sources: Common Medicare Environment (CME; for age, sex, race, Medicare Part D enrollment, and LIS status), accessed in June 2019; Enrollment Database (EDB; for dual eligibility, urban/rural, disability, and ESRD status, residence zip code and state), accessed June 2019; Part D Drug Event File (PDE; for number of medications, drug costs), accessed July 2019; Common Working File (CWF; for healthcare utilization, medical expenditures, and CMS Hierarchical Condition Categories [HCC] risk score), accessed August 2019; the 2016 and 2017 Master Beneficiary Summary File (MBSF; for chronic condition indicators); Long Term Care Minimum Data Set (MDS; for long-term institutional status), accessed June 2019; and 2014-2016 Dartmouth Atlas HRR-Zip Code Crosswalk File (for Hospital Referral Region [HRR] of residence), accessed January 2019. The HCC Risk Score is calculated based on January-December 2016 data for 2017 beneficiaries, and January-December 2017 data for 2018 beneficiaries.

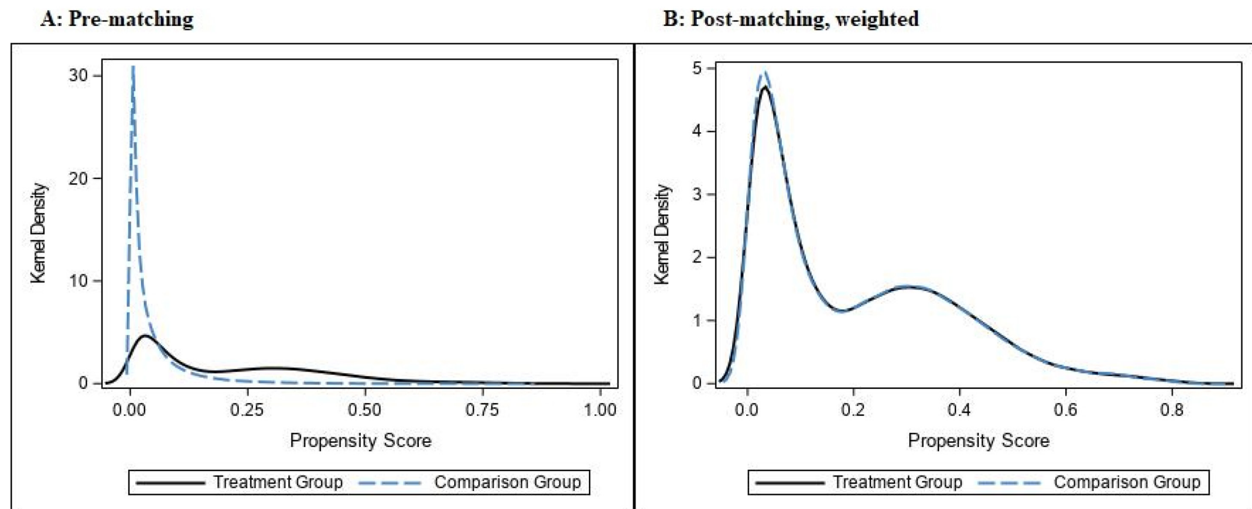
Appendix Figure B.7: Average Baseline Medicare Parts A and B Expenditures per Beneficiary, BCBS NPA



Appendix Table B.10: Baseline Trends in Medicare Parts A and B Expenditures per Beneficiary, BCBS NPA

	Linear Trend for Treatment	Linear Trend for Comparison	Difference in Trends (Treatment – Comparison)
Estimate (per beneficiary per quarter)	$69.58	$82.00	-$12.41
Confidence Interval	(57.30, 81.86)	(32.88, 131.11)	(-63.04 , 38.21)
P-value	< 0.001	0.001	0.631

Appendix Figure B.8: Common Support Graphs for Propensity Score Matching, UnitedHealth



Appendix Table B.11: Pre-matched and Post-matched Summary, UnitedHealth

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
Number of Beneficiaries		2,628,141	144,867		334,362	141,157	
% Female	E	56.77	58.64	3.79	58.88	58.88	0.00
Age							
% Under 65 Years Old	E	35.16	13.19	53.09	11.99	11.99	0.00
% 65-69 Years Old	N	21.19	33.43	27.74	34.84	34.84	0.00
% 70-74 Years Old	E	18.38	22.41	10.02	22.91	22.91	0.00
% 75-79 Years Old	E	10.65	13.26	8.07	13.21	13.21	0.00
% 80+ Years Old	E	14.62	17.70	8.38	17.06	17.06	0.00
Race							
% White	E	73.98	85.09	27.80	86.72	86.72	0.00
% Black	E	13.38	6.91	21.54	6.13	6.13	0.00
% Other	E	12.64	8.00	15.31	7.15	7.15	0.00
% Dual Eligible	E	56.53	21.64	76.55	18.63	18.63	0.00
% Urban	P	87.10	89.32	6.89	85.53	89.08	10.66
% Disabled	E	43.38	19.98	51.95	18.26	18.26	0.00
% with ESRD	E	0.88	0.42	5.67	0.31	0.31	0.00
% with LIS	E	63.45	25.98	81.36	22.42	22.42	0.00
Income Level in Zip Code							
% below $30,000	P	4.85	2.98	9.65	2.96	2.54	2.56
% $30,000-$60,000	N	60.61	58.23	4.85	61.15	57.55	7.34
% above $60,000	P	31.90	36.01	8.69	32.06	37.16	10.73
Health Service Utilization							
% with 0 E&M Visits	P	10.68	6.02	16.88	4.78	5.67	4.04
% with 1-5 E&M Visits	P	34.37	30.27	8.78	31.52	30.96	1.21
% with 6-10 E&M Visits	P	25.75	27.18	3.23	27.64	27.69	0.12

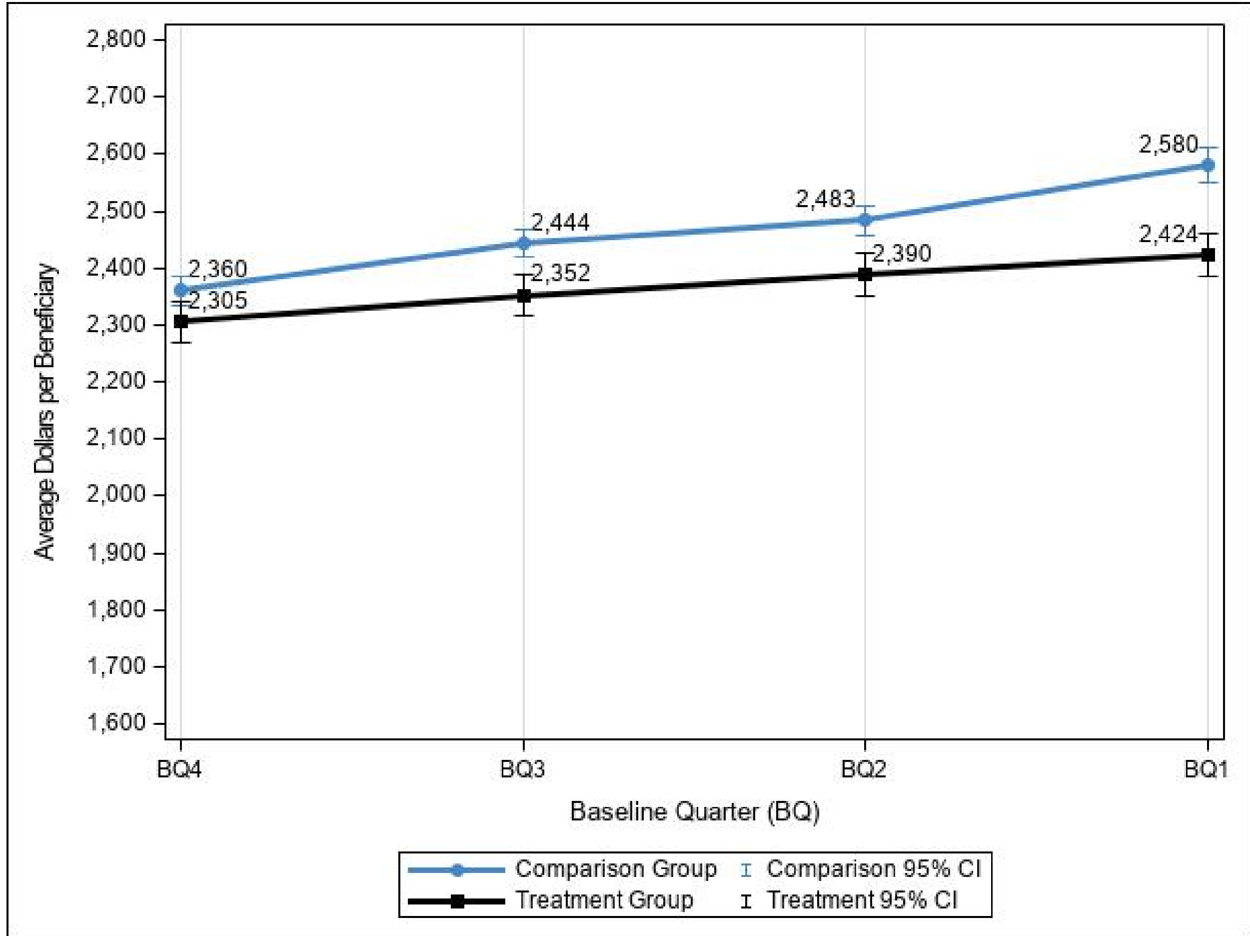
Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% with 11-15 E&M Visits	P	14.68	16.74	5.64	16.38	16.72	0.92
% with 16+ E&M Visits	P	14.52	19.79	14.03	19.68	18.95	1.85
% with 0 IP Stays	P	81.70	82.60	2.37	83.58	83.77	0.50
% with 1 IP Stay	P	11.29	11.02	0.84	10.56	10.58	0.04
% with 2+ IP Stays	P	7.02	6.37	2.57	5.85	5.65	0.85
% with 0 ED Visits	P	67.60	74.11	14.36	74.18	75.33	2.64
% with 1 ED Visit	P	17.86	16.32	4.11	16.13	15.87	0.71
% with 2+ ED Visits	P	14.54	9.57	15.29	9.69	8.80	3.06
Medical and Drug Expenditures							
Annual Medicare Parts A and B Expenditures per beneficiary	N	$12,047	$12,278	0.89	$11,782	$11,346	1.80
Expenditures in BQ 1	P	$3,064	$3,124	0.62	$3,035	$2,864	1.82
Expenditures in BQ 2	P	$2,975	$3,063	0.98	$2,930	$2,829	1.22
Expenditures in BQ 3	P	$2,990	$3,027	0.42	$2,909	$2,807	1.29
Expenditures in BQ 4	P	$3,017	$3,065	0.54	$2,907	$2,846	0.73
Annual IP Expenditures per beneficiary	N	$3,447	$3,133	2.47	$2,932	$2,818	1.01
Expenditures in BQ 1	P	$925	$827	1.65	$775	$726	0.96
Expenditures in BQ 2	P	$841	$789	0.95	$742	$711	0.62
Expenditures in BQ 3	P	$830	$743	1.72	$706	$673	0.72
Expenditures in BQ 4	P	$852	$774	1.56	$709	$708	0.02
Annual Drug Expenditures per beneficiary	N	$4,632	$4,073	3.78	$4,124	$3,758	2.30
Expenditures in BQ 1	P	$1,192	$1,030	3.78	$1,056	$952	2.29
Expenditures in BQ 2	P	$1,163	$1,030	3.13	$1,038	$947	2.05
Expenditures in BQ 3	P	$1,147	$1,012	3.20	$1,019	$936	1.92
Expenditures in BQ 4	P	$1,119	$990	3.08	$1,002	$913	2.06
Drug Utilization (number of fills)							
Analgesics – Opioid	N	2.91	2.03	15.82	2.10	1.92	3.75
Antiasthmatic and Bronchodilator Agents	N	1.57	1.26	6.73	1.20	1.16	1.20
Anticoagulants	N	0.68	0.69	0.45	0.66	0.65	0.23
Antidiabetics	P	2.48	1.66	14.08	1.67	1.56	2.21
Antihypertensives	P	3.08	2.71	8.12	2.81	2.62	4.61
Antipsychotics/Antimanic Agents	P	1.35	0.77	12.95	0.65	0.68	0.79
Beta Blockers	P	2.02	1.88	3.86	1.88	1.80	2.19
Calcium Channel Blockers	N	1.37	1.17	6.65	1.23	1.13	3.68
Corticosteroids	N	0.47	0.54	4.01	0.52	0.52	0.05
Musculoskeletal Therapy Agents	P	0.62	0.30	16.06	0.32	0.28	2.42
Number of Concurrent Medications	P	3.82	3.60	7.17	3.66	3.47	6.87
HCC score	P	1.26	1.18	5.86	1.13	1.12	1.27
Clinical Profile							
% Chronic Kidney Disease	P	23.34	22.18	2.75	22.27	20.91	3.30
% Chronic Obstructive Pulmonary Disease	P	14.19	13.73	1.30	13.30	12.64	1.96
% Congestive Heart Failure	N	12.12	11.58	1.65	10.89	10.72	0.54
% Depression	N	23.55	21.46	5.00	19.53	20.19	1.66

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% Diabetes	P	30.26	26.59	8.13	26.66	25.36	2.97
% HIV/AIDS	E	0.68	0.84	1.79	0.59	0.59	0.00
% Hyperlipidemia	P	43.18	54.48	22.77	54.91	54.16	1.52
% Hypertension	P	57.02	59.91	5.87	61.10	58.88	4.53
% Osteoporosis	N	5.87	8.23	9.20	8.06	8.10	0.17
% Vascular Disease	P	13.72	15.21	4.23	14.28	14.34	0.19

Notes: E: Exact Match; P: Propensity Score Match; N: Not included in propensity score model.
BQ: Baseline Quarter; ESRD: End Stage Renal Disease; LIS: Low Income Subsidy; E&M: Evaluation and Management; IP: Inpatient; ED: Emergency Department; HCC: CMS Hierarchical Condition Categories; Comp.: Comparison Group; Treat.: Treatment Group; SMD: Standardized mean difference.
Health service utilization characteristics were added to the propensity score model as quarterly variables, but are also reported in this table as total annual averages across the 12-month baseline period. Medical expenditures correspond to total allowed costs, and drug expenditures are gross drug costs. Variables are considered well-balanced if their SMD is less than 10 percent.

Sources: Common Medicare Environment (CME; for age, sex, race, Medicare Part D enrollment, and LIS status), accessed in June 2019; Enrollment Database (EDB; for dual eligibility, urban/rural, disability, and ESRD status, residence zip code and state), accessed June 2019; Part D Drug Event File (PDE; for number of medications, drug costs), accessed July 2019; Common Working File (CWF; for healthcare utilization, medical expenditures, and CMS Hierarchical Condition Categories [HCC] risk score), accessed August 2019; the 2016 and 2017 Master Beneficiary Summary File (MBSF; for chronic condition indicators); Long Term Care Minimum Data Set (MDS; for long-term institutional status), accessed June 2019; and 2014-2016 Dartmouth Atlas HRR-Zip Code Crosswalk File (for Hospital Referral Region [HRR] of residence), accessed January 2019. The HCC Risk Score is calculated based on January-December 2016 data for 2017 beneficiaries, and January-December 2017 data for 2018 beneficiaries.

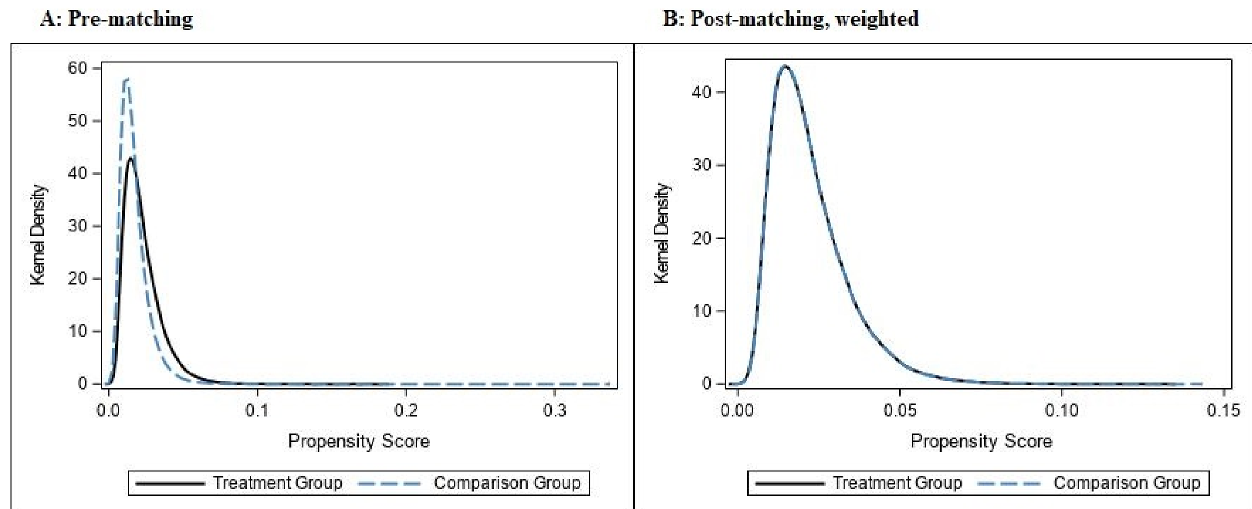
Appendix Figure B.9: Average Baseline Medicare Parts A and B Expenditures per Beneficiary, UnitedHealth



Appendix Table B.12: Baseline Trends in Medicare Parts A and B Expenditures per Beneficiary, UnitedHealth

	Linear Trend for Treatment	Linear Trend for Comparison	Difference in Trends (Treatment – Comparison)
Estimate (per beneficiary per quarter)	$39.36	$69.92	-$30.56
Confidence Interval	(24.67, 54.05)	(40.57, 99.27)	(-63.39, 2.26)
P-value	< 0.001	< 0.001	0.068

Appendix Figure B.10: Common Support Graphs for Propensity Score Matching, WellCare



Appendix Table B.13: Pre-matched and Post-matched Summary, WellCare

Characteristics	Matching Model Inclusion	Pre-Matching Comp.	Pre-Matching Treat.	Pre-Matching SMD (in %)	Post-Matching Comp.	Post-Matching Treat.	Post-Matching SMD (in %)
Number of Beneficiaries		6,480,259	114,077		461,261	112,572	
% Female	E	57.26	58.90	3.33	58.98	58.98	0.00
Age							
% Under 65 Years Old	E	33.28	29.39	8.39	29.12	29.12	0.00
% 65-69 Years Old	N	20.68	19.43	3.13	19.77	19.77	0.00
% 70-74 Years Old	E	17.87	17.84	0.08	18.12	18.12	0.00
% 75-79 Years Old	E	11.62	13.17	4.70	13.25	13.25	0.00
% 80+ Years Old	E	16.55	20.18	9.37	19.73	19.73	0.00
Race							
% White	E	75.26	74.02	2.86	74.47	74.47	0.00
% Black	E	13.55	17.60	11.18	17.36	17.36	0.00
% Other	E	11.18	8.37	9.46	8.17	8.17	0.00
% Dual Eligible	E	53.42	47.92	11.01	46.89	46.89	0.00
% Urban	P	86.02	79.67	16.90	77.95	79.49	3.77
% Disabled	E	42.29	38.12	8.52	37.60	37.60	0.00
% with ESRD	E	0.81	0.94	1.42	0.87	0.87	0.00
% with LIS	E	60.25	56.16	8.30	54.86	54.86	0.00
Income Level in Zip Code							
% below $30,000	P	5.07	5.31	1.09	5.94	5.21	3.22
% $30,000-$60,000	N	62.31	64.13	3.77	65.63	63.94	3.53
% above $60,000	P	29.98	27.70	5.03	25.41	27.97	5.79
Health Service Utilization							
% with 0 E&M Visits	P	9.87	7.48	8.51	6.87	7.26	1.54
% with 1-5 E&M Visits	P	34.73	34.62	0.23	35.04	35.07	0.05
% with 6-10 E&M Visits	P	26.55	27.37	1.86	28.20	27.58	1.38

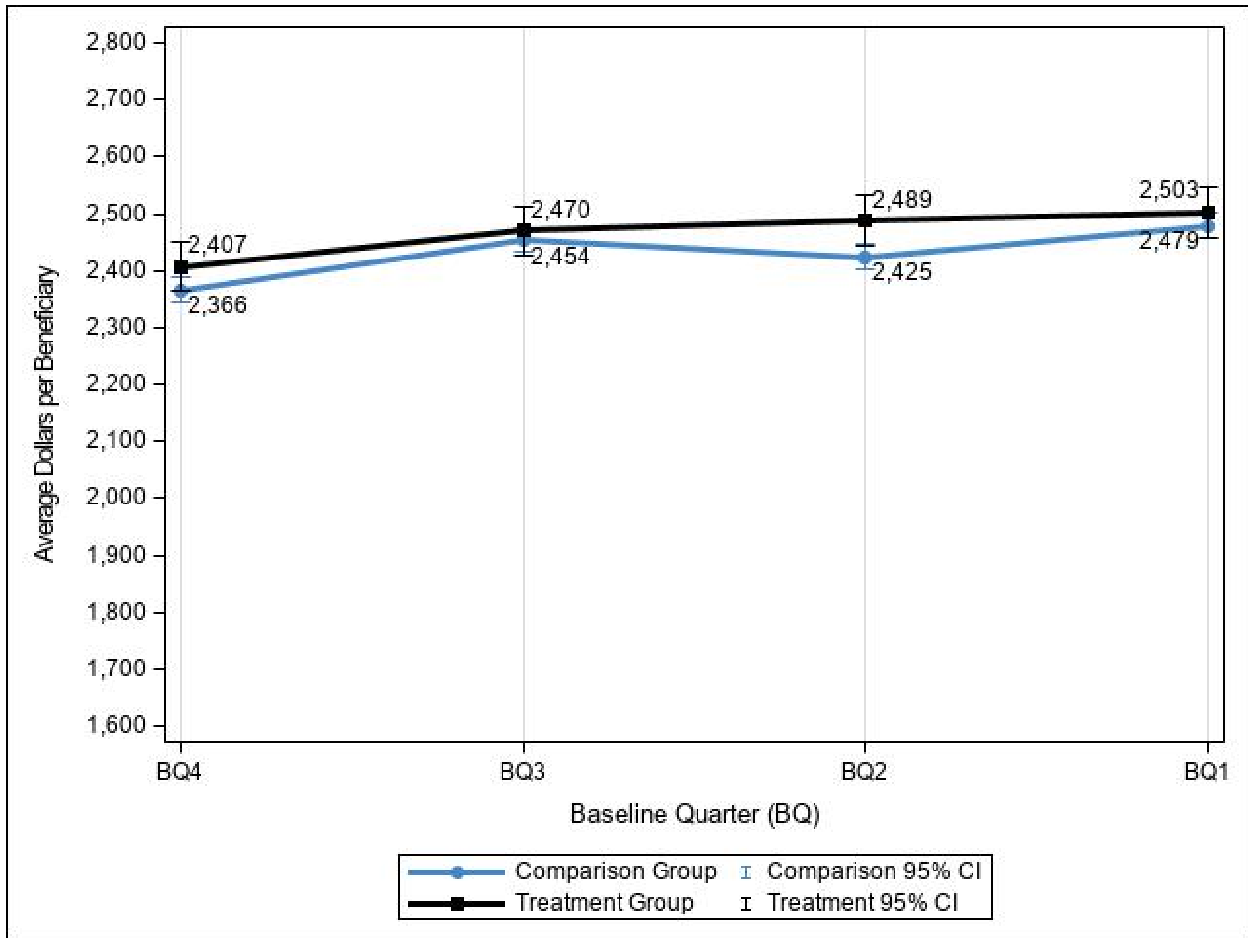
Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% with 11-15 E&M Visits	P	14.83	15.56	2.06	15.43	15.49	0.18
% with 16+ E&M Visits	P	14.02	14.96	2.66	14.46	14.60	0.38
% with 0 IP Stays	P	81.94	80.77	3.02	82.13	81.76	0.97
% with 1 IP Stay	P	11.24	11.86	1.94	11.29	11.50	0.66
% with 2+ IP Stays	P	6.82	7.37	2.16	6.58	6.74	0.64
% with 0 ED Visits	P	68.10	67.13	2.09	67.89	68.08	0.41
% with 1 ED Visit	P	17.81	18.31	1.30	18.06	18.06	0.00
% with 2+ ED Visits	P	14.09	14.56	1.36	14.05	13.86	0.56
Medical and Drug Expenditures							
Annual Medicare Parts A and B Expenditures per beneficiary	N	$11,773	$12,578	3.07	$11,613	$11,798	0.77
Expenditures in BQ 1	P	$2,997	$3,187	2.02	$2,916	$2,949	0.38
Expenditures in BQ 2	P	$2,908	$3,142	2.58	$2,869	$2,945	0.89
Expenditures in BQ 3	P	$2,924	$3,128	2.28	$2,921	$2,945	0.29
Expenditures in BQ 4	P	$2,943	$3,121	1.98	$2,907	$2,959	0.62
Annual IP Expenditures per beneficiary	N	$3,351	$3,595	1.87	$3,228	$3,288	0.50
Expenditures in BQ 1	P	$898	$958	1.02	$838	$853	0.27
Expenditures in BQ 2	P	$817	$894	1.41	$786	$819	0.64
Expenditures in BQ 3	P	$809	$860	0.97	$798	$792	0.11
Expenditures in BQ 4	P	$827	$883	1.09	$806	$825	0.37
Annual Drug Expenditures per beneficiary	N	$4,603	$4,038	4.13	$4,075	$3,898	1.38
Expenditures in BQ 1	P	$1,183	$1,022	3.91	$1,038	$988	1.31
Expenditures in BQ 2	P	$1,156	$1,032	3.04	$1,031	$995	0.94
Expenditures in BQ 3	P	$1,139	$1,012	3.12	$1,018	$976	1.10
Expenditures in BQ 4	P	$1,115	$965	3.88	$979	$932	1.31
Drug Utilization (number of fills)							
Analgesics – Opioid	N	2.83	2.62	3.58	2.63	2.55	1.46
Antiasthmatic and Bronchodilator Agents	N	1.52	1.24	6.21	1.22	1.19	0.79
Anticoagulants	N	0.70	0.76	1.71	0.70	0.72	0.68
Antidiabetics	P	2.56	2.57	0.04	2.58	2.51	1.10
Antihypertensives	P	3.23	3.67	8.57	3.75	3.65	2.02
Antipsychotics/Antimanic Agents	P	1.37	1.25	2.30	1.17	1.22	1.05
Beta Blockers	P	2.13	2.42	7.26	2.43	2.38	1.07
Calcium Channel Blockers	N	1.46	1.70	7.06	1.70	1.68	0.70
Corticosteroids	N	0.47	0.51	2.00	0.46	0.49	2.02
Musculoskeletal Therapy Agents	P	0.58	0.50	3.51	0.51	0.49	0.79
Number of Concurrent Medications	P	3.86	4.04	5.91	4.01	3.98	1.15
HCC score	P	1.24	1.26	1.45	1.20	1.22	1.04
Clinical Profile							
% Chronic Kidney Disease	P	23.53	25.54	4.66	24.81	24.62	0.45
% Chronic Obstructive Pulmonary Disease	P	13.93	13.19	2.15	12.73	12.55	0.54
% Congestive Heart Failure	N	12.22	13.13	2.75	12.13	12.45	0.97
% Depression	N	22.84	23.10	0.63	21.12	22.39	3.07

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% Diabetes	P	30.83	32.80	4.22	32.68	32.22	1.00
% HIV/AIDS	E	0.67	0.79	1.47	0.69	0.69	0.00
% Hyperlipidemia	P	44.61	49.54	9.88	50.21	49.45	1.52
% Hypertension	P	58.86	64.88	12.41	65.84	64.39	3.06
% Osteoporosis	N	6.06	6.34	1.17	6.15	6.27	0.50
% Vascular Disease	P	14.06	14.05	0.03	13.40	13.56	0.47

Notes: E: Exact Match; P: Propensity Score Match; N: Not included in propensity score model.
BQ: Baseline Quarter; ESRD: End Stage Renal Disease; LIS: Low Income Subsidy; E&M: Evaluation and Management; IP: Inpatient; ED: Emergency Department; HCC: CMS Hierarchical Condition Categories; Comp.: Comparison Group; Treat.: Treatment Group; SMD: Standardized mean difference. Health service utilization characteristics were added to the propensity score model as quarterly variables, but are also reported in this table as total annual averages across the 12-month baseline period. Medical expenditures correspond to total allowed costs, and drug expenditures are gross drug costs. Variables are considered well-balanced if their SMD is less than 10 percent.

Sources: Common Medicare Environment (CME; for age, sex, race, Medicare Part D enrollment, and LIS status), accessed in June 2019; Enrollment Database (EDB; for dual eligibility, urban/rural, disability, and ESRD status, residence zip code and state), accessed June 2019; Part D Drug Event File (PDE; for number of medications, drug costs), accessed July 2019; Common Working File (CWF; for healthcare utilization, medical expenditures, and CMS Hierarchical Condition Categories [HCC] risk score), accessed August 2019; the 2016 and 2017 Master Beneficiary Summary File (MBSF; for chronic condition indicators); Long Term Care Minimum Data Set (MDS; for long-term institutional status), accessed June 2019; and 2014-2016 Dartmouth Atlas HRR-Zip Code Crosswalk File (for Hospital Referral Region [HRR] of residence), accessed January 2019. The HCC Risk Score is calculated based on January-December 2016 data for 2017 beneficiaries, and January-December 2017 data for 2018 beneficiaries.

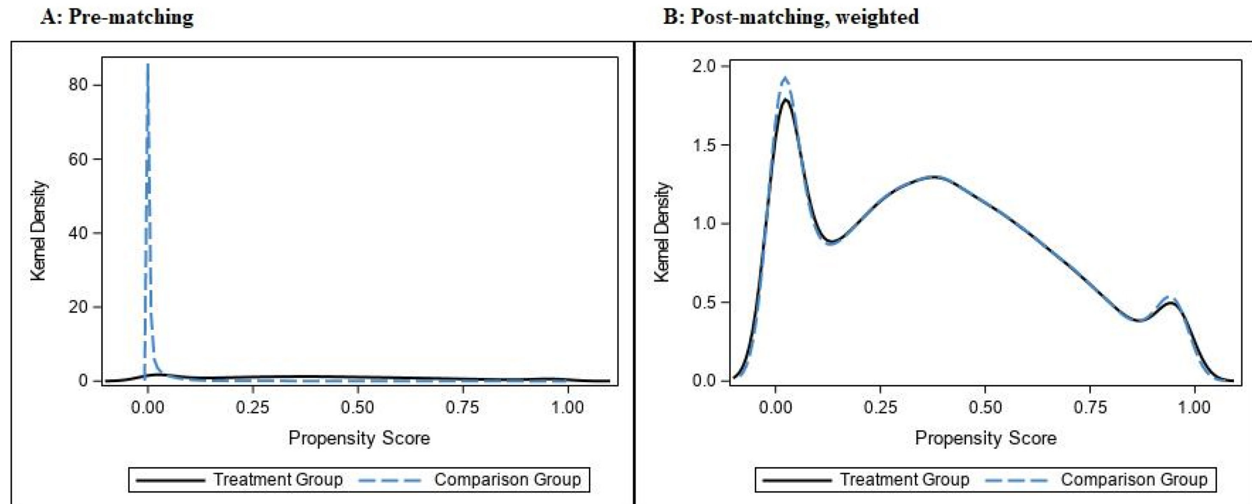
Appendix Figure B.11: Average Baseline Medicare Parts A and B Expenditures per Beneficiary, WellCare



Appendix Table B.14: Baseline Trends in Medicare Parts A and B Expenditures per Beneficiary, WellCare

	Linear Trend for Treatment	Linear Trend for Comparison	Difference in Trends (Treatment – Comparison)
Estimate (per beneficiary per quarter)	$30.46	$30.92	-$0.45
Confidence Interval	(13.25, 47.67)	(21.44, 40.39)	(-20.10, 19.19)
P-value	< 0.001	< 0.001	0.964

Appendix Figure B.12: Common Support Graphs for Propensity Score Matching, BCBS FL



Appendix Table B.15: Pre-matched and Post-matched Summary, BCBS FL

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
Number of Beneficiaries		2,070,874	59,117		101,407	57,593	
% Female	E	58.38	57.88	1.01	58.04	58.04	0.00
Age							
% Under 65 Years Old	E	31.79	2.88	82.66	2.65	2.65	0.00
% 65-69 Years Old	N	20.19	24.53	10.44	24.71	24.71	0.00
% 70-74 Years Old	E	17.79	27.53	23.42	28.04	28.04	0.00
% 75-79 Years Old	E	12.25	19.84	20.81	20.06	20.06	0.00
% 80+ Years Old	E	17.98	25.22	17.65	24.53	24.53	0.00
Race							
% White	E	76.35	92.91	47.18	93.56	93.56	0.00
% Black	E	17.79	2.87	50.54	2.64	2.64	0.00
% Other	E	5.86	4.22	7.54	3.80	3.80	0.00
% Dual Eligible	E	48.82	3.25	121.51	2.74	2.74	0.00
% Urban	P	82.49	94.98	40.32	94.04	94.87	3.65
% Disabled	E	41.98	6.77	89.92	6.31	6.31	0.00
% with ESRD	E	0.83	0.15	9.75	0.09	0.09	0.00
% with LIS	E	56.58	4.31	138.02	3.72	3.72	0.00
Income Level in Zip Code							
% below $30,000	P	6.66	1.30	27.67	1.52	1.22	2.57
% $30,000-$60,000	N	68.89	56.34	26.16	57.09	56.26	1.68
% above $60,000	P	21.55	39.26	39.24	38.76	39.41	1.33
Health Service Utilization							
% with 0 E&M Visits	P	8.59	3.01	24.03	2.87	2.93	0.38
% with 1-5 E&M Visits	P	34.57	26.57	17.43	28.75	27.01	3.88
% with 6-10 E&M Visits	P	27.68	29.32	3.63	29.75	29.77	0.05
% with 11-15 E&M Visits	P	15.43	18.72	8.75	18.07	18.70	1.61

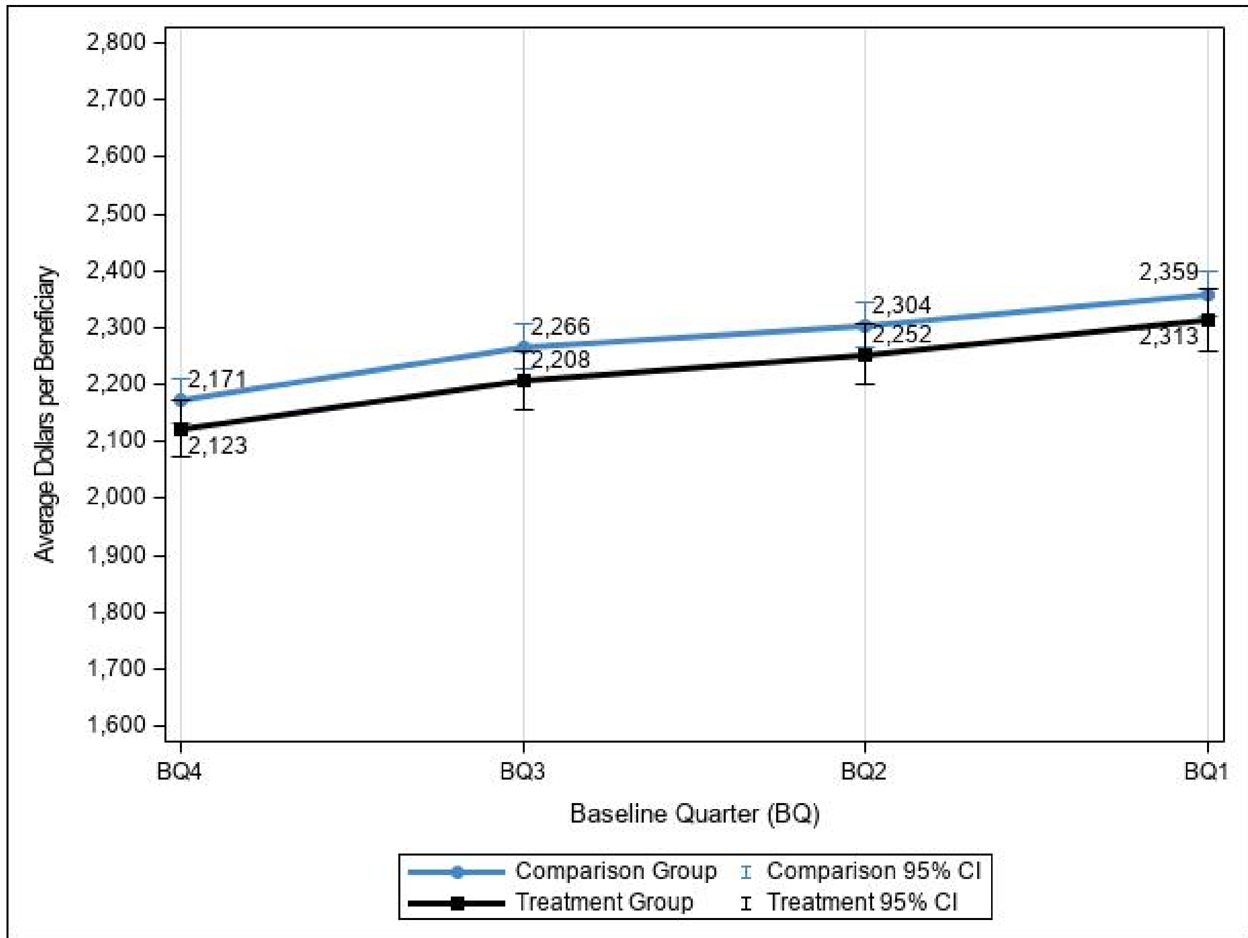
Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% with 16+ E&M Visits	P	13.73	22.38	22.63	20.56	21.59	2.52
% with 0 IP Stays	P	81.63	83.95	6.16	84.61	84.70	0.25
% with 1 IP Stay	P	11.43	10.99	1.39	10.49	10.69	0.64
% with 2+ IP Stays	P	6.94	5.06	7.94	4.90	4.61	1.35
% with 0 ED Visits	P	67.77	77.81	22.72	78.25	78.43	0.43
% with 1 ED Visit	P	18.04	15.63	6.43	15.26	15.36	0.28
% with 2+ ED Visits	P	14.20	6.56	25.26	6.49	6.21	1.13
Medical and Drug Expenditures							
Annual Medicare Parts A and B Expenditures per beneficiary	N	$11,891	$11,314	2.50	$10,928	$10,685	1.25
Expenditures in BQ 1	P	$3,035	$2,923	1.32	$2,786	$2,732	0.72
Expenditures in BQ 2	P	$2,942	$2,826	1.41	$2,733	$2,667	0.89
Expenditures in BQ 3	P	$2,952	$2,781	2.08	$2,704	$2,637	0.95
Expenditures in BQ 4	P	$2,963	$2,784	2.22	$2,705	$2,648	0.80
Annual IP Expenditures per beneficiary	N	$3,388	$2,594	6.93	$2,454	$2,406	0.51
Expenditures in BQ 1	P	$909	$711	3.76	$657	$643	0.31
Expenditures in BQ 2	P	$828	$653	3.62	$607	$608	0.02
Expenditures in BQ 3	P	$820	$617	4.15	$608	$578	0.70
Expenditures in BQ 4	P	$831	$613	4.75	$582	$577	0.14
Annual Drug Expenditures per beneficiary	N	$4,458	$3,423	8.78	$3,303	$3,226	0.73
Expenditures in BQ 1	P	$1,144	$872	7.59	$830	$820	0.30
Expenditures in BQ 2	P	$1,121	$862	7.55	$816	$811	0.16
Expenditures in BQ 3	P	$1,103	$857	7.28	$847	$810	1.23
Expenditures in BQ 4	P	$1,078	$822	7.82	$801	$775	0.91
Drug Utilization (number of fills)							
Analgesics – Opioid	N	2.92	1.51	28.14	1.46	1.45	0.23
Antiasthmatic and Bronchodilator Agents	N	1.46	0.92	13.47	0.90	0.85	1.59
Anticoagulants	N	0.73	0.68	1.92	0.70	0.66	1.88
Antidiabetics	P	2.65	1.50	20.23	1.49	1.48	0.21
Antihypertensives	P	3.56	2.85	15.09	2.90	2.83	1.91
Antipsychotics/Antimanic Agents	P	1.21	0.25	26.02	0.26	0.22	2.17
Beta Blockers	P	2.33	1.87	12.25	1.93	1.85	2.67
Calcium Channel Blockers	N	1.64	1.27	11.30	1.33	1.25	3.09
Corticosteroids	N	0.52	0.50	0.67	0.52	0.49	2.31
Musculoskeletal Therapy Agents	P	0.59	0.18	21.80	0.18	0.18	0.42
Number of Concurrent Medications	P	3.96	3.47	17.78	3.48	3.41	2.85
HCC score	P	1.22	1.13	7.89	1.09	1.09	0.13
Clinical Profile							
% Chronic Kidney Disease	P	24.32	23.48	1.98	22.05	22.65	1.44
% Chronic Obstructive Pulmonary Disease	P	14.36	11.39	8.87	10.94	10.79	0.47
% Congestive Heart Failure	N	12.75	11.08	5.15	10.85	10.53	1.03
% Depression	N	22.18	16.20	15.22	14.25	15.59	3.77
% Diabetes	P	31.78	27.24	9.96	26.38	26.68	0.68

Characteristics	Matching Model Inclusion	Pre-Matching			Post-Matching		
		Comp.	Treat.	SMD (in %)	Comp.	Treat.	SMD (in %)
% HIV/AIDS	E	0.72	0.24	7.00	0.14	0.14	0.00
% Hyperlipidemia	P	47.82	64.57	34.27	63.08	64.32	2.58
% Hypertension	P	63.59	67.23	7.65	67.29	66.82	1.01
% Osteoporosis	N	5.97	9.38	12.84	8.38	9.21	2.93
% Vascular Disease	P	14.60	16.32	4.75	15.35	15.80	1.25

Notes: E: Exact Match; P: Propensity Score Match; N: Not included in propensity score model.
BQ: Baseline Quarter; ESRD: End Stage Renal Disease; LIS: Low Income Subsidy; E&M: Evaluation and Management; IP: Inpatient; ED: Emergency Department; HCC: CMS Hierarchical Condition Categories; Comp.: Comparison Group; Treat.: Treatment Group; SMD: Standardized mean difference. Health service utilization characteristics were added to the propensity score model as quarterly variables, but are also reported in this table as total annual averages across the 12-month baseline period. Medical expenditures correspond to total allowed costs, and drug expenditures are gross drug costs. Variables are considered well-balanced if their SMD is less than 10 percent.

Sources: Common Medicare Environment (CME; for age, sex, race, Medicare Part D enrollment, and LIS status), accessed in June 2019; Enrollment Database (EDB; for dual eligibility, urban/rural, disability, and ESRD status, residence zip code and state), accessed June 2019; Part D Drug Event File (PDE; for number of medications, drug costs), accessed July 2019; Common Working File (CWF; for healthcare utilization, medical expenditures, and CMS Hierarchical Condition Categories [HCC] risk score), accessed August 2019; the 2016 and 2017 Master Beneficiary Summary File (MBSF; for chronic condition indicators); Long Term Care Minimum Data Set (MDS; for long-term institutional status), accessed June 2019; and 2014-2016 Dartmouth Atlas HRR-Zip Code Crosswalk File (for Hospital Referral Region [HRR] of residence), accessed January 2019. The HCC Risk Score is calculated based on January-December 2016 data for 2017 beneficiaries, and January-December 2017 data for 2018 beneficiaries.

Appendix Figure B.13: Average Baseline Medicare Parts A and B Expenditures per Beneficiary, BCBS FL



Appendix Table B.16: Baseline Trends in Medicare Parts A and B Expenditures per Beneficiary, BCBS FL

	Linear Trend for Treatment	Linear Trend for Comparison	Difference in Trends (Treatment – Comparison)
Estimate (per beneficiary per quarter)	$61.37	$60.14	$1.24
Confidence Interval	(40.21, 82.54)	(26.61, 93.67)	(-38.42, 40.89)
P-value	< 0.001	<0.001	0.951

Appendix Table B.17: Baseline Characteristics of Treatment and Comparison Cohorts, Modelwide and by Sponsor

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Modelwide		SilverScript/CVS		Humana		BCBS NPA		UnitedHealth		WellCare		BCBS FL	
	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)
Number of Beneficiaries	1,427,816	2,944,397	590,342	1,522,292	352,407	813,558	173,745	288,141	141,157	334,362	112,572	461,261	57,593	101,407
Age														
% Below 65 Years Old	25.8 (43.8)	25.8 (43.8)	31.6 (46.5)	31.6 (46.5)	37.1 (48.3)	37.1 (48.3)	3.7 (18.8)	3.7 (18.8)	12.0 (32.5)	12.0 (32.5)	29.1 (45.4)	29.1 (45.4)	2.7 (16.1)	2.7 (16.1)
% 65-69 Years Old	20.2 (40.1)	20.2 (40.1)	19.5 (39.7)	19.5 (39.7)	14.9 (35.6)	14.9 (35.6)	18.7 (39.0)	18.7 (39.0)	34.8 (47.6)	34.8 (47.6)	19.8 (39.8)	19.8 (39.8)	24.7 (43.1)	24.7 (43.1)
% 70-74 Years Old	20.1 (40.0)	20.1 (40.0)	17.9 (38.4)	17.9 (38.4)	20.0 (40.0)	20.0 (40.0)	23.3 (42.2)	23.3 (42.2)	22.9 (42.0)	22.9 (42.0)	18.1 (38.5)	18.1 (38.5)	28.0 (44.9)	28.0 (44.9)
% 75-79 Years Old	13.8 (34.5)	13.8 (34.5)	12.6 (33.2)	12.6 (33.2)	11.3 (31.7)	11.3 (31.7)	21.0 (40.7)	21.0 (40.7)	13.2 (33.9)	13.2 (33.9)	13.2 (33.9)	13.2 (33.9)	20.1 (40.0)	20.1 (40.0)
% 80+ Years Old	20.1 (40.1)	20.1 (40.1)	18.3 (38.7)	18.3 (38.7)	16.7 (37.3)	16.7 (37.3)	33.4 (47.1)	33.4 (47.1)	17.1 (37.6)	17.1 (37.6)	19.7 (39.8)	19.7 (39.8)	24.5 (43.0)	24.5 (43.0)
% Female	58.0 (49.4)	58.0 (49.4)	57.7 (4.4)	57.7 (4.4)	56.6 (49.6)	56.6 (49.6)	59.9 (49.0)	59.9 (49.0)	58.9 (49.2)	58.9 (49.2)	59.0 (49.2)	59.0 (49.2)	58.0 (49.3)	58.0 (49.3)
Race														
% White	80.7 (39.5)	80.7 (39.5)	77.9 (41.5)	77.9 (41.5)	73.3 (44.2)	73.3 (44.2)	97.5 (15.6)	97.5 (15.6)	86.7 (33.9)	86.7 (33.9)	74.5 (43.6)	74.5 (43.6)	93.6 (24.6)	93.6 (24.6)
% Black	11.0 (31.3)	11.0 (31.3)	13.2 (33.9)	13.2 (33.9)	14.7 (35.4)	14.7 (35.4)	0.3 (5.7)	0.3 (5.7)	6.1 (24.0)	6.1 (24.0)	17.4 (37.9)	17.4 (37.9)	2.6 (19.1)	2.6 (19.1)
% Other	8.2 (27.5)	8.2 (27.5)	8.8 (28.4)	8.8 (28.4)	12.0 (32.5)	12.0 (32.5)	2.2 (14.6)	2.2 (14.6)	7.1 (25.8)	7.1 (25.8)	8.2 (27.4)	8.2 (27.4)	3.8 (19.1)	3.8 (19.1)
% Dual Eligible	41.2 (49.2)	41.2 (49.2)	50.2 (50.0)	50.2 (50.0)	61.5 (48.7)	61.5 (48.7)	3.5 (18.3)	3.5 (18.3)	18.6 (38.9)	18.6 (38.9)	46.9 (49.9)	46.9 (49.9)	2.7 (16.3)	2.7 (16.3)
% Urban	80.6 (39.5)	77.9 (41.5)	80.7 (39.5)	78.0 (41.5)	83.4 (37.2)	78.8 (40.9)	64.8 (47.8)	64.9 (47.7)	89.1 (31.2)	85.5 (35.2)	79.5 (40.4)	78.0 (41.5)	94.9 (22.1)	94.0 (23.7)
% Disabled	33.1 (47.1)	33.1 (47.1)	40.5 (49.1)	40.5 (49.1)	44.1 (49.7)	44.1 (49.7)	7.7 (26.6)	7.7 (26.6)	18.3 (38.6)	18.3 (38.6)	37.6 (48.4)	37.6 (48.4)	6.3 (24.3)	6.3 (24.3)
% with ESRD	0.6 (7.8)	0.6 (7.8)	0.7 (8.1)	0.7 (8.1)	0.9 (9.6)	0.9 (9.6)	0.1 (3.6)	0.1 (3.6)	0.3 (5.6)	0.3 (5.6)	0.9 (9.3)	0.9 (9.3)	0.1 (3.0)	0.1 (3.0)
% with LIS Status	45.8 (49.8)	45.8 (49.8)	55.3 (49.7)	55.3 (49.7)	67.1 (47.0)	67.1 (47.0)	4.6 (20.9)	4.6 (20.9)	22.4 (41.7)	22.4 (41.7)	54.9 (49.8)	54.9 (49.8)	3.7 (18.9)	3.7 (18.9)
Evaluation and Management (E&M) Visits														
% with 0 E&M Visits	8.3 (27.5)	7.4 (26.1)	8.6 (28.0)	7.8 (26.8)	12.1 (32.6)	10.0 (30.0)	4.9 (21.6)	5.2 (22.1)	5.7 (23.1)	4.8 (21.3)	7.3 (25.9)	6.9 (25.3)	2.9 (16.9)	2.9 (16.7)
% with 1-5 E&M Visits	35.2 (47.8)	35.1 (47.7)	34.6 (47.6)	35.1 (47.7)	34.9 (47.7)	35.4 (47.8)	43.8 (49.6)	39.9 (49.0)	31.0 (46.2)	31.5 (46.5)	35.1 (47.7)	35.0 (47.7)	27.0 (44.4)	28.8 (45.3)

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Modelwide		SilverScript/CVS		Humana		BCBS NPA		UnitedHealth		WellCare		BCBS FL	
	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)	Treat. (STD)	Comp. (STD)
% with 6-10 E&M Visits	27.0 (44.4)	27.4 (44.6)	27.0 (44.4)	27.3 (44.6)	24.8 (43.2)	25.2 (43.4)	29.2 (45.5)	30.0 (45.8)	27.7 (44.7)	27.6 (44.7)	27.6 (44.7)	28.2 (45.0)	29.8 (45.7)	29.7 (45.7)
% with 11-15 E&M Visits	14.8 (35.5)	15.1 (35.8)	15.0 (35.7)	15.1 (35.8)	13.8 (34.5)	14.4 (35.1)	12.6 (33.2)	14.2 (34.9)	16.7 (37.3)	16.4 (37.0)	15.5 (36.2)	15.4 (36.1)	18.7 (39.0)	18.1 (38.5)
% with 16+ E&M Visits	14.7 (35.4)	15.0 (35.7)	14.8 (35.5)	14.8 (35.5)	14.4 (35.1)	14.9 (35.6)	9.4 (29.2)	10.7 (30.9)	18.9 (39.2)	19.7 (39.8)	14.6 (35.3)	14.5 (35.2)	21.6 (41.1)	20.6 (40.4)
IP Stays														
% with 0 IP Stays	82.6 (37.9)	82.5 (38.0)	82.3 (38.2)	82.2 (38.2)	81.0 (39.2)	81.0 (39.2)	85.5 (35.2)	85.2 (35.5)	83.8 (36.9)	83.6 (37.0)	81.8 (38.6)	82.1 (38.3)	84.7 (36.0)	84.6 (36.1)
% with 1 IP Stay	11.2 (31.5)	11.0 (31.3)	11.2 (31.5)	11.2 (31.5)	11.6 (32.0)	11.4 (31.8)	10.7 (30.9)	10.4 (30.6)	10.6 (30.8)	10.6 (30.7)	11.5 (31.9)	11.3 (31.6)	10.7 (30.9)	10.5 (30.6)
% with 2+ IP Stays	6.2 (24.2)	6.4 (24.5)	6.5 (24.7)	6.7 (25.0)	7.3 (26.1)	7.5 (26.4)	3.9 (19.3)	4.3 (20.3)	5.7 (23.1)	5.9 (23.5)	6.7 (25.1)	6.6 (24.8)	4.6 (21.0)	4.9 (21.6)
ED Visits														
% with 0 ED Visits	71.0 (45.4)	70.0 (45.8)	69.6 (46.0)	68.7 (46.4)	68.1 (46.6)	66.9 (47.1)	76.2 (42.6)	74.9 (43.4)	75.3 (43.1)	74.2 (43.8)	68.1 (46.6)	67.9 (46.7)	78.4 (41.1)	78.2 (41.3)
% with 1 ED Visit	17.1 (37.7)	17.4 (37.9)	17.4 (37.9)	17.7 (38.2)	17.6 (38.1)	18.0 (38.4)	16.1 (36.7)	16.5 (37.2)	15.9 (36.5)	16.1 (36.8)	18.1 (38.5)	18.1 (38.5)	15.4 (36.1)	15.3 (36.0)
% with 2+ ED Visits	11.9 (32.4)	12.6 (33.2)	13.0 (33.6)	13.6 (34.3)	14.2 (34.9)	15.1 (35.8)	7.7 (26.6)	8.6 (28.0)	8.8 (28.3)	9.7 (29.6)	13.9 (34.6)	14.1 (34.8)	6.2 (24.1)	6.5 (24.6)
Average Number of Concurrent Medications	3.7 (3.0)	3.8 (2.9)	3.8 (3.1)	3.9 (3.0)	3.7 (3.2)	3.7 (3.1)	3.4 (2.5)	3.6 (2.6)	3.5 (2.8)	3.7 (2.8)	4.0 (2.9)	4.0 (3.0)	3.4 (2.4)	3.5 (2.4)
Average Total Annual Part D Costs per Beneficiary	$4,117 ($12,709)	$4,206 ($13,307)	$4,719 ($13,454)	$4,708 ($12,914)	$4,372 ($13,369)	$4,433 ($13,413)	$2,434 ($9,058)	$2,624 ($9,679)	$3,758 ($13,023)	$4,124 ($18,396)	$3,898 ($12,244)	$4,075 ($13,491)	$3,226 ($10,442)	$3,303 ($10,774)
Average Total Annual Parts A and B Costs per Beneficiary	$11,323 ($23,890)	$11,623 ($24,618)	$11,555 ($24,119)	$11,754 ($25,674)	$12,128 ($26,930)	$12,460 ($26,104)	$9,072 ($18,330)	$9,856 ($19,105)	$11,346 ($22,805)	$11,782 ($25,665)	$11,798 ($24,689)	$11,613 ($23,578)	$10,685 ($19,697)	$10,928 ($19,326)
Average IP Costs per Beneficiary	$3,062 ($11,878)	$3,136 ($12,075)	$3,195 ($12,477)	$3,248 ($12,738)	$3,479 ($13,072)	$3,592 ($13,269)	$2,177 ($8,403)	$2,307 ($8,519)	$2,818 ($11,210)	$2,932 ($11,273)	$3,288 ($11,852)	$3,228 ($11,976)	$2,406 ($9,374)	$2,454 ($9,572)
Average HCC Risk Score	1.2 (1.2)	1.2 (1.2)	1.2 (1.2)	1.2 (1.2)	1.3 (1.3)	1.3 (1.3)	1.0 (0.9)	1.1 (0.9)	1.1 (1.1)	1.1 (1.1)	1.2 (1.2)	1.2 (1.2)	1.1 (1.0)	1.1 (1.0)

Notes: STD: Standard Deviation; ESRD: End-Stage Renal Disease; LIS: Low-Income Subsidy; IP: Inpatient; ED: Emergency Department; HCC: Hierarchical Condition Categories. The "% Disabled" and "% with ESRD" is based on beneficiaries' original reason for Medicare eligibility. Total quarterly cost variables, which were used in the propensity score matching model, are provided in the covariate summaries in Appendix B.1.

Sources: Common Medicare Environment (CME; for age, sex, race, and LIS status), accessed in June 2019; Enrollment Database (EDB; for dual eligibility, urban/rural, disability, and ESRD status), accessed June 2019; Part D Drug Event File (PDE; for number of concurrent medications, drug costs), accessed July 2019; Common Working File (CWF; for number of E&M visits, inpatient stays, ED visits; medical costs; inpatient costs; and CMS Hierarchical Condition Categories [HCC] risk score), accessed August 2019; and the 2016 and 2017 Master Beneficiary Summary File (MBSF; for number of chronic conditions). The HCC Risk Score is calculated based on January-December 2016 data for beneficiaries enrolled in plans in 2017, and January-December 2017 data for beneficiaries enrolled in plans in 2018.

B.1.2 Outcome Measures

Appendix Table B.18: Outcome Measure Definitions

Measure	Definition	Part A	Part B
Total Parts A and B Expenditures	Standardized Medicare payment amount for fee-for-service claims in all Common Working File (CWF) settings in a month. The CWF data contains 7 setting file types, which include: Part A: Inpatient (IP), Home Health (HH), Hospice (HS), Skilled Nursing Facility (SNF) Part B: Durable Medical Equipment (DME), Home Health (HH), Outpatient (OP), Physician/Carrier (PB)	✓	✓
Inpatient Expenditures	Standardized Medicare payment amount for claims in the IP file in a month. This excludes claims from SNF.	✓	
Outpatient Non-Emergency Expenditures	Standardized Medicare payment amount for claims in the OP file in a month that do **not** contain any revenue center code on the claims indicating Emergency Department (ED) visits.		✓
Outpatient Emergency Department (ED) Expenditures	Standardized Medicare payment amount for claims in the OP file in a month that contain **at least one** revenue center code on the claims indicating ED visits.		✓
Physician and Ancillary Expenditures	Standardized Medicare payment amount for claims in the Physician/Carrier (PB) file in a month. This includes any kind of non-institutional outpatient billing (e.g., Part B drugs and diagnostics such as labs) that is not Durable Medical Equipment (e.g., diabetic supplies like insulin and glucose test strips).		✓
Skilled Nursing Facility (SNF) Expenditures	Standardized Medicare payment amount for claims in the SNF file in a month.	✓	
Inpatient Admissions	Number of stays in an Inpatient facility in a given month, based on counts of unique combinations of provider and admission date across claims in the IP file in that month.	✓	
Inpatient Days	Number of days covered by Inpatient stays in a month.	✓	
SNF Admissions	Number of stays in a Skilled Nursing Facility in a month, based on counts of unique combinations of provider and admission date across claims in the SNF file in that month.	✓	
SNF Days	Number of days covered by Skilled Nursing Facility stays in a month.	✓	
Outpatient Non-Emergency Visits	Number of visits to an Outpatient facility that is not the ED in a month, based on counts of unique combinations of provider and date across claims in the OP file **not containing any** revenue center code indicating ED visits in that month.		✓
Outpatient ED Visits	Number of visits to the ED in a month, based on counts of unique combinations of provider and date across claims in the OP file **containing at least one** revenue center code indicating ED visits in that month.		✓

Notes: Service settings that were not assessed separately as part of the Enhanced MTM Model evaluation are: Hospice (HS), Home Health (HH), and Durable Medical Equipment (DME).

B.1.3 Difference-in-Differences Estimation

Model impacts on gross expenditures were estimated using difference-in-differences (DiD) models on the matched samples of beneficiary-month observations. The DiD models were estimated for the Model as a whole (by pooling together all sponsor-specific analytic cohorts and adjusting matching weights accordingly), as well as separately for each sponsor.

Two separate model specifications were estimated:

(i) a specification that produces a single, cumulative DiD estimate of the Enhanced MTM Model's impact on per-beneficiary-per-month expenditures over the entire two years of Model implementation, and

(ii) a specification that allows the per-beneficiary-per-month DiD estimate on expenditures to vary by Model Year.

Both specifications included calendar month fixed effects that were allowed to vary based on a beneficiary's first year of exposure to the Model (2017 or 2018). Calendar month fixed effects control for month-specific shocks and trends that may affect expenditure across all Medicare beneficiaries, and that may differ between beneficiaries who were first exposed to Enhanced MTM in 2017 and in 2018 (along with their matched comparators).

The models also included two Enhanced MTM plan enrollee indicator variables (one for beneficiaries first exposed to the Model in 2017 and another for beneficiaries first exposed in 2018), and an interaction term of an Enhanced MTM plan enrollee indicator variable with a post-exposure indicator variable, which produces the DiD estimate. The Enhanced MTM plan indicator variables control for permanent differences in characteristics of Enhanced MTM plan enrollees relative to comparators, which are allowed to vary between beneficiaries first exposed to the Model in 2017 and beneficiaries first exposed to the Model in 2018.

The model specification for the cumulative DiD estimate is the following:

$$y_{it} = \alpha + \sum_{j=1}^{35} \beta_{2017j} [(month_t = j) * (exposure\ year_i = 2017)]$$

$$+ \sum_{j=1}^{35} \beta_{2018j} [(month_t = j) * (exposure\ year_i = 2018)]$$

$$+ \gamma_{2017} [(EMTM_i = 1) * (exposure\ year_i = 2017)]$$

$$+ \gamma_{2018} [(EMTM_i = 1) * (exposure\ year_i = 2018)]$$

$$+ \delta_1 [(post_{it} = 1) * [(EMTM_i = 1)]_{it} + \epsilon_{it}$$

Appendix Table B.19: Variable and Coefficient Descriptions for the Cumulative Difference-in-Differences (DiD) Estimation Model

Variable/Coefficient	Description
y_{it}	Expenditures outcome of interest for beneficiary i and month t (e.g., beneficiary month total medical expenditures)
$(month_t = j)$	An indicator (dummy) variable for calendar month j
$(exposure\ year_i = 2017)$	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2017
$(exposure\ year_i = 2018)$	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2018
$(EMTM_i = 1)$	An indicator variable for beneficiaries in the treatment cohort
$(post_{it} = 1)$	An indicator variable for months corresponding to the post-exposure period
ϵ_{it}	An error term
β coefficients	Correspond to the calendar month fixed effects and are allowed to vary between beneficiaries first exposed to the Model in 2017 and those first exposed in 2018
γ coefficients	Capture the treatment cohort fixed effects that are also allowed to vary by year of first exposure to Enhanced MTM
δ_i coefficient	The DiD per-beneficiary-per-month estimate of cumulative Model impacts on beneficiary expenditures relative to the baseline period. Standard errors were clustered at the beneficiary level

To produce separate DiD estimates by Model Year, the above specification that produces cumulative impacts was adapted. Instead of including an interaction term for the Enhanced MTM plan enrollee indicator variable and a post-exposure indicator variable (which produced the cumulative DiD estimate), two triple interaction terms were used:

(i) an interaction term of an Enhanced MTM plan enrollee indicator variable with a post-exposure indicator variable and with an indicator variable for a Model Year 1 beneficiary-month observation, that produces the DiD estimate for Model Year 1, and

(ii) an interaction term of an Enhanced MTM plan enrollee indicator variable with a post-exposure indicator variable and with an indicator variable for a Model Year 2 beneficiary-month observation, that produces the DiD estimate for Model Year 2.

Both DiD estimates from this specification correspond to changes relative to baseline, and standard errors were clustered at the beneficiary level.

The specification that produces DiD estimates for Model Years 1 and 2 is the following:

$$
\begin{aligned}
y_{it} = \alpha &+ \sum_{j=1}^{35} \beta_{2017j} [(month_t = j) * (exposure\ year_i = 2017)] \\
&+ \sum_{j=1}^{35} \beta_{2018j} [(month_t = j) * (exposure\ year_i = 2018)] \\
&+ \gamma_{2017} [(EMTM_i = 1) * (exposure\ year_i = 2017)] \\
&+ \gamma_{2018} [(EMTM_i = 1) * (exposure\ year_i = 2018)] \\
&+ \delta_{2017} [(post_{it} = 1) * [(EMTM_i = 1) * (year_t = 2017)]_{it} \\
&+ \delta_{2018} [(post_{it} = 1) * [(EMTM_i = 1) * (year_t = 2018)]_{it} + \epsilon_{it}
\end{aligned}
$$

Where all variables have the same interpretation as in the specification for the cumulative estimates.

The variable $(year_t = 2017)$ is an indicator variable for beneficiary-month observations in 2017, and the variable $(year_t = 2018)$ is an indicator variable for beneficiary-month observations in 2018. The δ_{2017} coefficient captures the DiD per-beneficiary-per-month estimate for Model Year 1 (2017), and the δ_{2018} coefficient captures the DiD per-beneficiary-per-month estimate for Model Year 2 (2018).

B.1.4 Sensitivity Analyses

To test whether the findings in this report are sensitive to the inclusion of outliers, several additional analyses were conducted. Beneficiary-months with total Medicare Parts A and B expenditures greater than $100,000 were truncated to remove the impact of unusually costly observations, and specifications for the overall Model and each individual sponsor were rerun. Additional specifications that removed beneficiaries with any month exceeding similar thresholds from the analytic sample were also tested.

The qualitative findings for all sponsors and for the Model as a whole were generally unaffected by the removal of outliers in these analyses. Similar to the main all-enrollee analysis, there was a small non-significant decrease in Modelwide expenditures cumulatively across both Model Years. Notably, the large and statistically significant decreases in expenditures observed for BCBS FL in Model Year 1 remained substantively unchanged. As in the main analysis, the estimated impact for BCBS FL in Model Year 2 was insignificant. These findings imply that the Model Year 1 impact for BCBS FL is not driven by outlier observations. Overall, the removal of outliers did not have a meaningful impact on the difference-in-differences (DiD) estimates of changes in gross Medicare Parts A and B expenditures presented in this report.

B.1.5 Net Expenditure Calculation

Model impacts on net Medicare expenditures take into account two components. The first is estimated changes in gross Medicare expenditures for Parts A and B on behalf of beneficiaries enrolled in Model-participating plans, generated using the methods described in the preceding sections. The second component is costs incurred by Medicare for (i) per-beneficiary per-month (PBPM) prospective payments to sponsors to cover Model implementation costs and (ii) performance-based payments. This Second Evaluation Report presents changes in net expenditures for the Model as a whole, calculated separately for each Model Year. Because the calculation of performance-based payments required enrollment projections for April 2020 through December 2020, the estimates of changes in net expenditures presented in this report are preliminary and will be updated as enrollment data become available.

The algorithm for calculating Model impacts on net Medicare expenditures includes five key steps:

(1) **Produce the Modelwide PBPM estimates of changes in Medicare Parts A and B expenditures for each Model Year.** These are the Modelwide gross Medicare Parts A and B expenditure estimates presented in Section 4.3.

(2) **Produce the Modelwide average PBPM prospective payment in each Model Year.** For each sponsor, the total amount of monthly authorized prospective payments is summed across the 12 months of each Model Year.[4] The Modelwide prospective payment is produced by summing across all sponsors, which is then divided by the total number of beneficiary-months in the Model Year to produce the average PBPM prospective payment. Prospective payments for November and December 2018 for

[4] Information on prospective payments was provided to Acumen by CMS.

WellCare were not allocated until January 2019. Consequently, prospective payment information for 2018 and 2019 is used to impute prospective payments for November and December 2018 for WellCare.[5]

(3) **Produce the Modelwide PBPM performance payment in each Model Year.** Performance-based payments are allocated to participating plans conditional on plan savings in enrollees' Medicare Parts A and B expenditures relative to a benchmark.[6] Performance-based payments are fixed at $2 PBPM, and take the form of an increase in Medicare's direct subsidy component of Part D payment, resulting in a corresponding decrease in the plan premium paid by beneficiaries. Performance-based payments are awarded with a two-year delay. For example, performance results in Model Year 1 (2017) determine eligibility for performance-based payments that are awarded in Model Year 3 (2019). For plans that qualified for performance payments based on Model Year 1 (2017) and Model Year 2 (2018) performance, the total expected amount of performance payments awarded in 2019 and in 2020 is calculated, using enrollment projections.[7] The total performance payments awarded in 2019 are then translated into a PBPM amount for Model Year 1 based on total 2017 plan enrollment, while the total performance payments awarded in 2020 are translated into a PBPM amount for Model Year 2 based on total 2018 plan enrollment.

(4) **Sum the values produced in Step 1, Step 2, and Step 3.** Changes in net expenditures are calculated as the sum of the estimated change in total Medicare expenditures and costs incurred by Medicare for prospective and performance-based payments to sponsors. If estimates are negative, net Medicare expenditures have decreased and the estimates represent net savings. Positive estimates represent net losses.

(5) **Produce change in total net expenditures for each Model Year.** The value in Step 4 is multiplied by the number of total beneficiary-months in the Model Year to produce the change in total net expenditures for each year of Model implementation.

[5] January 2019 prospective payments were assumed to be at the average PBPM rate of February-June 2019, and the excess remainder was attributed to November and December of 2018 rather than January 2019.

[6] A minimum savings rate of 2 percent relative to a benchmark is required to qualify for performance-based payments. The benchmark is determined based on expected Medicare expenditures (in the absence of the Model), and eligibility for performance-based payments is determined by the Implementation and Monitoring contractor, in a process that is separate from the independent evaluation of the Enhanced MTM Model by the Acumen team.

[7] Monthly enrollment is projected for plans that qualified for these payments for months where data is not yet available (April 2020 through December 2020). For all plans, April through December 2020 enrollment is projected using a linear trend in plan enrollment based on the trend from January to March 2020.

B.2 Qualitative Methods

This appendix provides an overview of the qualitative data collection methods used to gather information for this Second Evaluation Report from (i) the six participating Part D sponsors and their vendors and (ii) Part D sponsors that were eligible to participate in the Model but decided not to apply. The qualitative information included in this report is based on analysis conducted between November 2016 and December 2018. Section B.2.1 presents the qualitative methods used in sponsor interviews and document review. Section B.2.2 presents the qualitative methods used in interviews with non-participating sponsors. Section B.2.3 provides a summary of the qualitative data analysis methodology used for this Second Evaluation Report.

B.2.1 Sponsor and Vendor Interviews and Review of Secondary Information

Qualitative researchers conducted in-depth telephone or in-person interviews with leadership and key representatives from both participating sponsors and their respective vendors on a quarterly basis beginning in November 2016. In addition, researchers reviewed a number of secondary materials, including the sponsors' Model Years 1 and 2 applications (including any mid-year application changes), supplemental application materials, and materials from CMS presentations and Internal Learning Systems records. They also reviewed additional information provided by sponsors or vendors (e.g., PowerPoint presentations describing Enhanced MTM interventions, beneficiary recruitment and educational material examples, Enhanced MTM intervention policy documents, targeting specifications). All interviews were conducted using sponsor-tailored interview protocols that were designed to capture information consistently across sponsors. In-person interviews were also conducted during site visits to sponsor and/or vendor headquarters between October 2017 and April 2018. One "virtual" site visit was conducted with a sponsor during March and April 2018 via Webex. At least one phone call with each of the sponsors was conducted every quarter.[8] In several cases, multiple phone calls were conducted each quarter.

Interview topics varied across the Model Years. Initial calls during the first year focused on sponsors' overall Enhanced MTM interventions and structure. Subsequent calls in Model Year 1 focused primarily on obtaining in-depth information about and documentation of the targeting specifications that sponsors or vendors used to determine which beneficiaries will receive Enhanced MTM-related outreach. In some cases, interviews occurred later in the year due to the time required to execute non-disclosure agreements (NDAs) with the sponsor/vendor prior to detailed conversations about targeting approaches. Subsequent Model Year 1 calls also

[8] In lieu of a telephone interview with UnitedHealth in November 2018, UnitedHealth provided an update by email communications.

covered high-level differences between the sponsors' traditional Part D and Model Year 1 Enhanced MTM interventions; key implementation milestones and processes; Enhanced MTM intervention modifications; implementation lessons learned, challenges, and/or successes; and workforce structure and training. Calls conducted during the second year focused on Model Year 2 implementation; the sponsors' approaches for using Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT) codes to document Enhanced MTM services and constructing their Medicare Advantage Prescription Drug (MARx) Transaction Code (TC) 91 data sets; processes related to prescriber outreach and documentation of prescriber-related interactions; and ongoing implementation lessons learned, challenges, and/or successes.

For each interview and site visit, qualitative researchers collaborated with their point of contact for each sponsor to determine which internal or vendor staff representatives should participate in the interview. Respondents included Enhanced MTM intervention leads/managers, overall Part D MTM directors, account managers or directors, pharmacists, clinical systems and reporting representatives, analytics representatives, legal and regulatory affairs representatives, and consultants.

B.2.2 Non-Participating Sponsor Interviews

In summer and fall 2018, qualitative researchers conducted interviews with four sponsors that were eligible to participate in the Enhanced MTM Model but decided not to submit an application. The interviews focused on sponsors' reasons for non-participation; perceptions and expectations of the Enhanced MTM Model and Part D MTM in general; perceptions of the Model requirements, including reporting requirements and use of SNOMED CT codes; Model outcomes; and considerations for Model scalability. The purpose of the interviews was to identify perceived concerns and implications about applying for and participating in the Enhanced MTM Model; uncover any barriers to participation and implementation, such as perspectives of key decision-makers, financial factors, and investment considerations; and identify potential factors related to scaling the Enhanced MTM Model.

Potential non-participating sponsors were identified based on multiple inputs including CMS landscape source files,[9] Health Plan Management System (HPMS) enrollment and contract report files, and feedback from the Enhanced MTM Model Team. Using the 2016 Prescription Drug Plan (PDP) Landscape Source File supplemented with the 2016 HPMS Plan-Level Enrollment File, standalone basic plans in the five Enhanced MTM-participating demonstration regions – (i) Arizona (AZ), (ii) Louisiana (LA), (iii) Florida (FL), (iv) the Upper Midwest and Northern Plains (IA, MN, MT, ND, NE, SD, WY), and (v) Virginia (VA) – were identified that

[9] Available at https://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/

met the minimum 2,000-beneficiary enrollment level set by the Enhanced MTM Model. Using the 2014 PDP Landscape Source File, our team verified which of the plans identified in the prior step existed in 2014 (another Enhanced MTM Model requirement) and removed any plans that were under sanction by CMS or law enforcement entities as of April 2016. Next, using the HPMS Parent Organization and Legal Entity to Contract Report, the sponsor organizations of the remaining plans were identified. This process resulted in the identification of five non-participating sponsors with plans that met the Enhanced MTM Model inclusion criteria. The Enhanced MTM Model team confirmed that these sponsors represented plans that could have participated in the Enhanced MTM Model, but did not.

After identifying the non-participating sponsors, the HPMS Medication Therapy Management Program (MTMP) Contact Report file was used to identify the primary point of contact at each sponsor organization and their contact information. Qualitative researchers reached out to the points of contact by email and then followed up with phone calls or, in some cases, in-person contact during conferences to introduce the evaluation, explain the objectives of the interview, confirm that the contact was the appropriate person to interview for the evaluation, and identify a replacement contact or supplemental contact. Four of the five non-participating sponsors agreed to be interviewed. Each interview lasted approximately one hour and was guided by a semi-structured interview protocol. Prior to each interview, qualitative researchers conducted targeted environmental scans to identify publicly available material related to the sponsor's traditional MTM program.

B.2.3 Qualitative Data Analysis

Analysis of all participating and non-participating sponsor-related qualitative data followed a similar process. All interviews were audio-recorded and detailed notes were generated for analysis purposes. The qualitative lead, along with other researchers who participated in the interviews, reviewed the interviews and supporting materials for common themes and key points of interest. This group met regularly to discuss key outputs from interviews across all participating sponsors/vendors and stakeholders, reached consensus on the interpretation of the data, and identified themes/patterns, which were reported to CMS on a quarterly basis and are summarized and presented in this Second Evaluation Report.

B.3 Prescriber Survey Methodology

This appendix provides methodological details of a Model Year 2 survey of prescribers who treat Enhanced MTM beneficiaries. It provides details of the sampling approach (Section B.3.1); describes questionnaire development and survey operations (Section B.3.2); and presents the performance of the survey sample (Section B.3.3). Results from this survey can be found in Section 5 of the report.

B.3.1 Sampling Approach

Prescribers were selected for the survey through their association with patients receiving Enhanced MTM services. Enhanced MTM Encounter Data were used to identify beneficiaries who received Enhanced MTM services in 2017 that were deemed substantial enough to result in prescriber awareness of the service, either through direct communication from sponsors or from patient report of the service. This included all core Enhanced MTM services such as targeted or comprehensive medication reviews, adherence counseling, patient education, and direct prescriber outreach. It excluded mailings publicizing services, which were sometimes documented in Encounter Data, as well as documented encounters where beneficiaries declined services or services that were low-intensity and unlikely to result in prescriber awareness of the service.[10] The process was performed separately for each sponsor and based on the in-depth interviews with sponsors about services and coding practices, as well as SNOMED mapping documents provided directly by each of the sponsors, which detailed their approaches to documenting Enhanced MTM services. This activity resulted in the identification of 352,991 unique beneficiaries, who were included in the next steps of the sampling.

Part D claims from these beneficiaries were analyzed to identify the prescriber responsible for a plurality of their prescriptions in 2017. In the event of ties for top prescriber for a beneficiary, all ties were initially retained. The total number of unique prescribers responsible for a plurality of prescriptions for one or more Enhanced MTM beneficiaries was 68,222.

Contact information for prescribers was obtained from the National Plan and Provider Enumeration System (NPPES) and Physician Compare (PC) datasets. Addresses from the two sources were compared. Where they differed, the PC address was prioritized as PC is considered more current.

From the set of prescribers with contact information, the number of Enhanced MTM beneficiaries was calculated, across sponsors, for whom each prescriber was assigned as the

[10] Services related to SilverScript/CVS's HealthTag program were omitted entirely, since the program only provides low-intensity services, such as printed vaccination reminders on patients' prescription drug information leaflets, that are unlikely to have come to the attention of prescribers.

primary prescriber. Finally, the 800 prescribers with the highest number of Enhanced MTM beneficiaries were selected for each sponsor, resulting in a total of 4,800 sampled prescribers. A cascading selection process was employed to ensure that prescribers associated with more than one sponsor were not selected more than once for the survey. The selection order proceeded from the sponsor with the lowest number of prescribers to the highest; 1=BCBS FL, 2=BCBS NPA, 3=Humana, 4=WellCare, 5=UnitedHealth, 6=SilverScript/CVS. This ordering ensured the fewest number of duplicative prescribers would have to be omitted from the smaller sponsors' set of potential sample members.

The vast majority of sampled prescribers (99 percent) were touched by multiple sponsors, making the association of a prescriber with a particular sponsor somewhat artificial. Therefore, the analysis presented in Section 5 of the report focuses on the level of "exposure to Enhanced MTM" as measured by assigned beneficiaries participating in Enhanced MTM.

B.3.2 Questionnaire Development and Survey Operations

The survey instrument was designed exclusively for this data collection, as prior instruments with similar content were not found. The survey was cognitively tested with an Enhanced MTM prescriber to check salience and comprehension. Since email contact information was not available for prescribers, a multi-mode administration approach was used, whereby prescribers received a mail invitation to complete the survey online and a follow-up hard copy of the instrument.

Notable data collection challenges were expected, including the survey's low priority for busy prescribers as well as lack of name recognition for the Enhanced MTM Model, as sponsors do not typically brand their communications as Enhanced MTM-specific.

Another challenge was lack of alternative means of contacting prescribers for participation in the survey. Although email invitations to complete a web-based survey are most cost-efficient, we had only physical practice location for sampled prescribers.

The strategy to maximize participation in the face of these challenges was to keep the survey short, make the questions applicable to prescribers whether or not they knew about the Enhanced MTM Model, and provide multiple options for completion of the survey. In terms of content, the survey was designed to focus on select core concepts including:

- Awareness of Medicare PDP communications overall and Enhanced MTM communications specifically;
- Enumeration of topics addressed in Medicare PDP communications;
- Assessment of the extent to which patients reported Medicare PDP recommendations to prescribers;

- Changes made to patients' medications regimens as a result of Medicare PDP communications or patient reports of PDP recommendations; and
- Overall perceptions of the role of Medicare PDPs in the medication management of their patients.

The instrument was designed primarily as a series of yes/no questions about specific Medicare PDP recommendations and potential changes made to patients' medications as a result. A final item series assessed agreement with four positively worded and four negatively worded items about the role of Medicare PDPs. Following CMS approval of the survey instrument, our team attempted to recruit prescribers affected by Enhanced MTM for cognitive testing. Our team was only able to recruit one prescriber for testing during our pre-sampling timeframe, but our test of the instrument went smoothly and led to only minor edits.

Our multi-mode administration of the instrument began on August 8, 2018, with a mailed invitation for sampled prescribers to complete a web-based version of the survey by typing in a short URL and entering a passcode specific to each sample member. A total of 361 letters (7.5 percent of the sample) were ultimately returned as postal undeliverables, a favorably low rate for contact information drawn from administrative data sources. Two weeks later, non-responding prescribers with deliverable addresses (about 90 percent of the sample) were sent a hard copy of the survey formatted for Teleform scanning. Another week later, these prescribers were sent a thank you/reminder postcard re-printing the URL and passcode, mentioning the hard copy survey, and promising that another hard copy survey would be sent automatically if a web or hard copy response was not received. A final copy of the survey was sent on September 17, 2018, and the operations team received surveys through October 15, 2018. To prepare for analysis, the data were harmonized across web and paper and consistently coded for skip patterns.

B.3.3 Survey Sample Performance

The prescriber survey achieved an overall response rate of 20.2 percent. This response rate met expectations given the challenges faced in surveying a physician population on a topic of potentially low salience and using limited contact information. A total of 60 returned surveys met the definition of a partial complete for this study, meaning that not all survey items were completed, but at least six of the 11 numbered questions contained valid data or a valid skip based on screener items. The remainder (907 surveys) answered all questions on the survey. The majority of completes (81 percent) were submitted as paper surveys. As noted, the assignment of prescribers to sponsors is somewhat artificial since nearly all sampled prescribers were touched by multiple interventions. Since the sample was drawn by sponsor, Appendix Table B.20 provides sample performance statistics by sponsor. Response rates were fairly consistent across

sponsors and ranged from a high of 22.9 percent (Humana) to a low of 16.6 percent (SilverScript/CVS).

Appendix Table B.20: Prescriber Survey Sample Performance by Sponsor

Sponsor	Sample	Total Completes (Full + Partial)	Partial Completes	Total Completes by Type		Response Rate[a] (%)
				Web	Paper	
All Sponsors	4,800	967	60	187	787	20.2
SilverScript/CVS	800	133	7	25	108	16.6
Humana	800	183	14	44	139	22.9
BCBS NPA	800	171	8	27	147	21.4
UnitedHealth	800	166	9	38	128	20.8
WellCare	800	155	11	24	133	19.4
BCBS FL	800	159	11	29	132	19.9

[a] The response rate was calculated as (Full+Partial Completes) / Sample. American Association for Public Opinion Research response rate #2 was used.

An analysis of response rates was conducted based on characteristics known for the full sample of 4,800 to investigate whether the response rate varied in ways that suggest responses may be biased toward particular types of respondents. Although the existence of bias cannot be ruled out, response rates were very similar across levels of Enhanced MTM exposure, sponsor assignment, gender, credentials, and rural vs. urban practice location (Appendix Table B.21). Because of the large sample size, chi-square tests were statistically significant for most characteristics. However, phi (a measure of effect size) indicated that the strength of the association was too small (less than 0.10) to qualify for even a weak association, suggesting that respondents are not meaningfully different from non-respondents on the characteristics available for all 4,800 sample members.

Appendix Table B.21: Response Rates by Sample Characteristics

Provider Characteristic	Response Rate[a] (%)
Exposure to Enhanced MTM[b]	
Low (<10 Enhanced MTM Patients)	21.7
High (10+ Enhanced MTM Patients)	18.3
Gender[b]	
Female	17.8
Male	20.9
Credentials	
DO	18.8
MD	20.4
Non-physician clinician	19.2
Practice Location[b]	
Metropolitan Area	19.1
Rural Area	22.9

Sources: Enhanced MTM Encounter Data through December 2018, received from the Implementation and Monitoring Contractor in March 2019, and Medicare Part D claims were used to measure exposure to Enhanced MTM. The National Plan and Provider Enumeration System (NPPES) and CMS's Physician Compare Database were used to measure gender, credential, and practice location.

[a] The response rate was calculated as (Full+Partial Completes) / Sample. American Association for Public Opinion Research response rate #2 was used.

[b] Differences between all categories of prescribers with the exception of Credentials are statistically significant, with chi square p-value <0.05.

B.4 Data Reporting Requirements of the Enhanced MTM Model

Enhanced MTM sponsors have two major data reporting requirements mandated by the Model. First, sponsors are required to submit monthly Enhanced MTM eligibility data (via the Medicare Advantage Prescription Drug [MARx] system in Transaction Code [TC] 91 files) indicating which beneficiaries in their participating PBPs were eligible for Enhanced MTM services. Second, sponsors are also required to submit quarterly Encounter Data documenting the Enhanced MTM activities and services performed for eligible beneficiaries. These services are recorded using the Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT) coding scheme.

Sponsors interpreted the reporting requirements in the context of their specific set of Enhanced MTM interventions, leading to differences in reporting practices across sponsors and changes among sponsors over time. Half of the sponsors had consistent eligibility reporting processes over the first two Model Years, and the other half made changes to their processes based on additional guidance from CMS about which of their beneficiaries should be reported in MARx. Sponsors varied in their approaches to using SNOMED CT codes to document Enhanced MTM services, which was reflected in Encounter Data analysis. There was a wide range in the number of distinct SNOMED CT codes used to document Enhanced MTM activities, ranging from under 30 to nearly 900 across both Model Years.

This section describes key findings related to sponsors' approaches in the documentation of beneficiary Enhanced MTM eligibility information via MARx, the use of SNOMED CT codes to record Enhanced MTM services in Enhanced MTM Encounter Data files, and the interpretation of these data for evaluation purposes.

B.4.1 Beneficiary Eligibility for Enhanced MTM Services

Enhanced MTM sponsors are required to report which beneficiaries in their participating PBPs were deemed eligible for Enhanced MTM services, their eligibility start and Model departure dates, and reasons for Model departure, via the MARx system on a monthly basis. CMS provided guidance on the type of beneficiaries whom sponsors should include in MARx data, and sponsors interpreted this guidance within the specific context of their various Enhanced MTM interventions. For SilverScript/CVS, UnitedHealth, and BCBS FL (collectively, 69.3% of all Enhanced MTM enrollees in Model Year 1), MARx data reporting processes were consistent over the first two Model Years. The other three sponsors made adjustments to their definition of eligibility over the course of Model Year 1 based on clarified guidance from CMS about which of their beneficiaries should be reported in MARx. Specifically, both BCBS NPA and WellCare identify eligible beneficiaries for their Enhanced MTM interventions based on their targeting

criteria, but then prioritize subsets of these beneficiaries to actually receive Enhanced MTM services.[11] In MARx, most sponsors report only beneficiaries who were targeted to receive a service; however, CMS instructed these two sponsors to report beneficiaries in MARx who were eligible even if they were not prioritized to receive services. Thus, for BCBS NPA and WellCare only, eligible beneficiaries reported in MARx may include those who did not receive outreach. In Model Year 1, BCBS NPA also erroneously deleted beneficiary records from its MARx data. As a result of these MARx data reporting issues, BCBS NPA advised the evaluation team to use the Encounter Data to identify beneficiaries eligible for Model Year 1 Enhanced MTM instead. Sponsors were generally consistent with their reporting approaches in Model Year 2.

As noted, sponsors were also required to document reasons why a beneficiary exited the Enhanced MTM Model, using either of two reason codes: “No Longer Eligible” and “Opted Out of the Program.” For the most part, beneficiaries who were targeted for Enhanced MTM interventions remained eligible for these interventions for the entire Model Year (or future Model years). As a result, sponsors generally used the “No Longer Eligible” code for cases in which they were aware that a beneficiary left their Enhanced MTM participating PBP or died. Sponsors generally used the “Opted Out of the Program” code to document beneficiaries who explicitly indicated that they did not want to participate in Enhanced MTM and wanted to be removed from the entire Enhanced MTM Model. Sponsors did not apply this code to beneficiaries who declined specific services, had incorrect contact information, or were unresponsive to outreach attempts. As such, calculations of service rates based on MARx-reported beneficiary eligibility, presented in Section 3 of the report, may incorporate beneficiaries who were effectively unreachable by sponsors or unreceptive to receiving specific Enhanced MTM services in their denominators.

One other limitation of MARx data is that they do not contain intervention-specific eligibility information. As presented previously, all sponsors implemented multiple Enhanced MTM interventions, each of which applied different eligibility criteria. However, sponsors are not required to document for which specific Enhanced MTM intervention a beneficiary is considered eligible in the MARx data. As a result, intervention-specific eligibility data were obtained directly from sponsors to compensate for this deficiency.

B.4.2 Use of Encounter Data to Document Enhanced MTM Activities

The Model required Enhanced MTM sponsors to document Enhanced MTM encounters using SNOMED CT codes. Encounter Data reporting guidelines are specifically designed to

[11] WellCare beneficiaries who are eligible but not prioritized for Enhanced MTM services receive a welcome letter and a quarterly newsletter.

accommodate differences across sponsors in Enhanced MTM interventions and services. The flexibility of the SNOMED CT code structure can describe and capture very detailed clinical content in a variety of ways. As a result, the Encounter Data structure never imposed a standardized method to record different Enhanced MTM activities, nor does it contain a fixed set of specific SNOMED CT codes used to document these activities. Sponsors are encouraged, but not required, to use the Enhanced MTM "starter" value sets – a set of suggested SNOMED CT codes provided by CMS. Sponsors also have the flexibility to use other SNOMED CT codes, or to use a non-standardized "ZZZZZ" code option with an accompanying free-text description in cases where a suitable SNOMED CT code does not exist. CMS specified that sponsors should submit records in the Enhanced MTM Encounter Data for any of the following four categories of activities:[12]

(i) **Referral:** Identifies who referred the beneficiary to receive Enhanced MTM services

(ii) **Procedure:** Identifies what Enhanced MTM service or intervention a beneficiary received

(iii) **Issue:** Identifies the beneficiary's medication therapy issue

(iv) **Outcome:** Outlines the result of the Enhanced MTM intervention

Sponsors were not asked to explicitly identify the collection of records they used to capture Enhanced MTM activities associated with a single service delivery event,[13] nor to provide groupings of such records.[14]

The total number of distinct SNOMED CT codes used to document Enhanced MTM activities varied substantially across sponsors and over time, ranging from roughly 40 to over 1,400 codes (see Appendix Table B.22 below). In Model Year 1, SilverScript/CVS, Humana, and UnitedHealth used a relatively small number of SNOMED CT codes (<50), while BCBS NPA, WellCare, and BCBS FL used 150 or more SNOMED CT codes. Model Year 2 Encounter Data show similar usage rates. One sponsor, BCBS FL, increased the number of distinct SNOMED CT codes used in the second half of Model Year 2. This could be attributable to the use of new SNOMED CT codes for additional Enhanced MTM interventions that BCBS FL implemented in Model Year 2, as well as BCBS FL efforts to capture more specificity in documenting drug therapy problems (DTPs) using SNOMED CT codes. The number of codes (and amount of information) used to describe a single intervention also varied across sponsors.

[12] IMPAQ, "Enhanced MTM Encounter Data Companion Guide" (2017).

[13] Records related to the same service delivery event (e.g., CMR) for a beneficiary may include reasons for offering the service (e.g., specific health characteristics), findings uncovered during the service (e.g., harmful drug-drug interactions), recommendations made during the service (e.g., medication changes), or the beneficiary's decline of the service.

[14] Sponsors typically submit multiple records to describe a single intervention.

These coding differences required the evaluation team to develop a tailored approach to analyzing the data for each sponsor.

Appendix Table B.22: Number of Distinct SNOMED CT Codes Used by Sponsors in Encounter Data, by Quarter

Sponsor	Model Year 1 (2017)					Model Year 2 (2018)				
	Q1	Q2	Q3	Q4	Q1-Q4 (Total)	Q1	Q2	Q3	Q4	Q1-Q2 (Total)
All Sponsors	*959*	*991*	*514*	*528*	*1,283*	*712*	*707*	*1,006*	*1,442*	*1,747*
SilverScript/CVS	24	26	23	24	27	23	22	44	45	49
Humana	39	39	40	40	40	44	45	45	45	45
BCBS NPA	135	134	126	122	158	126	118	123	124	148
UnitedHealth	36	60	80	74	82	76	74	73	58	80
WellCare	223	259	256	244	283	254	246	235	243	274
BCBS FL	662	664	186	211	917	388	392	700	1,139	1,402

Source: Enhanced MTM Encounter Data through December 2018, received from the Implementation and Monitoring Contractor in December 2019.

BCBS NPA and BCBS FL both reported using the "ZZZZZ" code to document services that addressed beneficiary financial and social support needs, respectively, which were Enhanced MTM services that were not captured with standardized SNOMED CT codes. Notably, for BCBS FL and BCBS NPA, the "ZZZZZ" codes accounted for a substantial proportion of recorded Enhanced MTM encounters (see Appendix Table B.23 below).

Sponsors also used the "ZZZZZ" code to capture other Enhanced MTM activities. For example, BCBS NPA additionally used the "ZZZZZ" code to indicate that a beneficiary had been targeted for an Enhanced MTM intervention, and to document some service outcomes. UnitedHealth also used the "ZZZZZ" code to document service outcomes – such as when an intervention addressed a potential risk of a medication safety event.

Appendix Table B.23: Use of Non-Standardized “ZZZZZ” Codes in Encounter Data by Sponsor

Sponsor	Model Year 1 (2017)		Model Year 2 (2018)	
	Number of “ZZZZZ” Code Encounters	Proportion of "ZZZZZ" Code Encounters	Number of “ZZZZZ” Code Encounters	Proportion of “ZZZZZ” Code Encounters
All Sponsors	*294,530*	*5.0%*	*469,883*	*7.6%*
SilverScript/CVS	0	0.0%	0	0.0%
Humana	0	0.0%	0	0.0%
BCBS NPA	214,984	21.3%	328,855	20.6%
UnitedHealth	59,503	8.4%	52,074	8.3%
WellCare	4	0.0%	2	0.0%
BCBS FL	20,039	10.5%	88,952	22.4%

Source: Enhanced MTM Encounter Data through December 2018, received from the Implementation and Monitoring Contractor in December 2019.

As noted in the section above, although MARx data capture information about beneficiaries leaving the Model, they do not contain granular information about situations where beneficiaries who are contacted to receive an Enhanced MTM service choose to decline the service without opting out of the Enhanced MTM program as a whole. Sponsors and vendors document the service decline in their internal documentation systems, but there is variation across sponsors/vendors in whether service declines are linked to SNOMED CT codes and reported in Encounter Data. Humana, WellCare, and BCBS FL documented service declines in Encounter Data; the other three sponsors did not.

For the three sponsors that did document service declines in Encounter Data, the SNOMED CT codes used to document service declines could, in some cases, also be used to document recommendation declines. In the analysis of Encounter Data, the Acumen team used only the SNOMED CT codes that definitively document service declines to exclude significant services (and beneficiaries) from counts. SNOMED CT codes that could represent service declines or recommendation of declines to exclude significant services (and beneficiaries) were not used. For more information on service and other decline codes in the Encounter Data, see Appendix Table B.38.

B.5 Prescriber Survey Supplemental Findings – PDP Methods of Communication

Appendix Table B.24 shows the methods by which PDPs communicated with sampled prescribers over the prior year (among those reporting PDP communication). More than 80 percent of prescribers reported that fax and mail were the predominant form of communication. Less than a third reported contact by phone or email. Prescribers could write in additional methods of contact and, although less than 5 percent did so, their responses highlighted novel methods of contact, including communications through e-prescribing and patients' Electronic Medical Records (EMRs).

Appendix Table B.24: Methods of PDP Communication with Prescribers

Method of PDP Communication	Exposure Level: Low Exposure (<10 Enhanced MTM Patients, N=442) (%)	Exposure Level: High Exposure (10+ Enhanced MTM Patients, N=328) (%)	Proportion of All Respondents (N=770) (%)
Contact by fax	91.3	90.1	90.8
Contact by telephone	17.3	22.5	19.5
Contact by email	8.3	10.7	9.3
Contact by mail	84.0	85.2	84.5
Contact by another method (e-prescribing, Electronic Medical Record)	3.7	5.9	4.7

Source: 2018 Enhanced MTM Prescriber Survey.
Notes: Missing data not included in percentages. Differences between low- and high-exposure prescribers are statistically significant, with chi square p-value < 0.05.

B.6 Beneficiary Enrollment in Enhanced MTM Plans – Supplemental Findings

This appendix section presents additional information on findings presented in the Introduction (Section 1) regarding changes in beneficiary enrollment in Enhanced MTM plans over Model Years 1 and 2. Section 1 noted that total Enhanced MTM plan enrollment remained fairly constant for the Model as a whole, but there was some cross-sponsor variation. For three of the participating sponsors (BCBS FL, BCBS NPA, and WellCare), there were minimal decreases in Enhanced MTM plan enrollment between Model Years 1 and 2. For Humana and UnitedHealth, however, there were substantial decreases (of about 37 and 24 percent, respectively). These changes were driven by changes in benchmark status for Humana's Florida plan, and significant increases in basic premium and low-income subsidy (LIS) premium for UnitedHealth plans.

The BCBS NPA plan did not participate in the de minimis program in Model Year 2. One Humana plan (S5884-105) lost benchmark status in Model Year 2.[15] One WellCare plan (S4802-012) lost benchmark status in Model Year 2, but began to participate in the de minimis program in Model Year 2, and another WellCare plan (S4802-083) switched from offering a Basic Alternative (BA) benefit type to an Actuarial Equivalent Standard (AES) type in the second Model Year.[16] Appendix Table B.25 presents each Enhanced MTM plan's basic premium, low-income subsidy (LIS) premium, benchmark status, and participation in the de minimis program in Model Year 1 and Model Year 2.

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[15] Regional benchmark amounts, calculated annually, determine the maximum premium that PDPs may charge and still be eligible for automatic enrollment of dual-eligible beneficiaries and LIS recipients by CMS. PDPs with premiums below the regional benchmark amount are "benchmark plans." Plans may retain benchmark status if their monthly premium is within a "de minimis" amount (set at $2 for 2017 and 2018) over the regional benchmark, and if they volunteer to waive the portion of the monthly premium that is above the regional benchmark for full-premium subsidy-eligible beneficiaries. The law prohibits CMS from reassigning LIS beneficiaries from plans participating in the de minimis program. However, plans in the de minimis program do not qualify for automatic or facilitated enrollment of newly subsidy-eligible beneficiaries by CMS.

[16] Basic Alternative benefit plans are actuarially equivalent to the defined standard prescription drug benefit, but may have reduced deductibles, offer tiered copayments and coinsurance, or may have a modified initial coverage limit. Actuarially Equivalent Standard plans are actuarially equivalent to the defined standard benefit, but may include alternative cost-sharing requirements, tiered plan formularies, or preferred pharmacies. For additional information please refer to: CMS, "Medicare Prescription Drug Benefit Manual – Chapter 5" (official memorandum, September 20, 2011), https://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovContra/Downloads/MemoPDBManualChapter5_093011.pdf.

Appendix Table B.25: Participating Part D Plans' Benefit Type, Benchmark Status, and De Minimis Program Participation in Model Year 1 (2017) and Model Year 2 (2018)

Sponsor and Plan	PDP Region	PDP Benefit Type		Basic Premium (dollars)		LIS Premium (dollars)		Benchmark Status		De Minimis Program	
		2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
SilverScript/CVS											
S5601-014	Virginia	BA	BA	30.80	26.00	0	0	Yes	Yes	--	--
S5601-022	Florida	BA	BA	28.90	26.40	0	0	Yes	Yes	--	--
S5601-042	Louisiana	BA	BA	24.20	23.10	0	0	Yes	Yes	--	--
S5601-050	Northern Plains	BA	BA	31.30	28.80	0	0	Yes	Yes	--	--
S5601-056	Arizona	BA	BA	29.70	28.50	0	0	Yes	Yes	--	--
Humana											
S5884-105	Florida	AES	AES	26.10	33.60	0	4.53	Yes	--	--	--
S5884-108	Louisiana	AES	AES	27.90	30.50	0	0	Yes	Yes	--	--
S5884-132	Virginia	AES	AES	28.10	29.70	0	0	Yes	Yes	--	--
S5884-145	Northern Plains	AES	AES	26.70	31.90	0	0	Yes	Yes	--	--
S5884-146	Arizona	AES	AES	28.70	31.50	0	0	Yes	Yes	--	--
BCBS NPA											
S5743-001	Northern Plains	BA	BA	35.10	37.40	1.08	3.41	--	--	Yes	--
UnitedHealth											
S5921-352	Virginia	AES	AES	46.00	53.30	13.48	23.25	--	--	--	--
S5921-356	Florida	AES	AES	32.90	42.00	3.77	12.93	--	--	--	--
S5921-366	Louisiana	AES	AES	42.40	49.60	9.60	18.68	--	--	--	--
S5921-370	Northern Plains	AES	AES	47.40	54.60	13.38	20.61	--	--	--	--
S5921-380	Arizona	AES	AES	50.00	62.50	14.89	29.62	--	--	--	--
WellCare											
S4802-012	Louisiana	BA	BA	30.10	31.70	0	0.78	Yes	--	--	Yes
S4802-069	Virginia	BA	BA	27.20	28.60	0	0	Yes	Yes	--	--
S4802-083	Florida	BA	AES	30.40	29.50	1.27	0.43	--	--	Yes	Yes

Sponsor and Plan	PDP Region	PDP Benefit Type		Basic Premium (dollars)		LIS Premium (dollars)		Benchmark Status		De Minimis Program	
		2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
S4802-089	Northern Plains	BA	BA	28.60	31.30	0	0	Yes	Yes	--	--
S4802-092	Arizona	BA	BA	22.70	26.90	0	0	Yes	Yes	--	--
BCBS FL											
S5904-001	Florida	BA	BA	79.40	76.30	50.27	47.23	--	--	--	--

Sources: 2017 Health Plan Management System (HPMS) Plan Information File, December 2017 file, 2018 HPMS Plan Information File, and December 2018 file, accessed in June 2019. 2017 HPMS PDP Plan Service Area File, December 2017 file, 2018 HPMS PDP Plan Service Area File, and December 2018 file, accessed in June 2019. Publicly available 2017-2018 Low Income Premium Subsidy (LIPS) Amounts from the CMS website for MY 2017: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/RegionalRatesBenchmarks2017.pdf, and MY 2018: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/RegionalRatesBenchmarks2018.pdf.

Notes: The Northern Plains PDP region includes Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, and Wyoming. In the PDP Region of Florida, the benchmark levels were set at $29.13 in 2017 and $29.07 in 2018. In the Northern Plains region the levels were set at $34.02 in 2017 and $33.99 in 2018. In Louisiana the levels were set at $32.80 in 2017 and $30.92 in 2018. In Virginia the levels were set at $32.52 in 2017 and $30.05 in 2018. Finally, in Arizona the levels were set at $35.11 in 2017 and $32.88 in 2018. Plans whose premiums are above the regional benchmark and/or do not participate in the de minimis program in specific model years are designated by a "--" in each corresponding column. BA: Basic Alternative. AES: Actuarially Equivalent Standard.

The majority of beneficiaries (76 percent of all beneficiaries enrolled) were continuously enrolled in the same Enhanced MTM plan in Model Years 1 and 2, with the exception of Humana's Florida plan due to its loss of benchmark status in Model Year 2. About 1.9 million beneficiaries were enrolled in Enhanced MTM plans in each Model Year, and 76 percent of beneficiaries were continuously enrolled in the same plan in both Model Years (Appendix Table B.26). This proportion is over 80 percent for half of the sponsors (BCBS FL, BCBS NPA, and SilverScript/CVS). Humana had a big drop in enrollment between Model Years 1 and 2, because its Florida-based plan (plan S5884-105) lost benchmark status (see Appendix Table B.25). In 2018, most of these beneficiaries were reassigned to SilverScript/CVS (plan S5601-022), which retained benchmark status and had a total increase of about 183,000 enrollees in Model Year 2. In addition, the UnitedHealth plan in Florida (plan S5921-356) had about 26,000 fewer enrollees in Model Year 2 relative to Model Year 1. Though the non-benchmark status did not change for this plan during this time period, both its basic premium and low-income subsidy (LIS) premium increased considerably, likely accounting for the big drop in plan enrollment.

Appendix Table B.26: Participating Part D Plan Enrollment in Model Year 1 (2017) and Model Year 2 (2018)

Sponsor and Plan	PDP Region	Number of Enrollees (MY 1)	Number of Enrollees (MY 2)	Enrollment Difference Between MY 1 and MY 2	Proportion of Beneficiaries Continuously Enrolled from MY 1 to MY 2[a]
All Participating Sponsors		***1,878,420***	***1,867,909***	***-10,511***	***76.0%***
SilverScript/CVS					
S5601-014	Virginia	108,036	114,963	6,927	85.9%
S5601-022	Florida	288,452	471,183	182,731	80.8%
S5601-042	Louisiana	98,209	102,167	3,958	86.6%
S5601-050	Northern Plains	237,659	255,238	17,579	86.3%
S5601-056	Arizona	62,658	60,423	-2,235	82.4%
All SilverScript/CVS Plans		794,328	1,003,208	208,880	84.0%
Humana					
S5884-105	Florida	246,134	69,752	-176,382	25.0%
S5884-108	Louisiana	26,979	27,992	1,013	82.2%
S5884-132	Virginia	44,729	53,449	8,720	84.7%
S5884-145	Northern Plains	115,135	111,804	-3,331	84.3%
S5884-146	Arizona	24,839	24,754	-85	82.5%
All Humana Plans		457,563	287,600	-169,963	52.3%
BCBS NPA					
S5743-001	Northern Plains	241,500	239,969	-1,531	90.0%
UnitedHealth					
S5921-352	Virginia	18,881	14,764	-4,117	76.3%
S5921-356	Florida	113,883	87,536	-26,347	71.9%
S5921-366	Louisiana	9,605	7,513	-2,092	76.4%

Sponsor and Plan	PDP Region	Number of Enrollees (MY 1)	Number of Enrollees (MY 2)	Enrollment Difference Between MY 1 and MY 2	Proportion of Beneficiaries Continuously Enrolled from MY 1 to MY 2[a]
S5921-370	Northern Plains	24,670	17,497	-7,173	69.2%
S5921-380	Arizona	9,063	7,068	-1,995	74.0%
All UnitedHealth Plans		175,945	134,283	-41,662	72.4%
WellCare					
S4802-012	Louisiana	29,237	25,143	-4,094	79.1%
S4802-069	Virginia	37,452	37,539	87	81.9%
S4802-083	Florida	28,654	28,863	209	73.6%
S4802-089	Northern Plains	36,988	37,357	369	73.2%
S4802-092	Arizona	22,907	21,437	-1,470	75.7%
All WellCare Plans		155,103	150,218	-4,885	76.9%
BCBS FL					
S5904-001	Florida	64,631	60,860	-3,771	87.8%

Sources: PDP enrollment data in the Common Medicare Environment (CME), accessed in June 2019. PDP enrollment only includes beneficiaries in Enhanced MTM-participating contract-plans.

Note: The Northern Plains PDP region includes Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, and Wyoming.

[a] Proportion of beneficiaries continuously enrolled from Model Year 1 to Model Year 2 as a proportion of Model Year 1 enrollment.

Among beneficiaries who disenrolled from Enhanced MTM plans in each Model year ("attrite beneficiaries"), the proportion of those who switched to another Enhanced MTM sponsor is generally low except for Humana, which lost benchmark status at the end of 2017 (see Appendix Table B.27). Attrite beneficiaries who did not switch to another Enhanced MTM sponsor plan may have switched to a non-Enhanced MTM plan, disenrolled from Part D, or died. Across Model Years, the proportion of beneficiaries who disenrolled was relatively stable; about one-quarter of beneficiaries disenrolled from Enhanced MTM plans in Model Year 1, and about a fifth disenrolled in Model Year 2. In Model Year 1, for most sponsors, the proportion of attrite beneficiaries switching to another Enhanced MTM sponsor plan is moderately low. The exception is Humana that, as described above, lost benchmark status for one of its plans. Plans offered by Humana lost 48 percent of their enrollees in Model Year 1, and almost 63 percent of those enrollees switched to another Enhanced MTM sponsor.[17] While UnitedHealth plans did not change benchmark status, the premiums for UnitedHealth plans increased between Model Years, with UnitedHealth's Florida plan's LIS premium subsidy increasing from $3.77 to $12.93. Due to the premium increase, beneficiaries may have switched to other Enhanced MTM plans with lower LIS premiums. In Model Year 2, on average, an even smaller proportion of attrite beneficiaries (7 percent) switched to other Enhanced MTM sponsors.

[17] About 72.4 percent of the beneficiaries who left Humana plan S5884-105 (active in Florida) in 2017 enrolled in another Enhanced MTM plan in the same year (see Appendix Table B.23), mostly due to LIS auto-reassignment.

Appendix Table B.27: Beneficiary Attrition from Enrollment in Enhanced Plans in Model Year 1 (2017) and Model Year 2 (2018), by Sponsor

Sponsor	2017		2018	
	Proportion of Beneficiaries Who Disenrolled (Plan Attrite Beneficaries)[a] (%)	Proportion of Plan Attrite Beneficiaries Who Switched to Another Enhanced MTM Sponsor[b] (%)	Proportion of Plan Enrollees Who Disenrolled (Plan Attrite Beneficiaries)[c] (%)	Proportion of Plan Attrite Beneficiaries Who Switched to Another Enhanced MTM Plan[d] (%)
All Participating Sponsors	***24.5***	***36.0***	***20.1***	***7.0***
SilverScript/CVS	16.0	5.7	19.0	3.7
Humana[e]	47.0	63.0	23.2	11.0
BCBS NPA	10.0	16.3	20.0	9.3
UnitedHealth	27.7	22.0	20.8	14.6
WellCare	23.1	15.7	24.7	8.1
BCBS FL	12.2	16.7	10.9	11.3

Sources: PDP enrollment data in the Common Medicare Environment (CME), accessed in June 2019. PDP enrollment only includes beneficiaries in Enhanced MTM-participating contract-plans.

Notes: Beneficiaries who did not switch to another Enhanced MTM Plan either (i) switched to a non-Enhanced MTM plan, (ii) died, or (iii) disenrolled from Medicare Part D. Disenrollment numbers include beneficiaries who may have re-enrolled in the same PDP Plan at a later time in the same year.

[a] Beneficiaries who disenrolled in 2017 from Enhanced MTM plans as a proportion of 2017 enrollees.

[b] Beneficiaries who switched to another Enhanced MTM sponsor in 2017 as a proportion of attrite beneficiaries in 2017.

[c] Beneficiaries who disenrolled in 2018 from Enhanced MTM plans as a proportion of 2018 enrollees.

[d] Beneficiaries who switched to another Enhanced MTM sponsor in 2018 as a proportion of attrite beneficiaries in 2018.

[e] Humana's Florida plan lost its benchmark status in Model Year 2, causing a large number of its beneficiaries to be reassigned to SilverScript/CVS.

Modelwide, about a quarter of 2018 enrollees were new to their Enhanced MTM plan, and about a third of these new enrollees switched from another Enhanced MTM plan. Compared to other participating sponsors, SilverScript/CVS had a much higher proportion of new enrollees who switched from another participating sponsor (Appendix Table B.28). Beneficiaries who did not switch from another Enhanced MTM plan either switched from a non-Enhanced MTM plan, or were newly enrolled in Part D. In 2018, about 24 percent of Enhanced MTM plan enrollees were newly enrolled in these plans during that year. Among these enrollees, about 37 percent switched over from another Enhanced MTM sponsor, though this proportion was much lower for most sponsors. Notably, SilverScript/CVS had a high proportion of new enrollees who came from another Enhanced MTM plan (44.4 percent of newly enrolled SilverScript/CVS beneficiaries in Model Year 2), due to LIS beneficiary reassignment from Humana in Florida, as described above.

Appendix Table B.28: Proportion of New Enhanced MTM Plan Enrollees in 2018 Who Switched from Another Enhanced MTM Plan

Sponsor	Proportion of All 2018 Plan Enrollees Who Are New Plan Enrollees (%)	Proportion of New 2018 Plan Enrollees Who Switched from Another Enhanced MTM Sponsor Plan (%)
All Participating Sponsors	***23.6***	***36.7***
SilverScript/CVS	33.1	44.0
Humana	16.0	11.7
BCBS NPA	9.4	10.9
UnitedHealth	4.9	9.9
WellCare	20.1	19.6
BCBS FL	6.7	3.8

Sources: PDP enrollment data in the Common Medicare Environment (CME), accessed in April 2019. PDP enrollment only includes beneficiaries in Enhanced MTM-participating contract-plans.

Notes: Beneficiaries who did not switch from another Enhanced MTM Plan either switched from a non-Enhanced MTM plan or are new Part D enrollees.

B.7 Beneficiary Eligibility Trends and Length of Enhanced MTM Eligibility – Supplemental Findings

This section focuses on participating plan enrollees who were eligible for Enhanced MTM interventions and presents eligible beneficiary outflow and eligibility trends in Model Years 1 and 2. It includes summary statistics describing reasons for beneficiary outflow, and duration of Enhanced MTM eligibility, derived from an analysis of MARx eligibility data. This appendix shows that overall turnover among beneficiaries eligible for Enhanced MTM decreased from Model Year 1 to Model Year 2. Once beneficiaries become eligible for Enhanced MTM, they tend to remain eligible for multiple months. In most cases, beneficiary outflow was due to beneficiaries' plan disenrollment, death, or no longer meeting intervention-specific targeting criteria, rather than beneficiaries' voluntary departure from the Enhanced MTM Model. Beneficiary turnover was also mostly concentrated toward the end of the year, which is consistent with routine end-of-year plan disenrollment and sponsors' practice of removing beneficiaries who no longer meet intervention-specific targeting criteria from MARx data files.

Sponsors report beneficiary-level Enhanced MTM eligibility information in MARx data files. MARx data include information on which beneficiaries are eligible for the Model, when they become eligible, and when they leave the Model. Beneficiaries leave the Model if they lose eligibility either due to plan disenrollment, death, or no longer meeting intervention-specific targeting criteria (collectively reported as "No Longer Eligible" in MARx, and referred to as "ineligible" in the rest of this section). Beneficiaries may also leave the Model voluntarily by opting out (reported as "Opt Out" in MARx).[18] In Model Year 1 (Appendix Table B.29), about 43 percent of Enhanced MTM-eligible beneficiaries left the Model and, of those, over 97 percent of beneficiaries left after they became ineligible.

Among the sponsors, UnitedHealth had the highest proportion (62 percent) of beneficiaries who left the Model in Model Year 1, and WellCare had the lowest (32 percent). In Model Year 2 (Appendix Table B.30), over 37 percent of beneficiaries eligible for Enhanced MTM left the Model, and, of those, over 99 percent left due to Model ineligibility. UnitedHealth had the highest proportion (60 percent) of beneficiaries who left the Model in Model Year 2 and Humana had the lowest (23 percent). UnitedHealth had a large proportion of beneficiaries who left Enhanced MTM in both Model Years (62 and 60 percent, respectively), due to plan

[18] MARx data files do not include information about whether beneficiaries decline individual Enhanced MTM services. MARx opt-out information is limited only to beneficiaries who voluntarily leave the Enhanced MTM Model. Additionally, UnitedHealth considers all of its beneficiaries eligible for Enhanced MTM services, unless they disenroll from the UnitedHealth plan, and thus does not have any MARx opt-out records. Please see Section 2.6.1 for additional information about MARx data reporting practices.

disenrollment or ineligibility.[19] As Model implementation matured and data documentation practices improved, fewer beneficiaries were reported as leaving the Enhanced MTM Model in Model Year 2 than in Model Year 1.

Appendix Table B.29: Eligible Beneficiary Outflows from the Enhanced MTM Model, Model Year 1 (2017), and Reasons for Attrition

Sponsors	Enhanced MTM-eligible Beneficiaries	Beneficiaries Leaving the Model	Proportion of Beneficiaries Leaving the Model	Of Attrite Beneficiaries: Proportion No Longer Eligible	Of Attrite Beneficiaries: Proportion that Opted Out of Model
All Participating Sponsors	***1,237,818***	***538,522***	***43.5%***	***97.4%***	***2.7%***
SilverScript/CVS	726,974	296,873	40.8%	99.6%	0.4%
Humana	221,676	104,409	47.1%	99.9%	0.1%
BCBS NPA	51,209	25,330	49.5%	48.4%	51.6%
UnitedHealth	95,520	59,370	62.2%	100.0%	-
WellCare	110,345	35,643	32.3%	99.7%	0.3%
BCBS FL	35,022	17,891	51.1%	99.6%	0.4%

Sources: Enhanced MTM eligibility data in the Medicare Advantage and Prescription Drug Plan system (MARx), accessed in June 2019.

Notes: Enhanced MTM eligibility is conditional on enrollment in the participating PDP in the Common Medicare Environment (CME), accessed in July 2019. Beneficiaries are counted as leaving the Enhanced MTM Model if they do not re-enter the Model within 30 days. The Proportion No Longer Eligible and Proportion that Opted Out of Model may not sum to 100 percent because some beneficiaries were missing the IC Model End Date Reason Code in MARx TC 91 files. Due to irregular patterns in BCBS NPA's MARx data over the course of 2017 and 2018, BCBS NPA advised the evaluation team to alternatively use Encounter Data to define its Enhanced MTM-eligible population. UnitedHealth does not allow beneficiaries to opt out of the Enhanced MTM Model, because it considers all beneficiaries Enhanced MTM-eligible unless they leave the UnitedHealth plan.

[19] All UnitedHealth beneficiaries receive prescriber-facing Enhanced MTM services. Beneficiaries identified to the High Risk tier using UnitedHealth's risk scoring algorithm also qualify for beneficiary-facing Enhanced MTM services. UnitedHealth only reports High Risk tier beneficiaries in MARx data. When UnitedHealth runs its algorithm yearly, it is likely that some beneficiaries move from the High Risk to the Low Risk tier because they do not meet intervention-specific criteria, and they are subsequently deemed ineligible.

Appendix Table B.30: Eligible Beneficiary Outflows from the Enhanced MTM Model, Model Year 2 (2018), and Reasons for Attrition

Sponsors	Enhanced MTM-eligible Beneficiaries	Beneficiaries Leaving the Model	Proportion of Beneficiaries Leaving the Model	Of Attrite Beneficiaries	
				Proportion No Longer Eligible	Proportion that Opted Out of Model
All Participating Sponsors	***1,299,721***	***488,953***	***37.6%***	***99.5%***	***0.5%***
SilverScript/CVS	868,976	346,145	39.8%	99.7%	0.3%
Humana	180,189	40,701	22.6%	99.9%	0.1%
BCBS NPA	49,105	17,568	35.8%	92.5%	7.5%
UnitedHealth	75,532	45,063	59.7%	100.0%	-
WellCare	105,843	32,247	30.5%	99.2%	0.8%
BCBS FL	22,735	7,919	34.8%	99.7%	0.3%

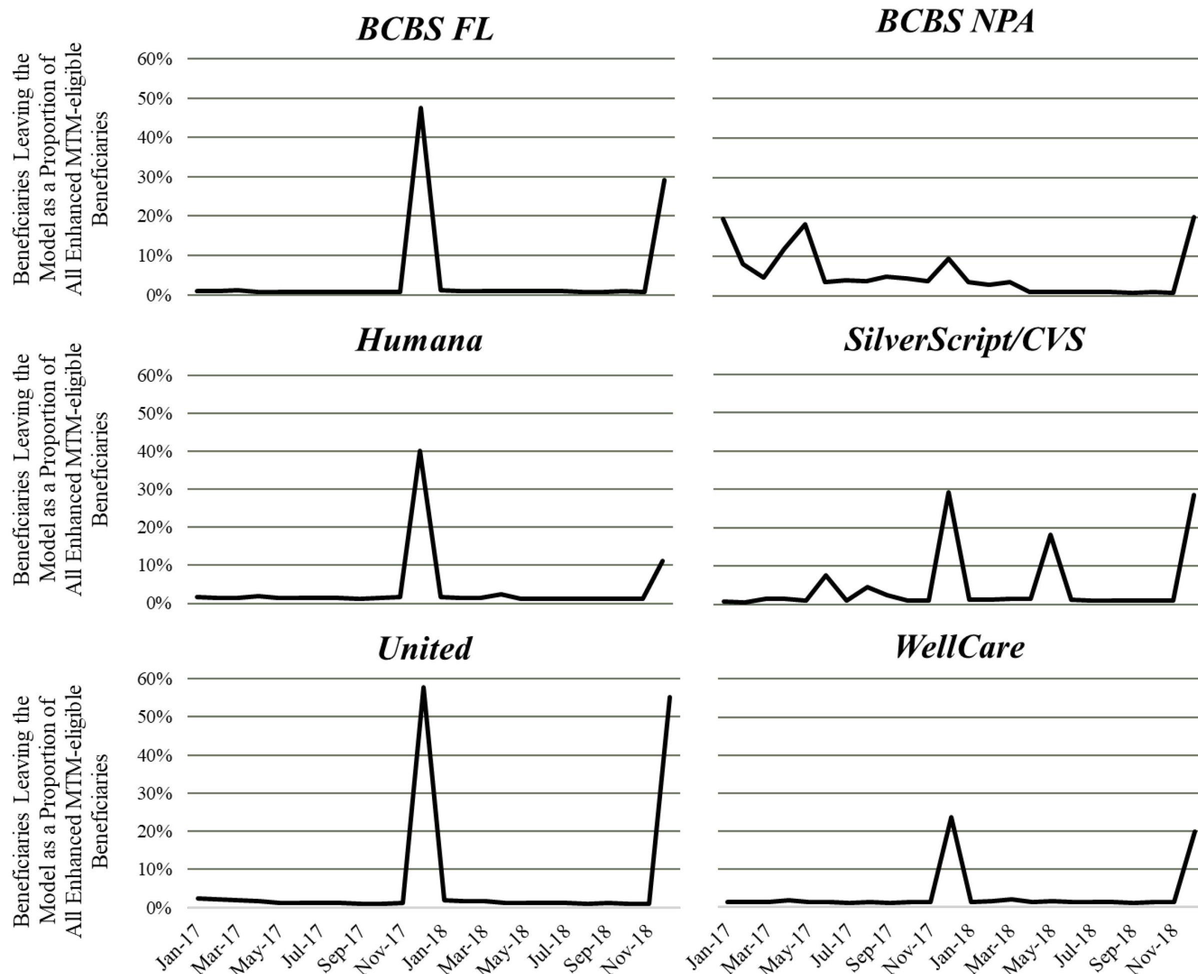
Sources: Enhanced MTM eligibility data in the Medicare Advantage and Prescription Drug Plan system (MARx) accessed in June 2019.

Notes: Enhanced MTM eligibility is conditional on enrollment in the participating PDP in the Common Medicare Environment (CME), accessed in July 2019. Beneficiaries are counted as leaving the Enhanced MTM Model if they do not re-enter the Model within 30 days. The Proportion No Longer Eligible and Proportion that Opted Out of Model may not sum to 100 percent because some beneficiaries were missing the IC Model End Date Reason Code in MARx/TC 91 files. Due to irregular patterns in BCBS NPA's MARx data over the course of 2017 and 2018, BCBS NPA advised the evaluation team to alternatively use Encounter Data to define its Enhanced MTM-eligible population.

Across all sponsors except BCBS NPA, most Enhanced MTM-eligible beneficiaries who became ineligible lost their eligibility at the end of the year, consistent with routine end-of-year plan disenrollment[20] and sponsors' practice of removing beneficiaries who no longer meet intervention-specific targeting criteria from MARx data files at the end of the year (Appendix Figure B.14). Most sponsors showed large spikes in December 2017 (end of Model Year 1) and December 2018 (end of Model Year 2), ranging from about 10 percent to 60 percent of their Enhanced MTM-eligible populations both years. Among all sponsors, UnitedHealth showed the largest proportions of Model outflow at the end of both Model Years (58 percent and 55 percent, respectively).

[20] Open enrollment period for Part D plans typically spans from October through December when beneficiaries are allowed to switch between different Part D plans.

Appendix Figure B.14: Enhanced MTM Model Monthly Outflows, Model Years 1 and 2, by sponsor



Sources: Enhanced MTM eligibility data in the Medicare Advantage and Prescription Drug Plan system (MARx) accessed in June 2019.

Notes: Enhanced MTM eligibility is conditional on enrollment in the participating PDP in the Common Medicare Environment (CME), accessed in January 2019. Beneficiaries are counted as leaving the Enhanced MTM Model if they do not re-enter the Model within 30 days. Graph displays monthly outflows of beneficiaries as a proportion of all beneficiaries eligible for Enhanced MTM in that month. Due to irregular patterns in BCBS NPA's MARx data over the course of 2017 and 2018, BCBS NPA advised the evaluation team to alternatively use Encounter Data to define its Enhanced MTM-eligible population.

For all sponsors except BCBS NPA and SilverScript/CVS, beneficiaries rarely left the Model in the middle of the year. The largest proportion (and volume) of BCBS NPA beneficiaries left the Enhanced MTM Model in May 2017 (18.3%, 7,264 beneficiaries) and December 2017 (9.5%, 3,387 beneficiaries), with a few additional, smaller outflow spikes in

Model Year 1, reflecting the irregular data submissions and retroactive corrections.[21] SilverScript/CVS had outflows in three months in 2017 (June, August, and December) and two months (May and December) in 2018, which are consistent with the ending of vaccine campaigns for the HealthTag Intervention.[22]

Once beneficiaries become eligible for Enhanced MTM, they tend to remain eligible for multiple months. As Model implementation matured, fewer beneficiaries left the Enhanced MTM Model within a short time of becoming eligible. Appendix Table B.31 and Appendix Table B.32 show the duration of Enhanced MTM eligibility for beneficiaries who first became eligible for Enhanced MTM in Model Year 1 and Model Year 2, respectively. Of beneficiaries who first became eligible in Model Year 1, SilverScript/CVS and WellCare had the highest proportion of beneficiaries remaining in the Enhanced MTM Model for more than 19 months (53% and 59% percent, respectively). In Appendix Table B.31, over half of the beneficiaries in BCBS NPA, SilverScript/CVS, and WellCare remained in the Model for more than a year. For BCBS FL, Humana, and UnitedHealth, about half of all beneficiaries were eligible for only one year (Appendix Table B.31).

Appendix Table B.31: Duration of Enhanced MTM Eligibility for Beneficiaries First Eligible in Model Year 1, by Sponsor

Sponsor	Proportion of Enhanced MTM-eligible Beneficiaries Who Were:			
	Eligible for Fewer than 6 Months	Eligible for 7-12 Months	Eligible for 13-18 Months	Eligible for 19-24 Months
SilverScript/CVS	11.5%	18.4%	17.6%	52.5%
Humana	19.4%	30.5%	15.5%	34.6%
BCBS NPA	20.1%	15.3%	17.0%	47.6%
UnitedHealth	17.1%	32.4%	17.9%	32.6%
WellCare	10.3%	20.1%	10.7%	59.0%
BCBS FL	17.9%	34.1%	8.6%	39.4%

Sources: Enhanced MTM eligibility data in the Medicare Advantage and Prescription Drug Plan system (MARx), and PDP enrollment data in the Common Medicare Environment (CME), accessed in June 2019.

Notes: Enhanced MTM eligibility is conditional on enrollment in the participating PDP in the CME. Due to irregular patterns in BCBS NPA's MARx data over the course of 2017 and 2018, BCBS NPA advised the evaluation team to alternatively use Encounter Data to define its Enhanced MTM-eligible population.

[21] There were three main causes for BCBS NPA's MARx/TC 91 file data discrepancies: (i) BCBS NPA submitted additional "buffer" beneficiaries; (ii) BCBS NPA erroneously deleted members prior to May 2017 and retroactively added member records; and (iii) BCBS NPA retroactively marked beneficiaries in hospice with Reason Code 01.

[22] In Model Year 1, HealthTag ran three campaigns beginning in March (pneumonia vaccine), June (shingles vaccine), and September (flu vaccine). In Model Year 2, SilverScript/CVS ran two campaigns beginning in March (pneumonia vaccine) and September (flu vaccine). In Model Year 2, SilverScript/CVS's HealthTag program did not have a shingles vaccine campaign due to Shingrix vaccine shortages at the manufacturer.

Over 55 percent of their beneficiaries who first qualified for Enhanced MTM in Model Year 2 remained in the Model for more than seven months, although there were some sponsor-specific differences. Of beneficiaries who first became eligible in Model Year 2, Humana and WellCare had the highest proportions of beneficiaries who remained in the Model for most of the year (Appendix Table B.32). BCBS NPA had the highest proportion (73%) of beneficiaries who were in the Model for fewer than six months, likely due to the introduction of multiple short-term Enhanced MTM interventions (Low Risk/High Cost Intervention, Opioid Intervention, and Community Pharmacy Smart Recommendations) in Model Year 2.[23] About 68 percent of BCBS FL's Enhanced MTM-eligible beneficiaries who first became eligible in Model Year 2 were in the Model for fewer than six months, likely due to an influx of beneficiaries who became eligible in late 2018 and had less time in the Model.[24]

Appendix Table B.32: Duration of Enhanced MTM Eligibility for Beneficiaries First Eligible in Model Year 2, by Sponsor

Sponsor	Proportion of Enhanced MTM-eligible Beneficiaries Who Are:			
	Eligible for Fewer than 3 Months	Eligible for 4-6 Months	Eligible for 7-9 Months	Eligible for 10-12 Months
SilverScript/CVS	16.2%	26.7%	19.9%	37.3%
Humana	13.2%	18.0%	19.6%	49.1%
BCBS NPA	36.4%	37.1%	16.5%	9.9%
UnitedHealth	21.3%	22.8%	21.4%	34.4%
WellCare	13.3%	17.8%	20.6%	48.4%
BCBS FL	41.7%	25.6%	15.4%	17.3%

Sources: Enhanced MTM eligibility data in the Medicare Advantage and Prescription Drug Plan system (MARx), and PDP enrollment data in the Common Medicare Environment (CME), accessed in June 2019.

Notes: PDP enrollment only includes Enhanced MTM-participating contract-plans. Enhanced MTM eligibility is conditional on enrollment in the participating PDP in the CME. Due to irregular patterns in BCBS NPA's MARx data over the course of 2017 and 2018, BCBS NPA advised the evaluation team to alternatively use Encounter Data to define its Enhanced MTM-eligible population.

[23] The High Cost/Low Risk and Opioid Interventions were designed to run for only a few months in Model Year 2. By design, beneficiaries are targeted for and receive DocStation's in-person light touch services quickly.

[24] There was an influx of newly eligible records in MARx/TC 91 files in October 2018 (1,196 records) for BCBS FL. This analysis ended in December 2018, truncating the duration of Enhanced MTM enrollment for these newly eligible beneficiaries.

B.8 Comparison of Enhanced MTM Plans and Non-Participating Plans – Supplemental Findings

There were 42 plans eligible for participation in the Model in 2016, the year before the Model began.[25] Of these, 23 plans participated in the Enhanced MTM Model ("Enhanced MTM plans"), and 19 plans did not participate ("non-Enhanced MTM plans").[26] While 55 percent of all eligible plans implemented the Model, Enhanced MTM plans served 86 percent of all Medicare Part D beneficiaries enrolled in eligible plans in 2016 (see Appendix Table B.33). In Florida, a much larger proportion of eligible plans (71 percent) participated in Enhanced MTM, and participating plans served 98 percent of the beneficiaries who enrolled in eligible Florida plans in 2016.

Appendix Table B.33: Eligible Plans and Plan Enrollees in 2016, by Model Participation Status and PDP Region

Participating PDP Region	Eligible Plans			Beneficiaries Enrolled in Eligible Plans		
	Count of Enhanced MTM Plans[a]	Count of All Eligible Plans	Proportion of Enhanced MTM Plans	Enhanced MTM	All	Proportion of Enrolled in Enhanced MTM Plans
Virginia	4	9	44%	177,374	252,225	70%
Florida	5	7	71%	642,516	654,609	98%
Louisiana	5	8	63%	145,213	190,362	76%
Upper Midwest & Northern Plains	5	9	56%	621,587	736,610	84%
Arizona	4	9	44%	105,785	143,212	74%
All Participating Regions	***23***	***42***	***55%***	***1,692,475***	***1,977,018***	***86%***

Sources: 2016 Common Medicare Environment (CME), 2016 Health Plan Management System (HPMS)

Notes: "Non-Enhanced MTM" refers to stand-alone PDPs active in one of the five Model test PDP regions that fulfilled eligibility criteria to participate in the Enhanced MTM Model in 2016, but did not participate. "Enhanced MTM" refers to plans that participated in the Model.

[a] In 2017, two plans in Louisiana participating in the Enhanced MTM Model merged into one plan under WellCare. In total, 22 plans are participating in the Enhanced MTM Model.

Overall, non-Enhanced MTM plans were much smaller than Enhanced MTM plans in terms of the average number of enrolled beneficiaries per plan (14,976 vs. 73,586 on average

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[25] Eligible non-participating plans ("non-Enhanced MTM plans") are Medicare Part D plans, active in any of the five Medicare Part D PDP regions where the Enhanced MTM Model is implemented, that satisfied eligibility criteria for participation in the Enhanced MTM Model in 2016, but chose not to participate. Medicare Part D plans were eligible for participation in the Enhanced MTM Model if they were stand-alone PDPs that offer basic prescription drug coverage in the form of the defined standard benefit, actuarially equivalent standard benefits, or basic alternative benefits, and: (i) had a minimum enrollment of 2,000 beneficiaries in mid-2016, (ii) existed as a stand-alone PDP for at least three years prior to Model Year 1, and (iii) were not under sanction by CMS or law enforcement entities, such as the Office of Inspector General (OIG), in 2016. The Acumen team used the 2016 PDP Landscape Source Sanctions File to identify and remove any plans that were under sanction by CMS or law enforcement entities in 2016, as of April 22, 2016. The team downloaded these data on 03/08/2019 from the following website: https://www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovGenIn/

[26] In 2016, there were 23 eligible plans that went on to participate in the Enhanced MTM Model. In 2017, two of these 23 plans, both active in the Louisiana PDP Region, merged into one plan under WellCare, so there were 22 plans participating in the Model.

across regions), and these differences were greater in Florida and the Upper Midwest and Northern Plains PDP Regions (Appendix Table B.34). Almost all (18 of 19) of non-Enhanced MTM plans are Actuarially Equivalent Standard (AES). In terms of plan performance metrics, Enhanced MTM plans performed on average slightly better than non-Enhanced MTM plans in the 2016 Star Ratings Part D Summary Score. Although this varies by region, in most cases Enhanced MTM plans performed better than non-Enhanced MTM plans in the following individual measures that contribute to the Star Ratings Part D Summary Score: High Risk Medications, Medication Adherence for Diabetes Medications, Medication Adherence for Hypertension, and Medication Adherence for Cholesterol. The non-participating plans in Florida were an exception: they had a higher average Part D Summary Score and higher Star Ratings for the adherence measures than Enhanced MTM plans in 2016. In terms of the individual Star measure capturing MTM completion rates for comprehensive medication reviews (CMRs), non-Enhanced MTM plans had better than or similar ratings as Enhanced MTM plans, depending on the region.

Appendix Table B.34: Pre-Model Plan Characteristics of Non-Enhanced MTM and Enhanced MTM Sponsors, by Participating CMS PDP Region

Characteristics	Across All Participating Regions		Virginia		Florida		Louisiana		Upper Midwest & Northern Plains		Arizona	
	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM
Number of Enhanced MTM-Eligible Plans	19	23	5	4	2	5	3	5	4	5	5	4
Number of Enrolled Beneficiaries	284,543	1,692,475	74,851	177,374	12,093	642,516	45,149	145,213	115,023	621,587	37,427	105,785
Average Enrollment Per Plan	14,976	73,586	14,970	44,344	6,047	128,503	15,050	29,043	28,756	124,317	7,485	26,446
Types of Enhanced MTM-Eligible Plans												
Number of Basic Alternative Plans	1	11	1	2	0	3	0	2	0	2	0	2
Number of Actuarially Equivalent Standard Plans	18	12	4	2	2	2	3	3	4	3	5	2
Premiums												
Average Total Premium Paid by Beneficiary	36.5	32.2	35.8	30.5	66.7	39.6	30.1	28.2	35.7	31.8	29.8	30.3
Average Star Ratings Part D Summary Score	3.2	3.3	3.2	3.3	3.5	3.1	3.2	3.3	3.1	3.4	3.1	3.3
Individual Measure Star Ratings												
Members Choosing to Leave the Plan	3.5	3.3	3.6	3.3	4.0	3.2	3.3	3.4	3.5	3.4	3.2	3.3
Getting Needed Prescription Drugs	2.9	3.3	2.8	3.3	3.5	3.2	3.3	3.0	3.0	3.6	2.6	3.3
High Risk Medication [Use]	2.1	2.4	2.4	2.3	1.5	2.4	1.3	2.6	2.0	2.6	2.4	2.3
Medication Adherence for Diabetes Medications	1.9	2.3	1.8	2.3	2.5	2.2	2.0	2.2	1.8	2.6	1.8	2.3
Medication Adherence for Hypertension (RAS antagonists)	2.5	3.1	2.4	3.0	3.0	3.0	2.7	3.0	2.3	3.4	2.6	3.0
Medication Adherence for Cholesterol (Statins)	3.2	3.3	3.0	3.3	3.5	3.2	3.3	3.4	3.0	3.6	3.2	3.3
MTM Intervention Completion Rate for CMR	1.9	1.7	1.8	1.8	2.5	1.6	2.0	2.0	2.0	1.6	1.8	1.8

Sources: 2016 Common Medicare Environment (CME), 2016 Health Plan Management System (HPMS) beneficiary and formulary files, 2016 PDP Landscape Source Sanctions File, and the 2016 Star Ratings, accessed in March 2019.

Note: "Non-Enhanced MTM" refers to stand-alone PDPs in one of the five Medicare Part D PDP regions where Enhanced MTM operates that fulfilled the eligibility criteria to participate in the Enhanced MTM Model in 2016, but did not participate. "Enhanced MTM" refers to plans that fulfilled the same participation criteria in 2016 and participated in the Model.

Non-participating plans typically had a larger proportion of beneficiaries who were younger (39 percent under 65 years old, compared to 28 percent in Enhanced MTM plans), dual-eligible (54 percent, compared to 41 percent), disabled (34 percent, compared to 25 percent) and eligible for low-income subsidy (LIS; 62 percent, compared to 47 percent) in 2016. Appendix Table B.35 provides an overview of beneficiary demographics and health characteristics for non-Enhanced MTM and Enhanced MTM plans, by PDP region and across PDP regions. Beneficiaries enrolled in non-Enhanced MTM plans also incurred higher total drug costs than those enrolled in Enhanced MTM plans ($4,361, compared to $3,648). These higher drug costs also contributed to higher total medical and drug costs per beneficiary for non-Enhanced MTM plans relative to Enhanced MTM plans. Higher spending for non-Enhanced MTM plans is consistent with other measures of health service utilization, such as inpatient stays and ER visits, in that population. As expected, there is cross-regional variation in beneficiary demographics and health characteristics, including urbanicity, race, total medical and drug costs, inpatient costs, and chronic condition metrics.

Sponsors who chose not to participate in the Enhanced MTM Model had concerns about the upfront resource investment necessary to prepare for and implement the Model. To understand the sponsors' reasons for non-participation, interviews were conducted with representatives from four sponsors that qualified to apply for the Model but decided not to submit an application ("non-participating sponsors"). These interviews were conducted in mid-late 2018.[27] Even though the Model included prospective payments to fund Model implementation costs, sponsors with low plan enrollment suggested that it would be difficult to make significant financial investments in Enhanced MTM when only a small number of plan beneficiaries would likely qualify for Enhanced MTM services. Sponsors also noted that the additional reporting requirements of the Model, specifically the implementation of SNOMED CT coding, were a resource challenge due to lack of staff who were knowledgeable about SNOMED CT coding, and to limitations of their existing documentation systems.

[27] Non-participating sponsors interviewed by the Acumen team varied in terms of the number of PDPs administered by the sponsor that were eligible to participate in the Model: one sponsor operated plans in all five PDP regions, one sponsor operated plans in three regions, and two sponsors operated a plan in only one region.

Appendix Table B.35: Pre-Model Implementation Enrollee Demographic and Healthcare Characteristics for Non-Enhanced MTM and Enhanced MTM Plans, by Participating CMS PDP Region

Characteristics	Across All Participating Regions		Virginia		Florida		Louisiana		Upper Midwest & Northern Plains		Arizona	
	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM
Enhanced MTM-Eligible Plans	19	23	5	4	2	5	3	5	4	5	5	4
Enrolled Beneficiaries	284,543	1,692,475	74,851	177,374	12,093	642,516	45,149	145,213	115,023	621,587	37,427	105,785
Average Enrollment Per Plan	14,976	73,586	14,970	44,344	6,047	128,503	15,050	29,043	28,756	124,317	7,485	26,446
Age (as of January 2016)												
% <65	39	28	36	29	21	25	53	39	44	26	36	21
% 65-74	38	44	38	45	42	41	30	38	32	42	45	55
% 75-84	15	19	18	18	24	23	11	16	15	21	13	18
% >85	8	9	9	8	13	12	6	7	9	11	5	6
% Female	56	57	58	58	56	58	56	57	59	58	52	54
Race												
% White	72	76	69	71	80	78	50	60	88	92	71	78
% Black	16	15	23	21	7	12	46	37	4	3	4	3
% Other	16	15	23	21	7	12	46	37	4	3	4	3
% Dual-Eligible	54	41	46	38	31	41	82	60	51	30	59	35
% Urban	79	81	69	69	93	92	83	84	69	68	89	91
% Disabled	34	25	32	26	18	22	48	36	40	23	28	17
% with ESRD	2	2	2	2	2	2	3	3	1	1	3	2
% with LIS Status	62	47	57	49	36	45	88	66	58	36	65	39
Average Total Number of Medication Fills	41.2	37.2	40.9	36.8	46.5	37.5	46.7	46.0	52.4	38.0	27.2	25.2
Average Total Number of Medications	9.1	8.7	9.1	8.6	11.2	9.2	10.1	10.0	10.1	8.2	7.0	6.9
Average Total Number of Prescribers	3.0	2.9	3.0	2.9	3.4	3.0	2.9	3.0	3.2	2.8	2.6	2.7
Evaluation and Management (E&M) Visits												
% E&M Visits: 0	9	7	7	7	4	5	9	7	6	6	16	10
% E&M Visits: 1-10	25	26	26	26	16	20	25	25	26	31	26	27
% E&M Visits: 11+	66	67	68	67	81	75	65	68	69	63	57	63
Inpatient (IP) Stays												
% IP Stays: 0	80	81	81	82	76	78	77	78	80	82	84	85
% IP Stays: 1	12	12	12	11	14	13	13	12	13	12	10	9

Characteristics	Across All Participating Regions		Virginia		Florida		Louisiana		Upper Midwest & Northern Plains		Arizona	
	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM	Non-Enhanced MTM	Enhanced MTM
% IP Stays: 2+	8	7	8	7	10	9	10	10	8	6	6	5
Emergency Room (ER) Visits												
% ER Visits: 0	63	65	62	65	63	64	54	58	62	68	69	72
% ER Visits: 1	18	18	18	18	19	18	20	19	19	17	16	16
% ER Visits: 2+	19	17	20	18	19	18	26	23	19	15	15	12
% with 1+ SNF Stays	5	5	5	4	6	6	4	4	6	5	3	3
% in Hospice	3	3	2	2	5	4	3	3	3	3	2	2
Total Medical and Drug Costs (Per Beneficiary)	$17,169	$16,112	$15,990	$14,665	$23,499	$19,178	$20,085	$19,451	$17,400	$13,481	$13,883	$12,839
Total Drug Costs (Per Beneficiary)	$4,361	$3,648	$4,241	$3,593	$5,797	$4,228	$4,583	$4,263	$5,270	$3,336	$3,045	$2,598
Total Medical Costs (Per Beneficiary)	$12,809	$12,464	$11,749	$11,072	$17,702	$14,950	$15,502	$15,188	$12,129	$10,145	$10,838	$10,241
IP Cost per Beneficiary	$4,067	$3,811	$3,754	$3,412	$5,356	$4,354	$5,288	$5,039	$3,743	$3,041	$3,392	$2,958
Average HCC Risk Score	1.3	1.2	1.3	1.2	1.6	1.4	1.4	1.4	1.3	1.1	1.2	1.1
Chronic Conditions												
Average Number of HCC Flags	2.3	2.2	2.4	2.2	3.0	2.7	2.6	2.5	2.4	2.0	1.9	1.8

Sources: 2016 Common Medicare Environment (CME) and Enrollment Database (EDB), 2016 Common Working File (CWF), 2016 Standard Analytical Files Part D (SAFD), 2016 and 2017 Risk Adjustment System (RAS), 2016 Health Plan Management System (HPMS) beneficiary and formulary files, 2016 Enrollment Database (EDB), and the 2016 PDP Landscape Source Sanctions File accessed in March 2019.

Note: "Non-Enhanced MTM" refers to stand-alone PDPs in one of the five Medicare Part D PDP regions where Enhanced MTM operates that fulfilled the eligibility criteria to participate in the Enhanced MTM Model in 2016, but did not participate. "Enhanced MTM" refers to plans that fulfilled the same participation criteria in 2016 and chose to participate.

B.9 Supplementary Descriptive Statistics on Enhanced MTM Service Delivery

This section presents additional information about services received under the Enhanced MTM Model. This information is derived from MARx eligibility data as well as Encounter Data; individual table notes indicate sources, timeframes covered, exclusions, and other special handling information.

Appendix Table B.36 focuses on the number and distribution of high- and low-intensity services delivered by sponsor and Model Year. It is a companion to Table 3.6 in the report, which provides information on the number of beneficiaries receiving high-intensity services, by service type. Appendix Table B.36 illustrates that beneficiary-facing TMRs and medication adherence interventions were the most common services, with more than 250,000 of each service provided in Model Year 1. Both of these interventions grew significantly in Model Year 2; medication adherence interventions increased by 21 percent, and beneficiary-facing TMRs increased by 48 percent. Among low-intensity services, SilverScript/CVS's vaccine intervention was most common, but among other sponsors, the prescriber-facing TMR was most common. Unlike the beneficiary-facing TMR, there was a decline in the number of prescriber-facing TMRs provided in Model Year 2.

Appendix Table B.36: Number and Distribution of Services Delivered, by Sponsor and Intensity

Year	Sponsor	High-Intensity Services								Low-Intensity Services			
		Med Rec	Transitions (Med Rec)	CMR	Transitions (CMR)	TMR (B)	Adherence (P)	Cost/ Social	Case/ Disease	Transitions (P)	Adherence (A)	Vaccine	TMR (P)
2017	*All Sponsors*	*20,394 (1.9%)*	*49 (0.0%)*	*115,907 (10.8%)*	*10,801 (1.0%)*	*250,806 (23.3%)*	*274,514 (25.5%)*	*14,878 (1.4%)*	*34,217 (3.2%)*	*2,359 (0.2%)*	*1,047 (0.1%)*	*195,970 (18.2%)*	*156,629 (14.5%)*
2017	SilverScript/CVS	4 (0.0%)	NA	14,108 (2.5%)	NA	148,409 (26.3%)	189,895 (33.7%)	NA	9,635 (1.7%)	NA	NA	195,970 (34.8%)	5,911 (1.0%)
2017	Humana	NA	49 (0.0%)	19,920 (18.9%)	NA	21,608 (20.5%)	32,136 (30.5%)	NA	24,582 (23.3%)	NA	NA	NA	7,090 (6.7%)
2017	BCBS NPA	20,390 (47.3%)	NA	22,444 (52.1%)	NA	53 (0.1%)	NA	211 (0.5%)	NA	NA	NA	NA	NA
2017	UnitedHealth	NA	NA	36,991 (17.9%)	5,783 (2.8%)	80,736 (39.1%)	NA	NA	NA	NA	NA	NA	83,099 (40.2%)
2017	WellCare	NA	NA	11,025 (9.3%)	NA	NA	46,388 (39.0%)	NA	NA	NA	1,047 (0.9%)	NA	60,529 (50.9%)
2017	BCBS FL	NA	NA	11,419 (28.9%)	5,018 (12.7%)	NA	6,095 (15.4%)	14,667 (37.1%)	NA	2,359 (6.0%)	NA	NA	NA
2018	*All Sponsors*	*19,627 (1.4%)*	*1,267 (0.1%)*	*122,280 (9.0%)*	*14,826 (1.1%)*	*395,092 (29.0%)*	*332,795 (24.4%)*	*68,991 (5.1%)*	*41,743 (3.1%)*	*3,898 (0.3%)*	*23,468 (1.7%)*	*199,837 (14.7%)*	*140,048 (10.3%)*
2018	SilverScript/CVS	3 (0.0%)	NA	23,094 (3.1%)	NA	268,803 (35.7%)	232,091 (30.9%)	NA	24,948 (3.3%)	NA	NA	197,477 (26.3%)	5,536 (0.7%)
2018	Humana	NA	1,267 (1.0%)	26,127 (20.2%)	NA	37,672 (29.1%)	39,566 (30.6%)	NA	16,795 (13.0%)	NA	NA	2,351 (1.8%)	5,558 (4.3%)
2018	BCBS NPA	19,624 (26.7%)	NA	30,515 (41.6%)	NA	985 (1.3%)	787 (1.1%)	204 (0.3%)	NA	NA	NA	9 (0.0%)	21,253 (29.0%)
2018	UnitedHealth	NA	NA	15,614 (9.0%)	3,657 (2.1%)	87,611 (50.6%)	NA	NA	NA	NA	23,069 (13.3%)	NA	43,257 (25.0%)
2018	WellCare	NA	NA	17,524 (13.1%)	NA	NA	55,440 (41.5%)	NA	NA	NA	399 (0.3%)	NA	60,111 (45.0%)
2018	BCBS FL	NA	NA	9,406 (9.2%)	11,169 (10.9%)	21 (0.0%)	4,911 (4.8%)	68,787 (67.1%)	NA	3,898 (3.8%)	NA	NA	4,333 (4.2%)

Sources: Enhanced MTM eligibility data in the Medicare Advantage and Prescription Drug Plan system (MARx) (accessed in June 2019); Enhanced MTM Encounter Data through December 2018, received from the Implementation and Monitoring Contractor in March 2019

Notes: Requires one month of eligibility in the target year (2017 or 2018) in MARx data. All counts of significant services exclude records associated with a service decline or failed outreach attempt TMR(B): Targeted Medication Review (beneficiary); Adherence(P): Medication Adherence Services (pharmacist); CMR: Comprehensive Medication Review; Case/Disease: Case/disease management; Med Rec: Medication reconciliation; Cost/Social: Cost-sharing and social support; Transitions (CMR): Transitions of care (CMR); Transitions (Med Rec): Transitions of care (medication reconciliation) Low- and high-intensity services are defined in Table 2.7.
Distribution percentages are for each sponsor-program and may add up to more than 100% for each sponsor, due to rounding up.

Appendix Table B.37 provides information on the number of beneficiaries receiving low-intensity Enhanced MTM services, and is a companion to Table 3.5 in the report, which focuses on delivery of high-intensity services. Prescriber-facing TMRs are the most voluminous low-intensity service across sponsors, except for the large number of vaccine services reported by SilverScript/CVS. Although beneficiaries receiving low-intensity, prescriber-facing TMRs declined across Model Years, prescriber-facing transitions-of-care services nearly doubled.

Appendix Table B.37: Number of Beneficiaries Receiving Low-Intensity Enhanced MTM Services, by Service Type

Year	Sponsor	Low-Intensity Services			
		Transitions (P)	Adherence (A)	Vaccine	TMR (P)
Model Year 1 (2017)	*All Sponsors*	*1,801 (0.9%)*	*558 (0.3%)*	*116,681 (58.7%)*	*84,232 (42.4%)*
	SilverScript/CVS	NA	NA	116,681 (98.9%)	5,630 (4.8%)
	Humana	NA	NA	NA	5,899 (100.0%)
	BCBS NPA	NA	NA	NA	NA
	UnitedHealth	NA	NA	NA	47,658 (100.0%)
	WellCare	NA	558 (2.2%)	NA	25,061 (98.3%)
	BCBS FL	1,801 (100.0%)	NA	NA	NA
Model Year 2 (2018)	*All Sponsors*	*2,775 (1.1%)*	*17,963 (7.2%)*	*154,894 (62.3%)*	*82,543 (33.2%)*
	SilverScript/CVS	NA	NA	152,685 (98.6%)	5,186 (3.3%)
	Humana	NA	NA	2,200 (34.1%)	4,587 (71.1%)
	BCBS NPA	NA	NA	9 (0.0%)	20,495 (100.0%)
	UnitedHealth	NA	17,754 (45.6%)	NA	27,362 (70.3%)
	WellCare	NA	209 (0.9%)	NA	23,958 (99.3%)
	BCBS FL	2,775 (76.0%)	NA	NA	961 (26.3%)

Sources: Enhanced MTM eligibility data in the Medicare Advantage and Prescription Drug system (MARx) (accessed in June 2019); Enhanced MTM Encounter Data through December 2018, received from the Implementation and Monitoring Contractor in March 2019

Notes: Requires one month of eligibility in the target year (2017 or 2018) in MARx data. All counts of significant services exclude records associated with a service decline or failed outreach attempt. Transitions-of-care services are distinguished by offering a medication reconciliation (Med Rec) or a comprehensive medication review (CMR), and NA indicates that a sponsor did not offer the service. Low- and high-intensity services are defined in Table 2.7. Transitions (P): prescriber-facing transitions-of-care services; Adherence (A): Medication adherence (automated); Vaccine: Immunization assessment, reminder, and administration; TMR(P): Targeted Medication Review (prescriber).

Appendix Table B.38 illustrates the use of SNOMED CT codes associated with service declines. Some sponsors used additional decline codes in the Encounter Data (apart from MARx) to indicate that a specific service had been declined or opted out of, or in cases where there was an inability to reach out to the beneficiary. In the analysis of Encounter Data for the purposes of this evaluation, significant services (and beneficiaries) related to decline and opt-out codes were excluded. As shown in Appendix Table B.38, only three sponsors used decline codes. Most of those codes did not definitively illustrate a service decline and were *not* excluded from the analysis. The most common type of non-service decline code related to declines of the Enhanced MTM's pharmacist recommendation by either the beneficiary or the prescriber. Note that these are artificially low, as sponsors' use of decline codes is not consistent and MARx-reported opt-outs do not reflect refusal of a specific intervention or service.

Appendix Table B.38: Number of Beneficiaries with SNOMED CT-based Decline Codes by Sponsors

Sponsor	2017					2018				
	Decline Codes to Exclude Significant Services			Other Decline Codes		Decline Codes to Exclude Significant Services			Other Decline Codes	
	Service Decline	**Opt Out**	**No Response**	**Other Decline**	**Service Other Decline**	**Service Decline**	**Opt Out**	**No Response**	**Other Decline**	**Service Other Decline**
All Sponsors	*455 (2.5%)*	*169 (0.9%)*	*1,015 (5.6%)*	*7,514 (41.7%)*	*8,879 (49.2%)*	*455 (1.8%)*	*53 (0.2%)*	*5,530 (22.1%)*	*7,519 (30.1%)*	*11,454 (45.8%)*
SilverScript/CVS									715 (34.8%)	1,341 (65.2%)
Humana				5,075 (36.4%)	8,869 (63.6%)				3,322 (24.7%)	10,101 (75.3%)
BCBS NPA		168 (6.3%)	450 (16.9%)	2,039 (76.7%)			51 (0.8%)	4,553 (67.6%)	2,128 (31.6%)	
UnitedHealth	79 (98.8%)	1 (1.3%)				93 (97.9%)	2 (2.1%)			
WellCare	128 (13.9%)		565 (61.2%)	220 (23.8%)	10 (1.1%)	93 (5.6%)		977 (59.3%)	566 (34.3%)	12 (0.7%)
BCBS FL	248 (57.9%)			180 (42.1%)		269 (25.4%)			788 (74.6%)	

Sources: Enhanced MTM Encounter Data through December 2018, received from the Implementation and Monitoring Contractor in March 2019; MARx data supplemented with program-specific flags received from sponsors in January 2019.

Notes: Analysis was restricted to beneficiaries with at least one month of Enhanced MTM eligibility in the respective year, and who were offered at least one significant services in the year.

B.10 Supplementary Findings on Model Impacts

This section presents additional information and findings on the estimated impacts of Enhanced MTM on Medicare expenditures not reported in the body of the report.

B.10.1 Gross Medicare Expenditures

Appendix Table B.39 through Appendix Table B.45 present cumulative, Model Year 1, and Model Year 2 estimates of the effect of the Enhanced MTM Model on total Medicare Parts A and B expenditures Modelwide and for each sponsor. These tables provide additional information on the difference-in-differences (DiD) estimates presented in Section 4.

Appendix Table B.39: Gross Medicare Parts A and B Expenditures, Modelwide

	Gross Parts A and B Expenditures for Medicare		
	Cumulative	**Model Year 1**	**Model Year 2**
Per-Beneficiary Per-Month Estimate (in $)			
Difference-in-Differences	-$2.65	-$3.85	-$1.27
P-value	0.343	0.223	0.720
95% Confidence Interval	(-8.14, 2.83)	(-10.05, 2.35)	(-8.23, 5.68)
Relative Difference	-0.30%	-0.44%	-0.15%
Means (beneficiary-month, regression-adjusted)			
Baseline Enhanced MTM Mean	$875.63	$875.30	$875.63
Intervention Period Enhanced MTM Mean	$996.68	$993.99	$999.86
Baseline Comparison MTM Mean	$902.13	$906.05	$902.13
Intervention Period Comparison MTM Mean	$1,028.09	$1,028.63	$1,027.45

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 45,991,873 (1,427,816 beneficiaries). Number of comparison observations: 88,259,023 (2,944,397 beneficiaries). Each estimate (Cumulative, Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.40: Gross Medicare Parts A and B Expenditures, SilverScript/CVS

	Gross Parts A and B Expenditures for Medicare		
	Cumulative	Model Year 1	Model Year 2
Per-Beneficiary Per-Month Estimate (in $)			
Difference-in-Differences	-$2.48	-$2.49	-$2.47
P-value	0.466	0.504	0.564
95% Confidence Interval	(-9.13, 4.18)	(-9.78, 4.81)	(-10.85, 5.92)
Relative Difference	-0.28%	-0.28%	-0.28%
Means (beneficiary-month, regression-adjusted)			
Baseline Enhanced MTM Mean	$887.90	$891.99	$887.90
Intervention Period Enhanced MTM Mean	$1,018.52	$1,008.98	$1,028.47
Baseline Comparison MTM Mean	$909.52	$916.51	$909.52
Intervention Period Comparison MTM Mean	$1,044.54	$1,036.16	$1,053.49

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 19,357,671 (590,342 beneficiaries). Number of comparison observations: 45,337,841 (1,522,292 beneficiaries). Each estimate (Cumulative, Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.41: Gross Medicare Parts A and B Expenditures, Humana

	Gross Parts A and B Expenditures for Medicare		
	Cumulative	Model Year 1	Model Year 2
Per-Beneficiary Per-Month Estimate (in $)			
Difference-in-Differences	-$0.92	-$2.29	$1.40
P-value	0.872	0.715	0.853
95% Confidence Interval	(-12.01, 10.18)	(-14.57, 9.99)	(-13.47, 16.28)
Relative Difference	-0.10%	-0.24%	0.15%
Means (beneficiary-month, regression-adjusted)			
Baseline Enhanced MTM Mean	$946.19	$943.31	$946.19
Intervention Period Enhanced MTM Mean	$1,045.48	$1,064.17	$1,013.56
Baseline Comparison MTM Mean	$977.44	$979.63	$977.44
Intervention Period Comparison MTM Mean	$1,075.44	$1,102.82	$1,040.98

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 10,388,735 (352,407 beneficiaries). Number of comparison observations: 23,303,449 (813,558 beneficiaries). Each estimate (Cumulative, Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.42: Gross Medicare Parts A and B Expenditures, BCBS NPA

	Gross Parts A and B Expenditures for Medicare		
	Cumulative	Model Year 1	Model Year 2
Per-Beneficiary Per-Month Estimate (in $)			
Difference-in-Differences	$1.37	$4.43	-$1.87
P-value	0.901	0.742	0.885
95% Confidence Interval	(-20.22, 22.95)	(-21.92, 30.78)	(-27.08, 23.34)
Relative Difference	0.20%	0.65%	-0.27%
Means (beneficiary-month, regression-adjusted)			
Baseline Enhanced MTM Mean	$684.67	$682.55	$684.67
Intervention Period Enhanced MTM Mean	$832.27	$813.19	$852.57
Baseline Comparison MTM Mean	$742.80	$743.53	$742.80
Intervention Period Comparison MTM Mean	$890.10	$869.60	$911.76

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 5,970,022 (173,745 beneficiaries). Number of comparison observations: 9,223,135 (288,141 beneficiaries). Each estimate (Cumulative, Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.43: Gross Medicare Parts A and B Expenditures, UnitedHealth

	Gross Parts A and B Expenditures for Medicare		
	Cumulative	Model Year 1	Model Year 2
Per-Beneficiary Per-Month Estimate (in $)			
Difference-in-Differences	-$4.67	-$9.35	$0.72
P-value	0.566	0.283	0.945
95% Confidence Interval	(-20.60, 11.26)	(-26.41, 7.72)	(-19.85, 21.30)
Relative Difference	-0.53%	-1.07%	0.08%
Means (beneficiary-month, regression-adjusted)			
Baseline Enhanced MTM Mean	$879.11	$876.69	$879.11
Intervention Period Enhanced MTM Mean	$985.21	$978.46	$993.03
Baseline Comparison MTM Mean	$918.49	$916.84	$918.49
Intervention Period Comparison MTM Mean	$1,029.71	$1,027.96	$1,031.73

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,641,279 (141,157 beneficiaries). Number of comparison observations: 10,006,296 (334,362 beneficiaries). Each estimate (Cumulative, Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.44: Gross Medicare Parts A and B Expenditures, WellCare

	Gross Parts A and B Expenditures for Medicare		
	Cumulative	Model Year 1	Model Year 2
Per-Beneficiary Per-Month Estimate (in $)			
Difference-in-Differences	$0.48	$3.28	-$2.56
P-value	0.943	0.650	0.763
95% Confidence Interval	(-12.50, 13.46)	(-10.89, 17.45)	(-19.24, 14.12)
Relative Difference	0.05%	0.36%	-0.28%
Means (beneficiary-month, regression-adjusted)			
Baseline Enhanced MTM Mean	$911.35	$907.69	$911.35
Intervention Period Enhanced MTM Mean	$1,052.10	$1,037.12	$1,068.73
Baseline Comparison MTM Mean	$895.78	$898.20	$895.78
Intervention Period Comparison MTM Mean	$1,039.42	$1,024.58	$1,055.90

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 3,654,280 (112,572 beneficiaries). Number of comparison observations: 13,020,918 (461,261 beneficiaries). Each estimate (Cumulative, Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.45: Gross Medicare Parts A and B Expenditures, BCBS FL

	Gross Parts A and B Expenditures for Medicare		
	Cumulative	Model Year 1	Model Year 2
Per-Beneficiary Per-Month Estimate (in $)			
Difference-in-Differences	-$23.16	**-$44.72*****	-$0.21
P-value	0.113	0.005	0.991
95% Confidence Interval	(-51.82, 5.49)	(-75.80, -13.63)	(-36.61, 36.19)
Relative Difference	-2.84%	-5.48%	-0.03%
Means (beneficiary-month, regression-adjusted)			
Baseline Enhanced MTM Mean	$815.85	$815.49	$815.85
Intervention Period Enhanced MTM Mean	$978.29	$945.62	$1,013.31
Baseline Comparison MTM Mean	$834.81	$836.72	$834.84
Intervention Period Comparison MTM Mean	$1,021.54	$1,011.32	$1,032.45

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 1,979,886 (57,593 beneficiaries). Number of comparison observations: 3,228,925 (101,407 beneficiaries). Each estimate (Cumulative, Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

B.10.2 Service Delivery Setting Medicare Expenditures

Appendix Table B.46 and Appendix Table B.47 present Modelwide estimates of the effect of the Enhanced MTM Model on Medicare Parts A and B expenditures by service delivery setting both cumulatively and for each Model Year.

Appendix Table B.48 through Appendix Table B.59 present service delivery setting-specific estimates, both cumulatively and by Model Year, for each sponsor participating in the Model. While there is some variation by sponsor, the sponsor-specific findings are largely consistent with the Modelwide findings discussed in Section 4.

Appendix Table B.46: Setting-specific Medicare Expenditures, Cumulative Across Both Model Years, Modelwide

	Setting-specific Expenditures for Medicare (Cumulative), Modelwide				
	Inpatient Expenditures	Outpatient Non-Emergency Expenditures	Outpatient Emergency Department (ED) Expenditures	Physician and Ancillary Expenditures	Skilled Nursing Facility Expenditures
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	**-$4.88*** **	**$3.75*** **	**$1.69*** **	-$0.16	**-$3.33*** **
P-value	0.004	< 0.001	< 0.001	0.823	0.001
95% Confidence Interval	(-8.17, -1.58)	(2.37, 5.12)	(1.37, 2.00)	(-1.54, 1.22)	(-5.24, -1.41)
Relative Difference	-1.86%	2.25%	5.69%	-0.06%	-4.39%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$261.47	$166.48	$29.65	$260.48	$75.84
Intervention Period Enhanced MTM Mean	$312.63	$183.33	$33.04	$278.04	$87.20
Baseline Comparison MTM Mean	$269.37	$173.23	$30.83	$263.12	$71.17
Intervention Period Comparison MTM Mean	$325.50	$186.99	$32.56	$281.86	$85.98

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 45,991,873 (1,427,816 beneficiaries). Number of comparison observations: 88,259,023 (2,944,397 beneficiaries). Each estimate corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.47: Setting-specific Medicare Expenditures, by Model Year, Modelwide

	Setting-specific Expenditures for Medicare (by Model Year [MY]), Modelwide									
	Inpatient Expenditures		Outpatient Non-Emergency Expenditures		Outpatient Emergency Department (ED) Expenditures		Physician and Ancillary Expenditures		Skilled Nursing Facility Expenditures	
	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2
Per-Beneficiary Per-Month Estimate (in $)										
Difference-in-Differences	**-$4.79****	**-$4.98****	**$2.11*****	**$5.64*****	**$1.37*****	**$2.05*****	$0.34	-$0.73	**-$2.53****	**-$4.25*****
P-value	0.013	0.016	0.002	< 0.001	< 0.001	< 0.001	0.634	0.434	0.046	< 0.001
95% Confidence Interval	(-8.59, -0.99)	(-9.03, -0.92)	(0.76, 3.47)	(3.79, 7.49)	(1.02, 1.72)	(1.66, 2.44)	(-1.05, 1.72)	(-2.55, 1.10)	(-5.01, -0.04)	(-6.44, -2.06)
Relative Difference	-1.82%	-1.90%	1.27%	3.39%	4.60%	6.92%	0.13%	-0.28%	-3.33%	-5.60%
Means (beneficiary-month, regression-adjusted)										
Baseline Enhanced MTM Mean	$262.53	$261.47	$166.33	$166.48	$29.80	$29.65	$258.35	$260.48	$75.98	$75.84
Intervention Period Enhanced MTM Mean	$320.95	$302.82	$176.98	$190.82	$33.14	$32.92	$275.87	$280.60	$89.17	$84.88
Baseline Comparison MTM Mean	$271.01	$269.37	$174.01	$173.23	$31.05	$30.83	$263.07	$263.12	$71.63	$71.17
Intervention Period Comparison MTM Mean	$334.23	$315.75	$182.55	$191.92	$33.02	$32.05	$280.25	$283.66	$87.34	$84.48

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 45,991,873 (1,427,816 beneficiaries). Number of comparison observations: 88,259,023 (2,944,397 beneficiaries). Each estimate (Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.48: Setting-specific Medicare Expenditures, Cumulative Across Both Model Years, SilverScript/CVS

	Setting-specific Expenditures for Medicare (Cumulative), SilverScript/CVS				
	Inpatient Expenditures	**Outpatient Non-Emergency Expenditures**	**Outpatient Emergency Department (ED) Expenditures**	**Physician and Ancillary Expenditures**	**Skilled Nursing Facility Expenditures**
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	-$3.29	**$2.55*****	**$1.47*****	-$0.14	**-$2.96*****
P-value	0.128	0.002	< 0.001	0.868	0.002
95% Confidence Interval	(-7.54, 0.95)	(0.93, 4.16)	(1.14, 1.79)	(-1.84, 1.55)	(-4.86, -1.06)
Relative Difference	-1.22%	1.52%	4.75%	-0.06%	-3.73%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$269.96	$168.02	$30.90	$255.92	$79.49
Intervention Period Enhanced MTM Mean	$326.81	$184.98	$34.72	$274.88	$89.55
Baseline Comparison MTM Mean	$277.40	$170.61	$31.70	$257.98	$76.14
Intervention Period Comparison MTM Mean	$337.37	$185.30	$33.98	$278.71	$89.36

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 19,357,671 (590,342 beneficiaries). Number of comparison observations: 45,337,841 (1,522,292 beneficiaries). Each estimate corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.49: Setting-specific Medicare Expenditures, by Model Year, SilverScript/CVS

	Setting-specific Expenditures for Medicare (by Model Year [MY]), SilverScript/CVS									
	Inpatient Expenditures		Outpatient Non-Emergency Expenditures		Outpatient Emergency Department (ED) Expenditures		Physician and Ancillary Expenditures		Skilled Nursing Facility Expenditures	
	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2
Per-Beneficiary Per-Month Estimate (in $)										
Difference-in-Differences	-$2.48	-$4.11	**$2.20*****	**$2.90*****	**$1.29*****	**$1.64*****	-$0.19	-$0.10	**-$2.58****	**-$3.35*****
P-value	0.320	0.121	0.008	0.007	< 0.001	< 0.001	0.824	0.931	0.020	0.004
95% Confidence Interval	(-7.38, 2.41)	(-9.32, 1.09)	(0.58, 3.82)	(0.78, 5.01)	(0.94, 1.65)	(1.24, 2.05)	(-1.87, 1.49)	(-2.31, 2.11)	(-4.76, -0.41)	(-5.65, -1.05)
Relative Difference	-0.91%	-1.52%	1.30%	1.72%	4.11%	5.32%	-0.08%	-0.04%	-3.22%	-4.21%
Means (beneficiary-month, regression-adjusted)										
Baseline Enhanced MTM Mean	$273.96	$269.96	$168.72	$168.02	$31.47	$30.90	$252.64	$255.92	$80.14	$79.49
Intervention Period Enhanced MTM Mean	$332.50	$320.89	$179.42	$190.77	$34.83	$34.60	$270.58	$279.37	$91.17	$87.86
Baseline Comparison MTM Mean	$280.50	$277.40	$171.80	$170.61	$32.11	$31.70	$257.99	$257.98	$77.00	$76.14
Intervention Period Comparison MTM Mean	$341.61	$332.83	$180.31	$190.62	$34.18	$33.77	$276.14	$281.46	$90.64	$88.00

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 19,357,671 (590,342 beneficiaries). Number of comparison observations: 45,337,841 (1,522,292 beneficiaries). Each estimate (Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.50: Setting-specific Medicare Expenditures, Cumulative Across Both Model Years, Humana

	Setting-specific Expenditures for Medicare (Cumulative), Humana				
	Inpatient Expenditures	Outpatient Non-Emergency Expenditures	Outpatient Emergency Department (ED) Expenditures	Physician and Ancillary Expenditures	Skilled Nursing Facility Expenditures
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	-$0.49	**$5.67*** **	**$2.10*** **	**-$3.62** **	**-$6.70*** **
P-value	0.895	< 0.001	< 0.001	0.016	< 0.001
95% Confidence Interval	(-7.83, 6.84)	(3.21, 8.13)	(1.47, 2.73)	(-6.56, -0.67)	(-9.40, -4.00)
Relative Difference	-0.17%	3.30%	6.26%	-1.36%	-8.19%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$298.11	$171.79	$33.56	$265.24	$81.78
Intervention Period Enhanced MTM Mean	$347.60	$186.82	$36.17	$277.60	$88.92
Baseline Comparison MTM Mean	$309.54	$180.54	$35.61	$265.74	$71.30
Intervention Period Comparison MTM Mean	$356.65	$191.35	$36.01	$281.87	$84.49

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 10,388,735 (352,407 beneficiaries). Number of comparison observations: 23,303,449 (813,558 beneficiaries). Each estimate corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.51: Setting-specific Medicare Expenditures, by Model Year, Humana

	Setting-specific Expenditures for Medicare (by Model Year [MY]), Humana									
	Inpatient Expenditures		Outpatient Non-Emergency Expenditures		Outpatient Emergency Department (ED) Expenditures		Physician and Ancillary Expenditures		Skilled Nursing Facility Expenditures	
	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2
Per-Beneficiary Per-Month Estimate (in $)										
Difference-in-Differences	-$1.06	$0.46	$0.87	**$13.75*** **	**$1.06*** **	**$3.85*** **	-$0.07	**-$9.60*** **	**-$4.35*** **	**-$10.67*** **
P-value	0.808	0.919	0.468	< 0.001	0.006	< 0.001	0.964	< 0.001	0.005	< 0.001
95% Confidence Interval	(-9.60, 7.48)	(-8.37, 9.29)	(-1.48, 3.23)	(9.85, 17.65)	(0.31, 1.82)	(3.08, 4.62)	(-3.05, 2.91)	(-13.95, -5.25)	(-7.41, -1.28)	(-14.03, -7.31)
Relative Difference	-0.36%	0.15%	0.51%	8.01%	3.17%	11.47%	-0.03%	-3.62%	-5.32%	-13.05%
Means (beneficiary-month, regression-adjusted)										
Baseline Enhanced MTM Mean	$297.93	$298.11	$170.93	$171.79	$33.49	$33.56	$263.22	$265.24	$81.74	$81.78
Intervention Period Enhanced MTM Mean	$363.82	$319.93	$179.34	$199.57	$36.48	$35.64	$280.45	$272.74	$94.24	$79.84
Baseline Comparison MTM Mean	$310.62	$309.54	$181.22	$180.55	$35.77	$35.62	$265.01	$265.73	$71.59	$71.30
Intervention Period Comparison MTM Mean	$377.51	$330.45	$188.76	$193.94	$37.70	$33.76	$282.36	$281.74	$88.42	$79.89

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 10,388,735 (352,407 beneficiaries). Number of comparison observations: 23,303,449 (813,558 beneficiaries). Each estimate (Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.52: Setting-specific Medicare Expenditures, Cumulative Across Both Model Years, BCBS NPA

	Setting-specific Expenditures for Medicare (Cumulative), BCBS NPA				
	Inpatient Expenditures	**Outpatient Non-Emergency Expenditures**	**Outpatient Emergency Department (ED) Expenditures**	**Physician and Ancillary Expenditures**	**Skilled Nursing Facility Expenditures**
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	-$4.65	**$15.21*** **	**$2.82*** **	**-$9.16*** **	$6.11
P-value	0.341	< 0.001	< 0.001	< 0.001	0.298
95% Confidence Interval	(-14.24, 4.93)	(9.07, 21.34)	(1.39, 4.24)	(-12.54, -5.77)	(-5.39, 17.61)
Relative Difference	-2.57%	8.50%	11.64%	-4.80%	8.53%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$181.43	$178.89	$24.19	$190.84	$71.57
Intervention Period Enhanced MTM Mean	$231.46	$204.01	$30.48	$208.18	$94.39
Baseline Comparison MTM Mean	$191.90	$199.87	$27.24	$198.83	$77.30
Intervention Period Comparison MTM Mean	$246.85	$210.03	$30.73	$225.66	$94.22

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 5,970,022 (173,745 beneficiaries). Number of comparison observations: 9,223,135 (288,141 beneficiaries). Each estimate corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.53: Setting-specific Medicare Expenditures, by Model Year, BCBS NPA

	Setting-specific Expenditures for Medicare (by Model Year [MY]), BCBS NPA									
	Inpatient Expenditures		Outpatient Non-Emergency Expenditures		Outpatient Emergency Department (ED) Expenditures		Physician and Ancillary Expenditures		Skilled Nursing Facility Expenditures	
	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2
Per-Beneficiary Per-Month Estimate (in $)										
Difference-in-Differences	-$3.46	-$5.92	**$13.36*****	**$17.16*****	**$3.22*****	**$2.39*****	**-$6.91*****	**-$11.52*****	$4.52	$7.78
P-value	0.520	0.335	< 0.001	< 0.001	< 0.001	0.007	< 0.001	< 0.001	0.586	0.199
95% Confidence Interval	(-14.01, 7.09)	(-17.94, 6.11)	(7.40, 19.32)	(9.27, 25.04)	(1.70, 4.74)	(0.66, 4.11)	(-10.41, -3.42)	(-15.70, -7.34)	(-11.75, 20.79)	(-4.09, 19.65)
Relative Difference	-1.91%	-3.26%	7.49%	9.59%	13.34%	9.88%	-3.64%	-6.04%	6.31%	10.87%
Means (beneficiary-month, regression-adjusted)										
Baseline Enhanced MTM Mean	$180.78	$181.43	$178.22	$178.89	$24.13	$24.19	$190.07	$190.84	$71.70	$71.57
Intervention Period Enhanced MTM Mean	$231.66	$231.24	$195.81	$212.74	$29.66	$31.34	$205.71	$210.81	$93.30	$95.54
Baseline Comparison MTM Mean	$192.12	$191.89	$199.74	$199.87	$27.24	$27.24	$198.89	$198.83	$77.81	$77.30
Intervention Period Comparison MTM Mean	$246.42	$247.30	$203.95	$216.45	$29.55	$31.98	$221.40	$230.15	$94.88	$93.52

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 5,970,022 (173,745 beneficiaries). Number of comparison observations: 9,223,135 (288,141 beneficiaries). Each estimate (Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.54: Setting-specific Medicare Expenditures, Cumulative Across Both Model Years, UnitedHealth

	Setting-specific Expenditures for Medicare (Cumulative), UnitedHealth				
	Inpatient Expenditures	**Outpatient Non-Emergency Expenditures**	**Outpatient Emergency Department (ED) Expenditures**	**Physician and Ancillary Expenditures**	**Skilled Nursing Facility Expenditures**
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	**-$16.13*** **	-$1.40	**$1.44** **	**$15.24*** **	**-$6.98*** **
P-value	0.003	0.517	0.012	< 0.001	< 0.001
95% Confidence Interval	(-26.64, -5.61)	(-5.63, 2.83)	(0.32, 2.56)	(9.97, 20.50)	(-10.90, -3.05)
Relative Difference	-6.66%	-0.98%	6.18%	4.75%	-11.56%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$242.07	$142.40	$23.30	$321.00	$60.33
Intervention Period Enhanced MTM Mean	$284.32	$155.44	$25.45	$341.70	$70.14
Baseline Comparison MTM Mean	$253.73	$152.16	$24.73	$332.53	$51.71
Intervention Period Comparison MTM Mean	$312.21	$166.61	$25.46	$338.30	$68.50

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,641,279 (141,157 beneficiaries). Number of comparison observations: 10,006,296 (334,362 beneficiaries). Each estimate corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.55: Setting-specific Medicare Expenditures, by Model Year, UnitedHealth

	Setting-specific Expenditures for Medicare (by Model Year [MY]), UnitedHealth									
	Inpatient Expenditures		Outpatient Non-Emergency Expenditures		Outpatient Emergency Department (ED) Expenditures		Physician and Ancillary Expenditures		Skilled Nursing Facility Expenditures	
	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2
Per-Beneficiary Per-Month Estimate (in $)										
Difference-in-Differences	**-$15.33*****	**-$17.04*****	-$3.08	$0.54	**$1.19****	**$1.73*****	**$12.60*****	**$18.27*****	**-$5.29****	**-$8.92*****
P-value	0.010	0.010	0.163	0.846	0.046	0.005	< 0.001	< 0.001	0.015	< 0.001
95% Confidence Interval	(-26.94, -3.72)	(-30.01, -4.08)	(-7.41, 1.25)	(-4.90, 5.98)	(0.02, 2.35)	(0.52, 2.94)	(7.28, 17.92)	(11.50, 25.04)	(-9.54, -1.04)	(-13.83, -4.00)
Relative Difference	-6.35%	-7.04%	-2.17%	0.38%	5.10%	7.43%	3.94%	5.69%	-8.77%	-14.78%
Means (beneficiary-month, regression-adjusted)										
Baseline Enhanced MTM Mean	$241.44	$242.07	$142.21	$142.40	$23.29	$23.30	$319.49	$321.00	$60.33	$60.33
Intervention Period Enhanced MTM Mean	$290.85	$276.75	$149.86	$161.90	$25.63	$25.25	$337.62	$346.42	$71.82	$68.19
Baseline Comparison MTM Mean	$253.28	$253.73	$151.92	$152.16	$24.75	$24.73	$331.58	$332.53	$51.73	$51.71
Intervention Period Comparison MTM Mean	$318.04	$305.47	$162.66	$171.17	$25.90	$24.94	$337.10	$339.68	$68.51	$68.50

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,641,279 (141,157 beneficiaries). Number of comparison observations: 10,006,296 (334,362 beneficiaries). Each estimate (Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.56: Setting-specific Medicare Expenditures, Cumulative Across Both Model Years, WellCare

	Setting-specific Expenditures for Medicare (Cumulative), WellCare				
	Inpatient Expenditures	Outpatient Non-Emergency Expenditures	Outpatient Emergency Department (ED) Expenditures	Physician and Ancillary Expenditures	Skilled Nursing Facility Expenditures
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	$4.41	$0.59	**$1.22*****	**-$3.43****	-$3.07
P-value	0.291	0.721	0.001	0.035	0.101
95% Confidence Interval	(-3.77, 12.59)	(-2.64, 3.81)	(0.53, 1.91)	(-6.63, -0.24)	(-6.73, 0.60)
Relative Difference	1.57%	0.32%	3.64%	-1.35%	-4.02%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$279.98	$181.38	$33.52	$253.95	$76.27
Intervention Period Enhanced MTM Mean	$341.56	$198.69	$36.72	$272.42	$90.57
Baseline Comparison MTM Mean	$274.58	$178.05	$31.98	$249.02	$70.85
Intervention Period Comparison MTM Mean	$332.78	$195.25	$34.06	$272.18	$88.54

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 3,654,280 (112,572 beneficiaries). Number of comparison observations: 13,020,918 (461,261 beneficiaries). Each estimate corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.57: Setting-specific Medicare Expenditures, by Model Year, WellCare

	Setting-specific Expenditures for Medicare (by Model Year [MY]), WellCare									
	Inpatient Expenditures		**Outpatient Non-Emergency Expenditures**		**Outpatient Emergency Department (ED) Expenditures**		**Physician and Ancillary Expenditures**		**Skilled Nursing Facility Expenditures**	
	MY 1	**MY 2**	**MY 1**	**MY 2**	**MY 1**	**MY 2**	**MY 1**	**MY 2**	**MY 1**	**MY 2**
Per-Beneficiary Per-Month Estimate (in $)										
Difference-in-Differences	$5.46	$3.26	$1.99	-$0.94	**$1.19*** **	**$1.25*** **	**-$3.76** **	-$3.08	-$2.58	-$3.60
P-value	0.256	0.530	0.221	0.669	0.002	0.004	0.019	0.177	0.221	0.123
95% Confidence Interval	(-3.96, 14.89)	(-6.91, 13.43)	(-1.20, 5.19)	(-5.25, 3.37)	(0.44, 1.94)	(0.40, 2.11)	(-6.90, -0.61)	(-7.54, 1.39)	(-6.70, 1.55)	(-8.16, 0.97)
Relative Difference	1.96%	1.16%	1.10%	-0.52%	3.55%	3.74%	-1.50%	-1.21%	-3.40%	-4.72%
Means (beneficiary-month, regression-adjusted)										
Baseline Enhanced MTM Mean	$279.36	$279.98	$181.26	$181.38	$33.38	$33.52	$251.36	$253.95	$75.75	$76.27
Intervention Period Enhanced MTM Mean	$344.12	$338.72	$192.75	$205.29	$36.55	$36.92	$268.64	$276.61	$90.24	$90.94
Baseline Comparison MTM Mean	$275.72	$274.58	$178.82	$178.05	$32.03	$31.98	$248.84	$249.02	$70.88	$70.85
Intervention Period Comparison MTM Mean	$335.14	$330.16	$188.34	$202.93	$34.02	$34.12	$269.91	$274.70	$87.98	$89.15

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences specification (DiD) is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 3,654,280 (112,572 beneficiaries). Number of comparison observations: 13,020,918 (461,261 beneficiaries). Each estimate (Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.58: Setting-specific Medicare Expenditures, Cumulative Across Both Model Years, BCBS FL

	Setting-specific Expenditures for Medicare (Cumulative), BCBS FL				
	Inpatient Expenditures	**Outpatient Non-Emergency Expenditures**	**Outpatient Emergency Department (ED) Expenditures**	**Physician and Ancillary Expenditures**	**Skilled Nursing Facility Expenditures**
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	**-$34.22*****	**-$12.73*****	-$0.47	**$18.62*****	-$3.00
P-value	< 0.001	< 0.001	0.484	< 0.001	0.302
95% Confidence Interval	(-52.16, -16.28)	(-18.98, -6.49)	(-1.77, 0.84)	(9.81, 27.42)	(-8.69, 2.70)
Relative Difference	-16.84%	-11.51%	-2.69%	5.28%	-5.77%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$203.16	$110.64	$17.38	$352.64	$52.00
Intervention Period Enhanced MTM Mean	$268.02	$125.03	$20.54	$385.20	$67.86
Baseline Comparison MTM Mean	$211.14	$118.53	$17.49	$352.20	$50.93
Intervention Period Comparison MTM Mean	$310.43	$145.93	$21.14	$366.65	$69.83

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 1,979,886 (57,593 beneficiaries). Number of comparison observations: 3,228,925 (101,407 beneficiaries). Each estimate corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

Appendix Table B.59: Setting-specific Medicare Expenditures, by Model Year, BCBS FL

	Setting-specific Expenditures for Medicare (by Model Year [MY]), BCBS FL									
	Inpatient Expenditures		Outpatient Non-Emergency Expenditures		Outpatient Emergency Department (ED) Expenditures		Physician and Ancillary Expenditures		Skilled Nursing Facility Expenditures	
	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2	MY 1	MY 2
Per-Beneficiary Per-Month Estimate (in $)										
Difference-in-Differences	**-$44.25*** **	**-$23.54** **	**-$12.43*** **	**-$13.05*** **	-$0.22	-$0.73	**$9.59** **	**$28.23*** **	-$4.47	-$1.43
P-value	< 0.001	0.045	< 0.001	0.001	0.734	0.434	0.038	< 0.001	0.168	0.706
95% Confidence Interval	(-64.79, -23.72)	(-46.51, -0.57)	(-18.99, -5.88)	(-20.75, -5.35)	(-1.50, 1.06)	(-2.55, 1.10)	(0.55, 18.62)	(17.57, 38.89)	(-10.83, 1.88)	(-8.85, 5.99)
Relative Difference	-21.78%	-11.59%	-11.28%	-11.80%	-1.28%	-4.19%	2.72%	8.01%	-8.54%	-2.75%
Means (beneficiary-month, regression-adjusted)										
Baseline Enhanced MTM Mean	$203.14	$203.16	$110.26	$110.64	$17.34	$17.38	$352.22	$352.64	$52.33	$52.00
Intervention Period Enhanced MTM Mean	$260.02	$276.60	$119.39	$131.07	$19.84	$21.29	$376.24	$394.80	$67.50	$68.25
Baseline Comparison MTM Mean	$211.51	$211.16	$118.74	$118.53	$17.51	$17.49	$352.66	$352.21	$51.35	$50.94
Intervention Period Comparison MTM Mean	$312.53	$308.18	$140.27	$151.97	$20.23	$22.12	$367.04	$366.22	$70.97	$68.60

Notes: *p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The difference-in-differences (DiD) specification is described in Appendix B.1.2, and controls for fixed differences between Enhanced MTM beneficiaries and comparators, and for monthly shocks and trends that have the same impact on Enhanced MTM beneficiaries and comparators. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 1,979,886 (57,593 beneficiaries). Number of comparison observations: 3,228,925 (101,407 beneficiaries). Each estimate (Model Year 1, Model Year 2) corresponds to change relative to the baseline period. The relative difference is calculated as the DiD estimate divided by the baseline Enhanced MTM regression-adjusted mean, and expressed as a percentage.

B.10.3 Gross and Service Delivery Setting Medicare Expenditures – Summary Statistics

Appendix Table B.60 through Appendix Table B.66 present summary statistics for all expenditure measures Modelwide and separately for each sponsor participating in the Enhanced MTM Model.

Appendix Table B.60: Gross and Service Delivery Setting Medicare Expenditures – Summary Statistics, Modelwide

	Comparison			Treatment		
	Baseline	**Model Year 1**	**Model Year 2**	**Baseline**	**Model Year 1**	**Model Year 2**
Total Beneficiary-months	32,219,806	29,562,744	26,476,473	17,133,792	15,613,017	13,245,064
Total Beneficiaries	2,686,574	2,711,109	2,446,794	1,427,816	1,368,365	1,162,362
Total Parts A and B Expenditures						
Mean	$871.67	$1,003.32	$1,018.37	$875.63	$993.99	$999.86
Median	$92.13	$99.48	$102.92	$92.35	$97.15	$106.20
Inpatient Expenditures						
Mean	$265.77	$329.90	$318.53	$261.47	$320.95	$302.82
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Non-Emergency Expenditures						
Mean	$171.96	$183.08	$194.05	$166.48	$176.98	$190.82
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Emergency Department (ED) Expenditures						
Mean	$30.72	$33.54	$33.05	$29.65	$33.14	$32.92
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Physician and Ancillary Expenditures						
Mean	$248.91	$268.99	$273.21	$260.48	$275.87	$280.60
Median	$52.33	$59.14	$58.14	$52.47	$56.22	$58.14
Skilled Nursing Facility Expenditures						
Mean	$69.51	$84.28	$82.66	$75.84	$89.17	$84.88
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Appendix Table B.61: Gross and Service Delivery Setting Medicare Expenditures – Summary Statistics, SilverScript/CVS

	Comparison			Treatment		
	Baseline	Model Year 1	Model Year 2	Baseline	Model Year 1	Model Year 2
Total Beneficiary-months	16,448,279	14,924,407	13,965,155	7,084,104	6,266,465	6,007,102
Total Beneficiaries	1,371,500	1,377,447	1,296,876	590,342	550,484	528,757
Total Parts A and B Expenditures						
Mean	$885.39	$1,019.67	$1,035.04	$887.90	$1,008.98	$1,028.47
Median	$94.89	$101.08	$104.88	$97.56	$100.63	$109.63
Inpatient Expenditures						
Mean	$271.46	$337.57	$326.72	$269.96	$332.50	$320.89
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Non-Emergency Expenditures						
Mean	$171.03	$181.81	$193.23	$168.02	$179.42	$190.77
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Emergency Department (ED) Expenditures						
Mean	$31.66	$34.69	$34.28	$30.90	$34.83	$34.60
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Physician and Ancillary Expenditures						
Mean	$248.59	$268.28	$272.20	$255.92	$270.58	$279.37
Median	$55.27	$59.39	$58.14	$56.12	$58.22	$58.14
Skilled Nursing Facility Expenditures						
Mean	$74.47	$89.24	$86.85	$79.49	$91.17	$87.86
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Appendix Table B.62: Gross and Service Delivery Setting Medicare Expenditures – Summary Statistics, Humana

	Comparison			Treatment		
	Baseline	**Model Year 1**	**Model Year 2**	**Baseline**	**Model Year 1**	**Model Year 2**
Total Beneficiary-months	8,757,391	8,086,601	6,459,457	4,228,884	3,884,597	2,275,254
Total Beneficiaries	730,389	751,097	610,054	352,407	344,306	202,364
Total Parts A and B Expenditures						
Mean	$913.95	$1,040.78	$1,038.97	$946.19	$1,064.17	$1,013.56
Median	$90.22	$95.89	$100.76	$88.76	$87.36	$95.39
Inpatient Expenditures						
Mean	$285.29	$349.32	$330.26	$298.11	$363.82	$319.93
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Non-Emergency Expenditures						
Mean	$179.96	$189.95	$197.34	$171.79	$179.34	$199.57
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Emergency Department (ED) Expenditures						
Mean	$33.47	$36.00	$34.63	$33.56	$36.48	$35.64
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Physician and Ancillary Expenditures						
Mean	$254.42	$273.83	$277.73	$265.24	$280.45	$272.74
Median	$51.21	$55.24	$58.13	$46.95	$48.90	$49.42
Skilled Nursing Facility Expenditures						
Mean	$70.03	$83.77	$80.09	$81.78	$94.24	$79.84
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Appendix Table B.63: Gross and Service Delivery Setting Medicare Expenditures – Summary Statistics, BCBS NPA

	Comparison			Treatment		
	Baseline	**Model Year 1**	**Model Year 2**	**Baseline**	**Model Year 1**	**Model Year 2**
Total Beneficiary-months	3,242,136	3,071,659	2,909,340	2,084,940	2,002,490	1,882,592
Total Beneficiaries	270,207	271,965	257,103	173,745	170,818	161,483
Total Parts A and B Expenditures						
Mean	$684.77	$821.04	$860.82	$684.67	$813.19	$852.57
Median	$78.19	$87.36	$93.25	$69.93	$76.17	$85.71
Inpatient Expenditures						
Mean	$186.24	$246.52	$245.01	$181.43	$231.66	$231.24
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Non-Emergency Expenditures						
Mean	$160.81	$171.95	$187.54	$178.89	$195.81	$212.74
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Emergency Department (ED) Expenditures						
Mean	$22.03	$24.90	$26.06	$24.19	$29.66	$31.34
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Physician and Ancillary Expenditures						
Mean	$208.11	$229.56	$239.65	$190.84	$205.71	$210.81
Median	$34.66	$41.51	$48.25	$15.72	$21.91	$24.22
Skilled Nursing Facility Expenditures						
Mean	$59.29	$78.01	$77.06	$71.57	$93.30	$95.54
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Appendix Table B.64: Gross and Service Delivery Setting Medicare Expenditures – Summary Statistics, UnitedHealth

	Comparison			Treatment		
	Baseline	**Model Year 1**	**Model Year 2**	**Baseline**	**Model Year 1**	**Model Year 2**
Total Beneficiary-months	3,648,264	3,407,917	2,950,115	1,693,884	1,580,977	1,366,418
Total Beneficiaries	304,084	313,993	271,238	141,157	138,977	119,398
Total Parts A and B Expenditures						
Mean	$859.92	$980.03	$990.83	$879.11	$978.46	$993.03
Median	$98.38	$101.19	$107.01	$116.22	$119.65	$127.12
Inpatient Expenditures						
Mean	$251.40	$310.03	$297.08	$242.07	$290.85	$276.75
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Non-Emergency Expenditures						
Mean	$158.87	$169.66	$181.11	$142.39	$149.86	$161.90
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Emergency Department (ED) Expenditures						
Mean	$25.17	$27.13	$26.61	$23.30	$25.63	$25.25
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Physician and Ancillary Expenditures						
Mean	$280.23	$298.28	$303.34	$321.00	$337.61	$346.42
Median	$60.25	$63.84	$68.09	$79.43	$85.80	$85.80
Skilled Nursing Facility Expenditures						
Mean	$55.32	$71.49	$68.80	$60.33	$71.82	$68.19
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Appendix Table B.65: Gross and Service Delivery Setting Medicare Expenditures – Summary Statistics, WellCare

	Comparison			Treatment		
	Baseline	**Model Year 1**	**Model Year 2**	**Baseline**	**Model Year 1**	**Model Year 2**
Total Beneficiary-months	4,790,966	4,329,934	3,900,018	1,350,864	1,211,708	1,091,708
Total Beneficiaries	399,419	409,660	373,000	112,572	106,940	97,098
Total Parts A and B Expenditures						
Mean	$888.95	$1,022.24	$1,049.97	$911.35	$1,037.12	$1,068.73
Median	$93.17	$100.63	$105.71	$94.18	$99.54	$106.40
Inpatient Expenditures						
Mean	$272.88	$335.08	$328.47	$279.98	$344.12	$338.72
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Non-Emergency Expenditures						
Mean	$176.54	$188.09	$201.80	$181.38	$192.75	$205.29
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Emergency Department (ED) Expenditures						
Mean	$31.98	$33.99	$34.07	$33.52	$36.55	$36.92
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Physician and Ancillary Expenditures						
Mean	$247.56	$269.10	$273.61	$253.95	$268.64	$276.61
Median	$54.71	$59.39	$58.14	$52.03	$56.22	$58.14
Skilled Nursing Facility Expenditures						
Mean	$69.95	$87.39	$88.20	$76.27	$90.24	$90.94
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00

Appendix Table B.66: Gross and Service Delivery Setting Medicare Expenditures – Summary Statistics, BCBS FL

	Comparison			Treatment		
	Baseline	**Model Year 1**	**Model Year 2**	**Baseline**	**Model Year 1**	**Model Year 2**
Total Beneficiary-months	1,134,768	1,080,917	1,013,240	691,116	666,780	621,990
Total Beneficiaries	94,590	95,735	89,960	57,593	56,840	53,262
Total Parts A and B Expenditures						
Mean	$790.19	$949.38	$981.81	$815.85	$945.62	$1,013.31
Median	$104.52	$110.65	$116.96	$129.80	$136.81	$146.57
Inpatient Expenditures						
Mean	$209.23	$293.50	$293.88	$203.16	$260.02	$276.60
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Non-Emergency Expenditures						
Mean	$124.85	$143.77	$157.67	$110.64	$119.39	$131.07
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Outpatient Emergency Department (ED) Expenditures						
Mean	$18.18	$21.08	$21.95	$17.38	$19.84	$21.29
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Physician and Ancillary Expenditures						
Mean	$307.22	$325.77	$331.65	$352.64	$376.24	$394.80
Median	$77.41	$80.59	$85.24	$97.59	$102.14	$111.03
Skilled Nursing Facility Expenditures						
Mean	$51.89	$68.90	$68.66	$52.00	$67.50	$68.25
Median	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00