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

Appendix B: Methodology and Supplemental Findings

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

APPENDIX B   METHODOLOGY AND SUPPLEMENTAL FINDINGS

This appendix contains detailed information on the methodology and supplemental findings from the analyses presented in the Enhanced Medication Therapy Management (MTM) Third Evaluation Report. Section B.1 presents data sources used for all analyses in the report. Section B.2 and Section B.3 present impact analyses methodology and provide supplementary findings on Model impacts, respectively. Section B.4 and Section B.5 present supplemental findings on beneficiary enrollment in Enhanced MTM plans and beneficiary eligibility for Enhanced MTM programs, respectively. Section B.6 presents qualitative methods. Finally, Section B.7 presents beneficiary perspectives on the Enhanced MTM Model and associated methodology used to design, field, and analyze a survey of beneficiaries in Enhanced MTM Model-participating plans.

B.1   Data Sources

This appendix provides a summary of the data sources used for the Enhanced MTM Third Evaluation Report. Appendix Table B.1.1 lists the data sources used for the matching and estimation of Model impacts on expenditures and utilization outcomes presented in Section 2, as well as the data sources used to calculate Enhanced MTM eligibility and service receipt statistics presented in Section 3.

Appendix Table B.1.1: Data Sources Used in Enhanced MTM Third Evaluation Report

Data Source	Time Period Covered	Access Date	Use
Common Working File (CWF)	2016-2019	April 2020	Difference-in-differences (DiD) Estimation: Parts A and B expenditures Comparison group matching: Parts A and B expenditures; Parts A and B health service utilization; Frailty measures; Hierarchical Condition Categories (HCC); HCC risk score
Prescription Drug Event (PDE)	2016-2019	April 2020	DiD Estimation: Part D expenditures Comparison group matching: Part D expenditures; Part D drug utilization
Enrollment Database (EDB)	2016-2019	March 2020	Comparison group matching: Parts A and B enrollment; Original reason for a beneficiary's entitlement to Medicare benefits; Dual status; end-stage renal disease (ESRD) status; Residence information
Common Medicare Environment (CME)	2016-2019	March 2020	Comparison group matching: Part D enrollment; Age; Gender; Race; low-income subsidy (LIS) status Eligibility and service receipt statistics: Part D enrollment
Master Beneficiary Summary File (MBSF)	2016-2018	April 2020	Comparison group matching: Chronic condition information

Data Source	Time Period Covered	Access Date	Use
Minimum Data Set (MDS)	2016-2019	March 2020	Comparison group matching: Long-term Institutional status
Dartmouth Atlas HRR-Zip Code Crosswalk File	2014-2017	December 2019	Comparison group matching: Hospital Referral Region (HRR) of residence
Health Plan Management System (HPMS)	2017-2019	December 2017, 2018, and 2019	Comparison group matching: Part D plan information
Prevention Quality Indicators Technical Specifications	N/A	Accessed July 2019	Information about diagnoses groups of ambulatory care-sensitive conditions (ACSCs)
Enhanced MTM Encounter Data	2017-2019	July 2020	Eligibility and service receipt statistics: Enhanced MTM services
Medicare Advantage and Prescription Drug Plan system (MARx)	2017-2019	March 2020	Eligibility and service receipt statistics: Enhanced MTM eligibility
Intervention-specific eligibility data	2017-2019	July 2020	Eligibility and service receipt statistics: Enhanced MTM eligibility by intervention

B.2   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 Plan Benefit Packages (PBPs). Section B.2.1 presents the approach used to select the analytic cohort, including the treatment group and appropriate comparators. Section B.2.2 summarizes the outcome measures examined in this report and provides information about how these measures are defined. Section B.2.3 presents the analytic models that produced the impact estimates. Finally, Section B.2.4 presents the algorithm that calculates changes in net expenditures for the Model.

B.2.1 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 Treatment Group and Eligible Treatment Beneficiary-months for Matching

The treatment cohort consists of all beneficiaries enrolled in Model-participating plans in 2017, 2018, or 2019 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 were excluded if they received 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 Enhanced MTM. These enrollment restrictions ensure data availability for matching and estimation of Model impacts.[1] After exclusions were applied, about 63 percent of beneficiaries enrolled in participating plans were included in the treatment cohort.

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.

Beneficiary-months that were eligible for inclusion in analyses were identified for the beneficiaries who satisfied the enrollment restrictions outlined above. All baseline months were included in analyses, and post-exposure months were 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 were censored from analyses after beneficiaries switched 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 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 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 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 following their pseudo index date. Beneficiaries who switched into Medicare Advantage plans or other types of enrollment or received 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 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).

---

[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 length of enrollment during the post-exposure period is very similar between the treatment and comparison groups.

(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. The propensity score model included both individual characteristics in the 12-month period before Enhanced MTM Model exposure (e.g., variables related to demographic and clinical characteristics, past medical expenditures, past healthcare 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).

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 PBP participating in the Model, to ensure that potential comparators were enrolled in plans of the same type (i.e., defined standard, basic alternative, or actuarially equivalent standard PDP), and did not reside geographically far from 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.

Matching was performed separately for beneficiaries first enrolled in Enhanced MTM plans in 2017 or 2018, and for beneficiaries enrolled in Enhanced MTM plans in 2019. For beneficiaries first enrolled in Enhanced MTM plans in 2017 or 2018, propensity scores were estimated separately for each sponsor. The matched samples of beneficiaries used in the Second Evaluation Report analyses were preserved to the extent possible, and conditional on satisfying enrollment restrictions that were updated to incorporate information from Model Year 3 (e.g., potential comparators may not be enrolled in Enhanced MTM plans at any point in 2017 or later).

For beneficiaries who first enrolled in Enhanced MTM plans in 2019, propensity scores were estimated separately by sponsor for beneficiaries enrolled in SilverScript/CVS, UnitedHealth, and Humana plans. For beneficiaries first enrolled in 2019 in Blue Cross Blue Shield Northern Plains Alliance (BCBS NPA), WellCare, and Blue Cross Blue Shield Florida (BCBS FL) plans, a single propensity score model was estimated for the composite cohort of beneficiaries enrolled in plans operated by either of these sponsors. The estimation of a single propensity score model was necessary due to the small sample size of the incoming cohort of enrollees for each of these sponsors.

For the Model as a whole, for beneficiaries first enrolled in 2017 or 2018, 98.6 percent of Enhanced MTM enrollees were matched to comparison beneficiaries, and for beneficiaries first enrolled in 2019, 98.0 percent of Enhanced MTM enrollees were matched to comparison

beneficiaries. For the combined cohort of each sponsor (including beneficiaries first exposed in 2017, 2018, and 2019), the match rate was over 97.0 percent for all sponsors.

Modelwide characteristics are available in Section 2.2 of the report body, and Appendix Table B.2.1 through Appendix Table B.2.12 present characteristics for each sponsor (e.g., see Appendix Table B.2.1 for baseline averages of the SilverScript/CVS sample). These tables show post-matching baseline averages for the treatment and comparison cohort for select beneficiary characteristics. As shown in these tables, there is balance in baseline characteristics between the treatment and the comparison cohort both for the Model as a whole and for each sponsor-specific sample.

Difference-in-differences (DiD) estimation relies on the assumption that the treatment and comparison groups share common trends in the baseline. This assumption was assessed by a visual inspection of trends in quarterly Medicare expenditures for the 12-month baseline period. Modelwide baseline expenditure trends for the treatment cohort and comparators are presented in Section 2.3 of the report body, and baseline expenditure trends for sponsors are shown in Appendix Figure B.2.1. A visual inspection of these graphs shows common trends in Medicare Parts A and B expenditures Modelwide and for all sponsors in the baseline, suggesting that the assumption of parallel trends required for valid DiD estimation is satisfied.[3]

---

[3] The parallel trends assumption was also assessed by fitting linear trends in quarterly Medicare expenditures for the 12-month baseline period, and conducting statistical tests of equality in trends. The null hypothesis of parallel trends could not be rejected at the 5 percent significance level, except for UnitedHealth (p-value = 0.050).

Appendix Table B.2.1: Baseline Demographic Characteristics of Treatment and Comparison Cohorts, SilverScript/CVS

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	617,342		1,600,794	
Age				
% Below 65 Years Old	29.7	*45.7*	29.5	*45.6*
% 65-69 Years Old	21.1	*40.8*	21.2	*40.9*
% 70-74 Years Old	18.4	*38.8*	18.5	*38.8*
% 75-79 Years Old	12.8	*33.4*	12.8	*33.4*
% 80+ Years Old	18.0	*38.4*	18.0	*38.4*
% Female	57.8	*49.4*	57.8	*49.4*
Race				
% White	78.8	*40.9*	78.8	*40.8*
% Black	12.6	*33.2*	12.6	*33.2*
% Other	8.6	*28.0*	8.6	*28.0*
% Urban	80.7	*39.5*	78.0	*41.4*
% Dual Eligible	48.2	*50.0*	48.0	*50.0*
% with LIS Status	53.1	*49.9*	52.9	*49.9*
% Disabled (Original Enrollment Reason)	39.4	*48.9*	39.2	*48.8*
% with ESRD (Original Enrollment Reason)	0.6	*7.9*	0.6	*7.9*

Notes: STD: standard deviation; LIS: low-income subsidy; ESRD: end-stage renal disease. The "% Disabled" and "% with ESRD" are based on beneficiaries' original reason for Medicare eligibility.

Sources: CME and EDB.

Appendix Table B.2.2: Baseline Health Services Utilization, Cost, and Clinical Profile Characteristics of Treatment and Comparison Cohorts, SilverScript/CVS

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	STD	Mean	STD
Number of Beneficiaries	617,342		1,600,794	
Inpatient (IP) Admissions				
% with 0 IP Admissions	82.7	37.8	82.7	37.8
% with 1 IP Admissions	11.6	32.1	11.7	32.1
% with 2+ IP Admissions	5.6	23.1	5.6	23.1
% of Admissions with an Unplanned Readmission	15.1	35.9	14.6	35.3
Skilled Nursing Facility (SNF) Admissions				
% with 0 SNF Admissions	96.0	19.7	96.1	19.3
% with 1 SNF Admissions	2.8	16.6	2.7	16.3
% with 2+ SNF Admissions	1.2	10.9	1.1	10.6
Emergency Department (ED) Visits				
% with 0 ED Visits	70.8	45.5	69.9	45.9
% with 1 ED Visit	17.1	37.7	17.4	37.9
% with 2+ ED Visits	12.1	32.6	12.7	33.3
Evaluation and Management (E&M) Visits				
% with 0 E&M Visits	8.2	27.4	7.4	26.2
% with 1-5 E&M Visits	34.5	47.6	35.0	47.7
% with 6-10 E&M Visits	27.3	44.5	27.5	44.7
% with 11-15 E&M Visits	15.1	35.8	15.2	35.9
% with 16+ E&M Visits	14.9	35.6	14.8	35.5
Part D Utilization				
Average Number of Concurrent Medications	3.81	3.04	3.88	2.98
Costs				
Average Total Annual Part D Costs per Beneficiary	$4,628	$13,323	$4,505	$12,613
Average Total Annual Parts A and B Costs per Beneficiary	$11,370	$23,745	$11,574	$25,537
Average Annual IP Costs per Beneficiary	$3,197	$11,785	$3,162	$11,986
Average Annual IP Costs Related to ACSCs per Beneficiary	$218	$2,171	$218	$2,162
Clinical Profile				
Average HCC Risk Score	1.19	1.21	1.19	1.21

Notes: STD: standard deviation; ACSC: ambulatory care-sensitive condition; HCC: Hierarchical Condition Categories.
Sources: PDE, CWF, MBSF.

Appendix Table B.2.3: Baseline Demographic Characteristics of Treatment and Comparison Cohorts, Humana

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	357,963		832,589	
Age				
% Below 65 Years Old	34.9	*47.7*	34.7	*47.6*
% 65-69 Years Old	16.2	*36.9*	16.4	*37.0*
% 70-74 Years Old	20.9	*40.6*	20.9	*40.6*
% 75-79 Years Old	11.6	*32.0*	11.6	*32.0*
% 80+ Years Old	16.4	*37.0*	16.4	*37.1*
% Female	56.8	*49.5*	56.8	*49.5*
Race				
% White	74.8	*43.4*	74.9	*43.4*
% Black	13.8	*34.5*	13.7	*34.4*
% Other	11.4	*31.8*	11.4	*31.8*
% Urban	82.6	*37.9*	79.1	*40.7*
% Dual Eligible	58.3	*49.3*	58.2	*49.3*
% with LIS Status	63.8	*48.1*	63.6	*48.1*
% Disabled (Original Enrollment Reason)	42.8	*49.5*	42.7	*49.5*
% with ESRD (Original Enrollment Reason)	0.9	*9.3*	0.9	*9.3*

Notes: STD: standard deviation; LIS: low-income subsidy; ESRD: end-stage renal disease. The "% Disabled" and "% with ESRD" are based on beneficiaries' original reason for Medicare eligibility.
Sources: CME and EDB.

Appendix Table B.2.4: Baseline Health Services Utilization, Cost, and Clinical Profile Characteristics of Treatment and Comparison Cohorts, Humana

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	357,963		832,589	
Inpatient (IP) Admissions				
% with 0 IP Admissions	81.6	*38.8*	81.6	*38.8*
% with 1 IP Admissions	12.0	*32.5*	12.0	*32.5*
% with 2+ IP Admissions	6.4	*24.5*	6.4	*24.5*
% of Admissions with an Unplanned Readmission	17.2	*37.7*	15.8	*36.5*
Skilled Nursing Facility (SNF) Admissions				
% with 0 SNF Admissions	95.9	*19.7*	96.3	*19.0*
% with 1 SNF Admissions	2.8	*16.6*	2.6	*15.9*
% with 2+ SNF Admissions	1.2	*11.0*	1.1	*10.6*
Emergency Department (ED) Visits				
% with 0 ED Visits	69.2	*46.1*	68.0	*46.6*
% with 1 ED Visit	17.4	*37.9*	17.7	*38.2*
% with 2+ ED Visits	13.4	*34.1*	14.2	*35.0*
Evaluation and Management (E&M) Visits				
% with 0 E&M Visits	11.4	*31.8*	9.6	*29.4*
% with 1-5 E&M Visits	35.1	*47.7*	35.3	*47.8*
% with 6-10 E&M Visits	25.2	*43.4*	25.5	*43.6*
% with 11-15 E&M Visits	13.9	*34.6*	14.6	*35.3*
% with 16+ E&M Visits	14.4	*35.1*	15.1	*35.8*
Part D Utilization				
Average Number of Concurrent Medications	3.65	*3.14*	3.74	*3.12*
Costs				
Average Total Annual Part D Costs per Beneficiary	$4,256	*$13,218*	$4,268	*$13,087*
Average Total Annual Parts A and B Costs per Beneficiary	$11,887	*$26,522*	$12,251	*$25,761*
Average Annual IP Costs per Beneficiary	$3,527	*$12,559*	$3,479	*$11,997*
Average Annual IP Costs Related to ACSCs per Beneficiary	$267	*$2,763*	$259	*$2,356*
Clinical Profile				
Average HCC Risk Score	1.24	*1.29*	1.25	*1.31*

Notes: STD: standard deviation; ACSC: ambulatory care-sensitive condition; HCC: Hierarchical Condition Categories.
Sources: PDE, CWF, MBSF.

Appendix Table B.2.5: Baseline Demographic Characteristics of Treatment and Comparison Cohorts, BCBS NPA

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	**Mean**	*STD*
Number of Beneficiaries	174,645		290,759	
Age				
% Below 65 Years Old	3.3	*17.9*	3.4	*18.0*
% 65-69 Years Old	19.3	*39.5*	19.3	*39.5*
% 70-74 Years Old	23.6	*42.5*	23.6	*42.4*
% 75-79 Years Old	21.2	*40.8*	21.2	*40.8*
% 80+ Years Old	32.6	*46.9*	32.6	*46.9*
% Female	59.9	*49.0*	59.9	*49.0*
Race				
% White	97.5	*15.7*	97.5	*15.7*
% Black	0.3	*5.6*	0.3	*5.6*
% Other	2.2	*14.7*	2.2	*14.7*
% Urban	64.8	*47.8*	64.9	*47.7*
% Dual Eligible	3.2	*17.7*	3.3	*17.8*
% with LIS Status	4.3	*20.3*	4.3	*20.4*
% Disabled (Original Enrollment Reason)	7.6	*26.4*	7.6	*26.5*
% with ESRD (Original Enrollment Reason)	0.1	*3.6*	0.1	*3.6*

Notes: STD: standard deviation; LIS: low-income subsidy; ESRD: end-stage renal disease. The "% Disabled" and "% with ESRD" are based on beneficiaries' original reason for Medicare eligibility.

Sources: CME and EDB.

Appendix Table B.2.6: Baseline Health Services Utilization, Cost, and Clinical Profile Characteristics of Treatment and Comparison Cohorts, BCBS NPA

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	174,645		290,759	
Inpatient (IP) Admissions				
% with 0 IP Admissions	85.8	*34.9*	85.6	*35.1*
% with 1 IP Admissions	10.9	*31.2*	10.7	*30.9*
% with 2+ IP Admissions	3.3	*17.8*	3.6	*18.7*
% of Admissions with an Unplanned Readmission	9.7	*29.6*	10.6	*30.8*
Skilled Nursing Facility (SNF) Admissions				
% with 0 SNF Admissions	96.0	*19.7*	95.6	*20.4*
% with 1 SNF Admissions	3.0	*17.2*	3.4	*18.2*
% with 2+ SNF Admissions	1.0	*9.9*	0.9	*9.6*
Emergency Department (ED) Visits				
% with 0 ED Visits	77.9	*41.5*	76.5	*42.4*
% with 1 ED Visit	15.4	*36.1*	16.1	*36.8*
% with 2+ ED Visits	6.6	*24.9*	7.4	*26.2*
Evaluation and Management (E&M) Visits				
% with 0 E&M Visits	4.8	*21.5*	5.0	*21.8*
% with 1-5 E&M Visits	44.1	*49.6*	40.1	*49.0*
% with 6-10 E&M Visits	29.2	*45.5*	30.1	*45.9*
% with 11-15 E&M Visits	12.6	*33.2*	14.2	*34.9*
% with 16+ E&M Visits	9.3	*29.0*	10.6	*30.8*
Part D Utilization				
Average Number of Concurrent Medications	3.41	*2.47*	3.59	*2.56*
Costs				
Average Total Annual Part D Costs per Beneficiary	$2,382	*$8,907*	$2,530	*$9,470*
Average Total Annual Parts A and B Costs per Beneficiary	$8,862	*$17,994*	$9,675	*$18,939*
Average Annual IP Costs per Beneficiary	$2,282	*$8,332*	$2,394	*$8,491*
Average Annual IP Costs Related to ACSCs per Beneficiary	$94	*$1103*	$94	*$1,180*
Clinical Profile				
Average HCC Risk Score	1.00	*0.87*	1.04	*0.91*

Notes: STD: standard deviation; ACSC: ambulatory care-sensitive condition; HCC: Hierarchical Condition Categories.
Sources: PDE, CWF, MBSF.

Appendix Table B.2.7: Baseline Demographic Characteristics of Treatment and Comparison Cohorts, UnitedHealth

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	196,552		529,496	
Age				
% Below 65 Years Old	16.7	*37.3*	19.1	*39.3*
% 65-69 Years Old	33.5	*47.2*	32.5	*46.8*
% 70-74 Years Old	21.4	*41.0*	20.7	*40.5*
% 75-79 Years Old	12.4	*32.9*	12.0	*32.6*
% 80+ Years Old	15.9	*36.6*	15.6	*36.3*
% Female	58.4	*49.3*	58.2	*49.3*
Race				
% White	84.3	*36.3*	83.2	*37.4*
% Black	8.0	*27.2*	8.9	*28.5*
% Other	7.6	*26.5*	7.9	*27.0*
% Urban	86.8	*33.9*	81.8	*38.6*
% Dual Eligible	26.3	*44.0*	29.9	*45.8*
% with LIS Status	30.7	*46.1*	34.5	*47.5*
% Disabled (Original Enrollment Reason)	23.9	*42.6*	26.4	*44.1*
% with ESRD (Original Enrollment Reason)	0.4	*6.4*	0.4	*6.7*

Notes: STD: standard deviation; LIS: low-income subsidy; ESRD: end-stage renal disease. The "% Disabled" and "% with ESRD" are based on beneficiaries' original reason for Medicare eligibility.

Sources: CME and EDB.

Appendix Table B.2.8: Baseline Health Services Utilization, Cost, and Clinical Profile Characteristics of Treatment and Comparison Cohorts, UnitedHealth

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	STD	Mean	STD
Number of Beneficiaries	196,552		529,496	
Inpatient (IP) Admissions				
% with 0 IP Admissions	83.6	37.0	83.3	37.3
% with 1 IP Admissions	11.2	31.5	11.5	31.9
% with 2+ IP Admissions	5.2	22.1	5.2	22.1
% of Admissions with an Unplanned Readmission	14.8	35.5	14.4	35.1
Skilled Nursing Facility (SNF) Admissions				
% with 0 SNF Admissions	96.6	18.2	96.9	17.4
% with 1 SNF Admissions	2.5	15.7	2.3	14.9
% with 2+ SNF Admissions	0.9	9.6	0.8	9.1
Emergency Department (ED) Visits				
% with 0 ED Visits	74.1	43.8	72.3	44.7
% with 1 ED Visit	16.1	36.8	16.5	37.1
% with 2+ ED Visits	9.8	29.7	11.2	31.5
Evaluation and Management (E&M) Visits				
% with 0 E&M Visits	6.6	24.8	6.0	23.8
% with 1-5 E&M Visits	31.9	46.6	33.1	47.1
% with 6-10 E&M Visits	27.4	44.6	27.0	44.4
% with 11-15 E&M Visits	16.3	36.9	15.7	36.4
% with 16+ E&M Visits	17.9	38.3	18.2	38.6
Part D Utilization				
Average Number of Concurrent Medications	3.55	2.94	3.75	2.90
Costs				
Average Total Annual Part D Costs per Beneficiary	$3,959	$13,400	$4,231	$17,990
Average Total Annual Parts A and B Costs per Beneficiary	$11,465	$23,373	$11,981	$26,309
Average Annual IP Costs per Beneficiary	$3,048	$11,388	$3,049	$11,034
Average Annual IP Costs Related to ACSCs per Beneficiary	$198	$2,017	$208	$2,498
Clinical Profile				
Average HCC Risk Score	1.14	1.16	1.17	1.19

Notes: STD: standard deviation; ACSC: ambulatory care-sensitive condition; HCC: Hierarchical Condition Categories.
Sources: PDE, CWF, MBSF.

Appendix Table B.2.9: Baseline Demographic Characteristics of Treatment and Comparison Cohorts, WellCare

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	114,860		469,056	
Age				
% Below 65 Years Old	27.8	*44.8*	27.8	*44.8*
% 65-69 Years Old	21.1	*40.8*	21.1	*40.8*
% 70-74 Years Old	18.4	*38.7*	18.4	*38.7*
% 75-79 Years Old	13.3	*34.0*	13.3	*34.0*
% 80+ Years Old	19.4	*39.6*	19.4	*39.6*
% Female	59.0	*49.2*	59.0	*49.2*
Race				
% White	74.9	*43.3*	74.9	*43.3*
% Black	17.0	*37.5*	17.0	*37.5*
% Other	8.1	*27.3*	8.1	*27.3*
% Urban	79.4	*40.4*	77.8	*41.5*
% Dual Eligible	46.3	*49.9*	46.3	*49.9*
% with LIS Status	54.2	*49.8*	54.2	*49.8*
% Disabled (Original Enrollment Reason)	37.3	*48.4*	37.3	*48.4*
% with ESRD (Original Enrollment Reason)	0.8	*9.1*	0.8	*9.2*

Notes: STD: standard deviation; LIS: low-income subsidy; ESRD: end-stage renal disease. The "% Disabled" and "% with ESRD" are based on beneficiaries' original reason for Medicare eligibility.

Sources: CME and EDB.

Appendix Table B.2.10: Baseline Health Services Utilization, Cost, and Clinical Profile Characteristics of Treatment and Comparison Cohorts, WellCare

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	114,860		469,056	
Inpatient (IP) Admissions				
% with 0 IP Admissions	82.3	*38.2*	82.6	*37.9*
% with 1 IP Admissions	12.0	*32.4*	11.8	*32.3*
% with 2+ IP Admissions	5.8	*23.4*	5.6	*23.0*
% of Admissions with an Unplanned Readmission	15.2	*35.9*	14.6	*35.4*
Skilled Nursing Facility (SNF) Admissions				
% with 0 SNF Admissions	96.0	*19.5*	96.2	*19.1*
% with 1 SNF Admissions	2.9	*16.7*	2.8	*16.4*
% with 2+ SNF Admissions	1.1	*10.5*	1.0	*10.2*
Emergency Department (ED) Visits				
% with 0 ED Visits	69.1	*46.2*	68.9	*46.3*
% with 1 ED Visit	17.8	*38.2*	17.8	*38.3*
% with 2+ ED Visits	13.1	*33.7*	13.3	*34.0*
Evaluation and Management (E&M) Visits				
% with 0 E&M Visits	7.1	*25.7*	6.7	*25.1*
% with 1-5 E&M Visits	35.2	*47.8*	35.1	*47.7*
% with 6-10 E&M Visits	27.7	*44.8*	28.3	*45.0*
% with 11-15 E&M Visits	15.5	*36.2*	15.4	*36.1*
% with 16+ E&M Visits	14.5	*35.2*	14.4	*35.1*
Part D Utilization				
Average Number of Concurrent Medications	3.97	*2.91*	4.00	*2.95*
Costs				
Average Total Annual Part D Costs per Beneficiary	$3,852	*$12,130*	$3,951	*$13,107*
Average Total Annual Parts A and B Costs per Beneficiary	$11,610	*$24,305*	$11,445	*$23,319*
Average Annual IP Costs per Beneficiary	$3,257	*$11,062*	$3,177	*$11,204*
Average Annual IP Costs Related to ACSCs per Beneficiary	$235	*$2,239*	$227	*$2,228*
Clinical Profile				
Average HCC Risk Score	1.20	*1.21*	1.18	*1.19*

Notes: STD: standard deviation; ACSC: ambulatory care-sensitive condition; HCC: Hierarchical Condition Categories.
Sources: PDE, CWF, MBSF.

Appendix Table B.2.11: Baseline Demographic Characteristics of Treatment and Comparison Cohorts, BCBS FL

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	57,838		102,092	
Age				
% Below 65 Years Old	2.4	*15.3*	2.4	*15.3*
% 65-69 Years Old	25.2	*43.4*	25.2	*43.4*
% 70-74 Years Old	28.3	*45.1*	28.3	*45.1*
% 75-79 Years Old	20.2	*40.1*	20.2	*40.1*
% 80+ Years Old	23.9	*42.7*	23.9	*42.7*
% Female	58.1	*49.3*	58.1	*49.3*
Race				
% White	93.6	*24.5*	93.6	*24.5*
% Black	2.6	*16.0*	2.6	*15.9*
% Other	3.8	*19.1*	3.8	*19.1*
% Urban	94.9	*22.1*	94.0	*23.8*
% Dual Eligible	2.5	*15.8*	2.5	*15.7*
% with LIS Status	3.5	*18.4*	3.5	*18.3*
% Disabled (Original Enrollment Reason)	6.2	*24.0*	6.2	*24.0*
% with ESRD (Original Enrollment Reason)	0.1	*2.9*	0.1	*2.9*

Notes: STD: standard deviation; LIS: low-income subsidy; ESRD: end-stage renal disease. The "% Disabled" and "% with ESRD" are based on beneficiaries' original reason for Medicare eligibility.

Sources: CME and EDB.

Appendix Table B.2.12: Baseline Health Services Utilization, Cost, and Clinical Profile Characteristics of Treatment and Comparison Cohorts, BCBS FL

Characteristics (12 months before exposure to the Enhanced MTM Model; weighted)	Treatment		Comparison	
	Mean	*STD*	Mean	*STD*
Number of Beneficiaries	57,838		102,092	
Inpatient (IP) Admissions				
% with 0 IP Admissions	85.1	*35.6*	85.1	*35.6*
% with 1 IP Admissions	11.0	*31.3*	11.2	*31.5*
% with 2+ IP Admissions	3.9	*19.3*	3.7	*19.0*
% of Admissions with an Unplanned Readmission	11.9	*32.3*	10.3	*30.4*
Skilled Nursing Facility (SNF) Admissions				
% with 0 SNF Admissions	96.8	*17.5*	97.1	*16.8*
% with 1 SNF Admissions	2.5	*15.6*	2.2	*14.7*
% with 2+ SNF Admissions	0.7	*8.1*	0.7	*8.2*
Emergency Department (ED) Visits				
% with 0 ED Visits	79.0	*40.8*	78.9	*40.8*
% with 1 ED Visit	15.1	*35.8*	14.9	*35.6*
% with 2+ ED Visits	5.9	*23.6*	6.2	*24.1*
Evaluation and Management (E&M) Visits				
% with 0 E&M Visits	2.9	*16.7*	2.8	*16.5*
% with 1-5 E&M Visits	27.2	*44.5*	28.9	*45.3*
% with 6-10 E&M Visits	29.9	*45.8*	29.9	*45.8*
% with 11-15 E&M Visits	18.7	*39.0*	18.1	*38.5*
% with 16+ E&M Visits	21.4	*41.0*	20.3	*40.2*
Part D Utilization				
Average Number of Concurrent Medications	3.39	*2.36*	3.46	*2.36*
Costs				
Average Total Annual Part D Costs per Beneficiary	$3,173	*$10,302*	$3,182	*$10,529*
Average Total Annual Parts A and B Costs per Beneficiary	$10,447	*$19,318*	$10,700	*$18,944*
Average Annual IP Costs per Beneficiary	$2,482	*$9,083*	$2,325	*$8,414*
Average Annual IP Costs Related to ACSCs per Beneficiary	$125	*$1,374*	$120	*$1,747*
Clinical Profile				
Average HCC Risk Score	1.07	*0.95*	1.07	*0.94*

Notes: STD: standard deviation; ACSC: ambulatory care-sensitive condition; HCC: Hierarchical Condition Categories.
Sources: PDE, CWF, MBSF.

Appendix Figure B.2.1: Average Baseline Medicare Parts A and B Expenditures per Beneficiary for All Sponsors
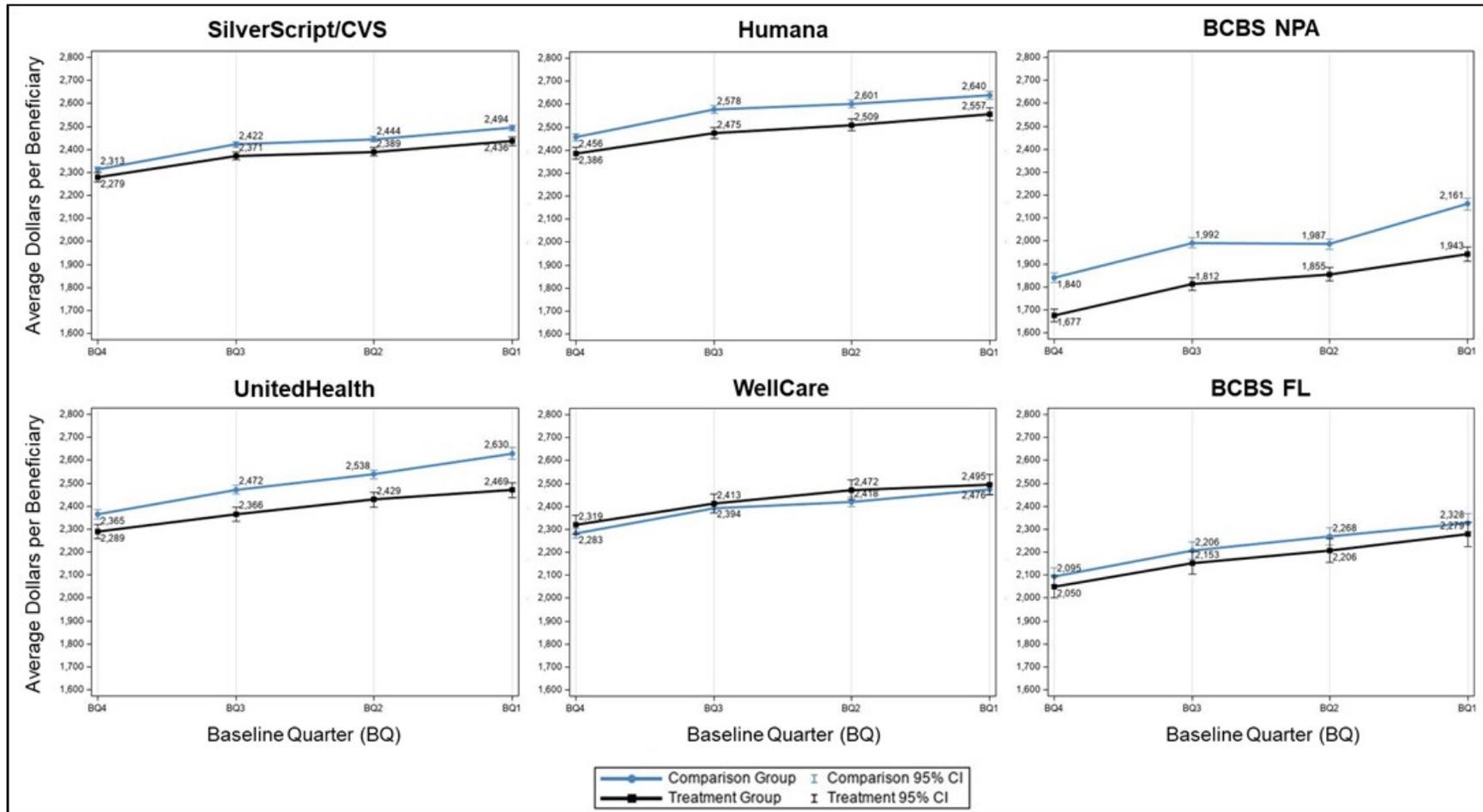
B.2.2 Outcome Measures

Appendix Table B.2.13: Expenditures Outcome Measure Definitions

Measure	Definition	Part A	Part B
Parts A and B Expenditures for All Services	Standardized Medicare payment amount in a month for total fee-for-service claims across all Common Working File (CWF) settings.	✓	✓
Expenditures of Hospital Inpatient (IP) Services	Standardized Medicare payment amount in a month for IP hospital services and physician services during hospitalization.	✓	
Expenditures of Institutional Post-Acute Care Services	Standardized Medicare payment amount in a month for post-acute care that includes services in the following settings: SNF and IP rehabilitation or long-term care hospital.	✓	
Expenditures of Emergency Department (ED) Services	Standardized Medicare payment amount in a month for emergency services that did not result in a hospital admission. Emergency services are defined by outpatient revenue center line code is 0450-0459 or 0981, or physician/carrier (PB) claim occurring with place of service=23, and include the following types: emergency evaluation & management services: procedures; laboratory, pathology, and other tests; and imaging services.		✓
Expenditures of Outpatient Non-Emergency Services	Standardized Medicare payment amount in a month for the following outpatient services where the place of service is not ED, and the service is not provided during an IP stay: outpatient evaluation & management services; major procedures; ambulatory/minor procedures; outpatient physical, occupational, or speech and language pathology therapy.		✓
Expenditures of Ancillary Services	Standardized Medicare payment amount in a month for the following outpatient services where the place of service is not emergency department, and the services are not provided during an IP stay: laboratory, pathology, and other tests; imaging services; and durable medical equipment (DME) and supplies.		✓
Hospital Inpatient Expenditures Related to Ambulatory Care-Sensitive Conditions (ACSCs)	Standardized Medicare payment amount in a month for the inpatient hospital services and physician services during hospitalization from IP claims with a primary diagnosis of one or more of the conditions of the ACSC chronic composite measure that focuses on diabetes, chronic obstructive pulmonary disease (COPD)/asthma, and heart failure. (Hospital inpatient expenditures related to ACSC COPD/asthma and ACSC heart failure were also assessed separately.)	✓	
ED Expenditures Related to ACSCs	Standardized Medicare payment amount in a month for emergency services from OP and PB claims containing at least one code indicating emergency services and with a primary diagnosis of one or more of the conditions of the ACSC chronic composite measure that focuses on diabetes, COPD/asthma, and heart failure. (ED expenditures related to COPD/asthma and ACSC heart failure were also assessed separately.)		✓

Notes: The ACSC chronic composite measure calculates risk-adjusted rates at which Medicare beneficiaries are hospitalized for an established set of chronic ACSCs (diabetes, COPD/asthma, and heart failure) that may be preventable given appropriate primary and preventative care. More information about this measure is available at https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/Downloads/2016-ACSC-MIF.pdf. The ICD-10 codes for each ACSC diagnosis group are available at: https://www.qualityindicators.ahrq.gov/Archive/PQI_TechSpec_ICD10_v2019.aspx.

Appendix Table B.2.14: Utilization Outcome Measure Definitions

Measure	Definition	Part A	Part B
Inpatient (IP) Admissions	Number of acute IP stays in a month, based on counts of unique admission dates across IP claims with provider types: critical access hospitals, IP psychiatric facilities, and general hospitals.	✓	
Inpatient Length of Stay	Number of days with acute IP stays in a month.	✓	
Skilled Nursing Facility (SNF) Admissions	Number of stays in an SNF in a month, based on counts of unique admission dates across claims in the SNF file.	✓	
SNF Length of Stay	Number of days covered by SNF stays in a month.	✓	
Emergency Department (ED) Visits	Number of visits to the ED in a month, based on counts of unique dates across outpatient claims containing at least one revenue center code indicating ED visits in that month.		✓
Outpatient (OP) 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.		✓
Evaluation and Management Visits	Number of visits in a month to a physician's office or an OP facility for evaluation and management services, based on counts of unique dates across OP and physician/carrier (PB) claims containing at least one Healthcare Common Procedure Coding System (HCPCS) Code indicating Evaluation & Management office visit.		✓
Readmissions	Follow-up unplanned hospital admissions that occur within 30 days of a hospital discharge (index hospitalization).	✓	
Inpatient Admissions Related to Ambulatory Care-Sensitive Conditions (ACSCs)	Number of acute inpatient stays in a month, based on counts of unique admission dates across IP claims with provider types: critical access hospitals, inpatient psychiatric facilities, or general hospitals, and containing a primary diagnosis of one or more of the conditions of the ACSC chronic composite measure that focuses on diabetes, COPD/asthma, and heart failure. (Inpatient admissions related to ACSC COPD/asthma and ACSC heart failure were also assessed separately.)	✓	
ED Visits Related to ACSCs	Number of visits to the ED in a month, based on counts of unique dates across OP claims containing at least one code indicating emergency services and with a primary diagnosis of one or more of the conditions of the ACSC chronic composite measure that focuses on diabetes, COPD/asthma, and heart failure. (ED visits related to ACSCs COPD/asthma and ACSC heart failure were also assessed separately.)		✓

Notes: The ACSC chronic composite measure calculates risk-adjusted rates at which Medicare beneficiaries are hospitalized for an established set of chronic ACSCs (diabetes, COPD/asthma, and heart failure) that may be preventable given appropriate primary and preventative care. More information about this measure is available at https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/Downloads/2016-ACSC-MIF.pdf. The ICD-10 codes for each ACSC diagnosis group are available at: https://www.qualityindicators.ahrq.gov/Archive/PQI_TechSpec_ICD10_v2019.aspx.

Appendix Table B.2.15: Medication Use and Patient Safety Measure Definitions

Measure	Definition	Numerator	Denominator
Adherence (Proportion of Days Covered):[a] • Statins • Oral antidiabetics	The percentage of beneficiaries who met the Proportion of Days Covered (PDC) threshold of 80% for a given drug class.	Beneficiaries who met the PDC threshold.	Beneficiaries who filled at least two prescriptions of a given drug class on different dates, are not in hospice care, and do not have end-stage renal disease (ESRD). For adherence to oral antidiabetics, beneficiaries must also not have a fill for insulin.
Statin Use in Persons with Diabetes (SUPD)[a]	The percentage of beneficiaries who were dispensed diabetes and statin medications.	Beneficiaries from the denominator with at least one fill for a statin medication.	Beneficiaries with two or more fills on different dates for any diabetes medication who are not in hospice care and do not have ESRD.
Drug-Drug Interactions (DDI)[b]	The percentage of beneficiaries who have concurrent prescriptions for which adverse effects of interactions are expected based on their pharmacological properties.	Beneficiaries in the denominator who were dispensed a concurrent precipitant medication.[c]	Beneficiaries with a prescription for a target medication during the measurement year.[c]
Use of High Risk Medications in the Elderly (HRM)[b]	The percentage of beneficiaries who have fills for a medication recommended to avoid in elderly persons.	Beneficiaries in the denominator with two or more fills for medication recommended to avoid in elderly persons on different dates.	Beneficiaries in hospice care are excluded.
Concurrent Use of Opioids with Benzodiazepines[b]	The percentage of beneficiaries with concurrent use of prescription opioids and benzodiazepines.	Beneficiaries in the denominator with two or more fills for benzodiazepines on different dates, who have concurrent use for 30 or more cumulative days.	Beneficiaries with two or more fills for opioid medications on different dates and with 15 or more cumulative days' supply who are not in hospice care, do not have cancer, and do not have sickle cell disease.

Notes: FDA: Food and Drug Administration. Adherence measures use the Proportion of Days Covered (PDC) metric. The PDC metric is defined as the proportion of days in the measurement period "covered" by the prescription claims for the same medication or another in its therapeutic category.
[a] Pharmacist Quality Alliance (PQA) measure used in Medicare Part D star ratings (reported in 2019 or later).
[b] PQA measure used as Medicare Part D display measure (reported in 2019 or later).
[c] For the Drug-Drug Interactions (DDI) measure, tables of medications categorized as target or precipitant medications are provided and maintained by PQA.

B.2.3 Difference-in-Differences (DiD) Estimation

DiD Specification for Expenditures and Utilization Outcomes

Model impacts on expenditure and utilization outcomes were estimated using a difference-in-differences (DiD) model on the matched samples of beneficiary-month observations. The DiD model was 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.

The DiD specification produced cumulative estimates of the overall impact of the Model on per-beneficiary-per-month expenditures over the first three years of Model implementation. The same specification was used to estimate impacts separately by Model Year. This specification, presented below, estimated the post-exposure difference from baseline in the outcome of interest (e.g., total Medicare Parts A and B expenditures) for treatment beneficiaries relative to controls, separately by exposure (i.e., enrollment) year, and allowed this difference to vary by Model Year. The DiD specification included month fixed effects to control for Medicare-wide shocks and trends that affect the treatment and the comparison group similarly, but vary across exposure years. Standard errors were clustered at the beneficiary level. Appendix Table B.2.16 provides descriptions of variables and coefficients.

[Specification 1]

$$y_{it} = \alpha + \sum_{j=1}^{47} \beta_{2017j}[(month_t = j) \cdot (exposure\ year_i = 2017)]$$

$$+ \sum_{j=1}^{36} \beta_{2018j}[(month_t = j) \cdot (exposure\ year_i = 2018)]$$

$$+ \sum_{j=1}^{24} \beta_{2019j}[(month_t = j) \cdot (exposure\ year_i = 2019)]$$

$$+ \sum_{k=2017}^{2019} \gamma_k[(EMTM_i = 1) \cdot (exposure\ year_i = k)]$$

$$+ \sum_{k=2017}^{2019} \sum_{m \geq k}^{2019} \delta_{km}[(post_{it} = 1) \cdot (EMTM_i = 1) \cdot (exposure\ year_i = k) \cdot (year_t = m)]_{it}$$

$$+ \epsilon_{it}$$

Appendix Table B.2.16: Variable and Coefficient Descriptions for the DiD Specification for Expenditures and Utilization Outcomes

Variable/Coefficient	Description
y_{it}	Outcome of interest (e.g., total Medicare Parts A and B expenditures) for beneficiary i in month t
$(month_t = j)$	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 (i.e., were first enrolled in Enhanced MTM plans in 2017, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2017)
$(exposure\ year_i = 2018)$	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2018 (i.e., were first enrolled in Enhanced MTM plans in 2018, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2018)
$(exposure\ year_i = 2019)$	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2019 (i.e., were first enrolled in Enhanced MTM plans in 2019, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2019)
$(EMTM_i = 1)$	An indicator variable for beneficiaries in the treatment cohort
$(post_{it} = 1)$	An indicator variable for observations corresponding to the post-exposure period
$(year_t = 2017)$	An indicator variable for observations corresponding to Model Year 1 (2017)
$(year_t = 2018)$	An indicator variable for observations corresponding to Model Year 2 (2018)
$(year_t = 2019)$	An indicator variable for observations corresponding to Model Year 3 (2019)
ϵ_{it}	An error term
α coefficient	Estimates an intercept
β coefficients	Correspond to the calendar month fixed effects and are allowed to vary across exposure years
γ coefficients	Estimate a separate intercept for treatment cohort observations, by exposure (or pseudo-exposure) year
δ coefficients	Produce DiD estimates of cumulative Model impacts on the outcome of interest relative to the baseline period, for each exposure year k and Model Year m combination. The weighted average of these coefficients produces the cumulative DiD estimate for the treatment cohort.

To produce a cumulative DiD estimate, all δ estimates (for all Model Years and each exposure years) were combined into a weighted average using the relevant count of treatment cohort post-exposure observations of each Model Year–exposure cohort combination (corresponding to each δ estimate) as numerators for the weights. The denominator of the weights was the total count of post-exposure Enhanced MTM observations.

To produce a DiD estimate for each Model Year, the estimates for that Model Year and for each exposure year were combined into a weighted average, using the relevant observation count for each exposure cohort to calculate the weights. For example, for Model Year 2, the DiD estimate was a weighted average of the δ_{1718} and δ_{1818} estimates from the specification listed above. The numerator for the weight assigned to the δ_{1718} estimate was the count of post-exposure observations in 2018 corresponding to beneficiaries with exposure year 2017 who were

treated. The numerator for the weight assigned to the δ_{1818} estimate was the count of post-exposure observations in 2018 corresponding to beneficiaries with exposure year 2018 who were treated. The denominator for these weights was the count of post-exposure observations in 2018 corresponding to beneficiaries who were treated.

DiD Specification for Readmissions, Medication Use, and Patient Safety Measures

Readmissions are defined as unplanned follow-up admissions to any acute care hospital (general acute or critical access hospital) within 30 days of initial discharge (the "index admission") from another acute care hospital. The Model's impact on the rate of readmissions (per 1,000 index admissions) was estimated with a linear probability model and a DiD specification. The unit of observation in readmissions models was an index hospital admission. Analyses of the Model's impact on readmissions used the sample of index admissions (and readmissions) from the cohort of treatment beneficiaries and their matched comparators.

The same DiD model specification that produced cumulative DiD estimates also produced estimates by Model Year. The specification for the DiD readmissions estimate, presented below, provided the post-exposure change (from baseline) in the probability that an index admission resulted in a 30-day unplanned readmission for treatment beneficiaries relative to controls, separately by exposure year, and allowed this change to differ by Model Year. Calendar year-specific fixed effects were included to control for shocks and national trends that affected both treatment and comparison beneficiaries similarly. These calendar year fixed effects were allowed to vary by year of exposure (or pseudo-exposure, for the comparison group). The DiD model also included covariates to control for baseline imbalances in the characteristics of beneficiaries who contributed index admissions to the sample. These covariates are indicator variables for age under 65, low-income subsidy (LIS) or dual-eligible status, and original Medicare entitlement category (disabled, end-stage renal disease [ESRD]). Appendix Table B.2.17 provides descriptions of variables and coefficients. Standard errors were clustered at the beneficiary level.

Cumulative estimates of Model impacts on readmissions and estimates by Model Year were derived by producing weighted averages of the δ coefficients, where the weights were based on the relevant number of treatment cohort post-exposure observations, similar to the methodology used to produce the cumulative and by Model Year expenditures and utilization estimates, discussed above. The DiD specification used to estimate Model impacts on readmissions is listed below.

[Specification 2]

$$y_{it} = \alpha + \sum_{j=2017}^{2019} \beta_{2017j} [(year = j) \cdot (exposure\ year_i = 2017)]$$

$$+ \sum_{j=2017}^{2019} \beta_{2018j} [(year = j) \cdot (exposure\ year_i = 2018)]$$

$$+ \sum_{j=2018}^{2019} \beta_{2019j} [(year = j) \cdot (exposure\ year_i = 2019)]$$

$$+ \sum_{k=2017}^{2019} \gamma_k [(EMTM_i = 1) \cdot (exposure\ year_i = k)]$$

$$+ \sum_{k=2017}^{2019} \sum_{m \geq k}^{2019} \delta_{km} [(post_{it} = 1) \cdot (EMTM_i = 1) \cdot (exposure\ year_i = k) \cdot (year_t = m)]_{it}$$

$$+ X_{it} + \epsilon_{it}$$

Appendix Table B.2.17: Variable and Coefficient Descriptions for the DiD Specification for Readmissions

Variable/Coefficient	Description
y_{it}	An indicator variable equal to 1 if the index admission has a 30-day unplanned readmission, and equal to 0 otherwise
$(exposure\ year_i = 2017)$	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2017 (i.e., were first enrolled in Enhanced MTM plans in 2017, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2017)
$(exposure\ year_i = 2018)$	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2018 (i.e., were first enrolled in Enhanced MTM plans in 2018, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2018)
$(exposure\ year_i = 2019)$	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2019 (i.e., were first enrolled in Enhanced MTM plans in 2019, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2019)
$(EMTM_i = 1)$	An indicator variable for beneficiaries in the treatment cohort
$(post_{it} = 1)$	An indicator variable for observations corresponding to the post-exposure period
$(year_t = 2017)$	An indicator variable for observations corresponding to Model Year 1 (2017)
$(year_t = 2018)$	An indicator variable for observations corresponding to Model Year 2 (2018)
$(year_t = 2019)$	An indicator variable for observations corresponding to Model Year 3 (2019)
X_{it}	Vector of covariates including indicator variables for age under 65, LIS or dual-eligible status, and original Medicare entitlement category (disabled, ESRD)
ϵ_{it}	An error term
α coefficient	Estimates an intercept
β coefficients	Estimate calendar year fixed effects that are allowed to vary across exposure (or pseudo-exposure) years
γ coefficients	Estimate a separate intercept for treatment cohort observations, by exposure year

Variable/Coefficient	Description
δ coefficients	Produce DiD estimates of cumulative Model impacts on the readmissions rate relative to the baseline period, for each Model Year m and exposure year k combination. Weighted averages of these coefficients produce the cumulative DiD estimate for the treatment cohort, and DiD estimates for each Model Year.

The specification that estimates Model impacts on medication use and patient safety measures is the same as the one that estimates Model impacts on the rate of readmissions, shown above. However, for these measures the unit of observation is a beneficiary-year. Beneficiary-years were included in analyses of a given measure if they satisfied that measure's inclusion criteria, and if there was at least one matched treatment or comparison beneficiary-year that also satisfied that measure's inclusion criteria for that given year (see Appendix Table B.2.15).[4]

For all outcomes, the DiD estimate is produced using a linear probability model. The DiD specification estimates the percentage point change in the rate of a measure (e.g., adherence to statins) over a given time period (cumulatively from Model start, or by Model Year). The dependent variable is an indicator variable equal to 1 if the inclusion criteria for the numerator of a measure are met, and equal to 0 otherwise (e.g., the dependent variable is equal to 1 if the beneficiary is adherent to statins in a given year, with adherence defined as having PDC of at least 80 percent). All DiD models include covariates that control for LIS or dual-eligible status, original Medicare entitlement category, age, and race. The DiD models were estimated separately for each sponsor and for the Model as a whole. Matching weights were applied, and standard errors were clustered at the beneficiary level. Appendix Table B.2.18 provides descriptions of variables and coefficients.

Appendix Table B.2.18: Variable and Coefficient Descriptions for the DiD Specification for Medication Use and Patient Safety Measures

Variable/Coefficient	Description
y_{it}	An indicator variable equal to 1 if the inclusion criteria for the numerator of a medication use or patient safety measure are met, and equal to 0 otherwise
(*exposure year$_i$* = 2017)	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2017 (i.e., were first enrolled in Enhanced MTM plans in 2017, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2017)
(*exposure year$_i$* = 2018)	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2018 (i.e., were first enrolled in Enhanced MTM plans in 2018, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2018)

---

[4] Based on the matches assigned to the beneficiaries on their index (or pseudo-index) month. As a robustness check, an alternative sample that additionally required beneficiaries to contribute observations both in the baseline and in the post-exposure period was also used with the same DiD specification, and produced similar findings.

Variable/Coefficient	Description
($exposure\ year_i$ = 2019)	An indicator variable for beneficiaries who first became exposed to Enhanced MTM in 2019 (i.e., were first enrolled in Enhanced MTM plans in 2019, or were in the comparison group of beneficiaries who first enrolled in Enhanced MTM plans in 2019)
($EMTM_i$ = 1)	An indicator variable for beneficiaries in the treatment cohort
($post_{it}$ = 1)	An indicator variable for observations corresponding to the post-exposure period
($year_t$ = 2017)	An indicator variable for observations corresponding to Model Year 1 (2017)
($year_t$ = 2018)	An indicator variable for observations corresponding to Model Year 2 (2018)
($year_t$ = 2019)	An indicator variable for observations corresponding to Model Year 3 (2019)
X_{it}	Vector of covariates including indicator variables for age and race categories, LIS or dual-eligible status, and original Medicare entitlement category (disabled, ESRD)
ϵ_{it}	An error term
α coefficient	Estimates an intercept
β coefficients	Estimate calendar year fixed effects that are allowed to vary across exposure (or pseudo-exposure) years
γ coefficients	Estimate a separate intercept for treatment cohort observations, by exposure year
δ coefficients	Produce DiD estimates of cumulative Model impacts on the medication use or patient safety measure relative to the baseline period, for each Model Year m and exposure year k combination. Weighted averages of these coefficients produce the cumulative DiD estimate for the treatment cohort, and DiD estimates for each Model Year.

B.2.4 Net Expenditures 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 Third 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 and all of 2021, 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 steps:

(1) **Produce the Modelwide PBPM estimates of changes in Medicare Parts A and B expenditures for each Model Year and cumulatively across all three years of the Model.** These are the Modelwide gross Medicare Parts A and B expenditures estimates presented in Section 2.3.

(2) **Produce the Modelwide average PBPM prospective payment in each Model Year and cumulatively across all three years.** For each sponsor, the monthly authorized

prospective payments are summed across the 12 months of each Model Year.[5] The Modelwide prospective payment is produced by summing across all sponsors for a given Model Year. The cumulative prospective payment is produced by summing across all three years of the Model. The yearly or cumulative prospective payment is then divided by the total number of beneficiary-months in the time period of interest to produce the average PBPM prospective payment. Prospective payments for November and December 2018 for 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.[6]

(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.[7] 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), Model Year 2 (2018), and Model Year 3 (2019) performance, the total expected amount of performance payments awarded in 2019, 2020, and 2021 is calculated, using enrollment projections.[8] 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 and 2021 are translated into a PBPM amount for Model Year 2 based on total 2018 plan enrollment and for Model Year 3 based on total 2019 plan enrollment, respectively.

(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

---

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

[6] 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.

[7] 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.

[8] Monthly enrollment is projected for plans that qualified for these payments for months where data were not yet available when this report was drafted (April 2020 through December 2020 and all of 2021). 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.

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 net expenditures for each Model Year. The value in Step 4 is multiplied by the number of total beneficiary-months in the time period of interest to produce the change in net expenditures for each year and cumulatively across the three years of Model implementation.

B.3   Supplementary Findings on Model Impacts

This section presents additional information and findings on the estimated impacts of Enhanced MTM presented in Section 2, including findings not reported in the body of the report.

- Appendix Section B.3.1 presents Model impacts on gross Medicare Parts A and B expenditures (supplementing Section 2.3 of the main report).

- Appendix Section B.3.2 presents medication use and patient safety outcomes (supplementing Section 2.5 of the main report).

- Appendix Sections B.3.3 through B.3.4 present setting-specific Medicare expenditures and health service utilization, respectively (supplementing Section 2.6 of the main report).

- Appendix Section B.3.5 presents inpatient expenditures and admissions related to the ACSC Chronic Composite Measure (supplementing Section 2.7 of the main report).

For tables in Appendix Sections B.3.1 through B.3.5, the difference-in-differences (DiD) specification is described in Appendix Section B.2.3, 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. Each estimate (Cumulative, Model Year 1, Model Year 2, and Model Year 3) corresponds to changes 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.3.1 Gross Medicare Parts A and B Expenditures

This subsection presents estimates of the Model impacts on gross Medicare Parts A and B expenditures (Section 2.3 of the main report) by individual sponsor, both cumulative and for each Model Year.

Appendix Table B.3.1: Parts A and B Expenditures, Cumulative and by Model Year, SilverScript/CVS

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per-Beneficiary Per-Month Estimate (in $)				
Difference-in-Differences	- $1.08	- $2.22	- $2.23	$1.43
P-value	0.748	0.561	0.609	0.759
95% Confidence Interval	(-7.65 , 5.49)	(-9.69 , 5.26)	(-10.77 , 6.31)	(-7.70 , 10.56)
Relative Difference	-0.12%	-0.24%	-0.25%	0.16%
Means (beneficiary-month, regression-adjusted)				
Baseline Enhanced MTM Mean	$902.47	$904.53	$900.51	$902.26
Intervention Period Enhanced MTM Mean	$1,042.26	$1,024.43	$1,045.95	$1,058.27
Baseline Comparison MTM Mean	$924.06	$930.52	$919.44	$921.80
Intervention Period Comparison MTM Mean	$1,064.94	$1,052.64	$1,067.11	$1,076.37

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.2: Parts A and B Expenditures, Cumulative and by Model Year, Humana

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per-Beneficiary Per-Month Estimate (in $)				
Difference-in-Differences	- $4.67	- $2.90	$1.41	**- $14.97***
P-value	0.411	0.651	0.855	0.063
95% Confidence Interval	(-15.81 , 6.47)	(-15.46 , 9.66)	(-13.71 , 16.52)	(-30.77 , 0.84)
Relative Difference	-0.49%	-0.30%	0.15%	-1.55%
Means (beneficiary-month, regression-adjusted)				
Baseline Enhanced MTM Mean	$960.88	$957.70	$961.76	$966.01
Intervention Period Enhanced MTM Mean	$1,054.57	$1,081.08	$1,030.55	$1,030.52
Baseline Comparison MTM Mean	$994.66	$994.54	$991.80	$998.12
Intervention Period Comparison MTM Mean	$1,093.02	$1,120.82	$1,059.18	$1,077.60

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.3: Parts A and B Expenditures, Cumulative and by Model Year, BCBS NPA

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per-Beneficiary Per-Month Estimate (in $)				
Difference-in-Differences	$4.27	$4.66	- $1.43	$9.94
P-value	0.695	0.734	0.914	0.470
95% Confidence Interval	(-17.04 , 25.57)	(-22.27 , 31.60)	(-27.15 , 24.30)	(-17.05 , 36.92)
Relative Difference	0.62%	0.68%	-0.21%	1.43%
Means (beneficiary-month, regression-adjusted)				
Baseline Enhanced MTM Mean	$692.76	$691.00	$693.40	$694.10
Intervention Period Enhanced MTM Mean	$861.28	$824.50	$865.50	$898.83
Baseline Comparison MTM Mean	$753.54	$753.38	$752.74	$754.56
Intervention Period Comparison MTM Mean	$917.78	$882.22	$926.27	$949.36

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.4: Parts A and B Expenditures, Cumulative and by Model Year, UnitedHealth

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per-Beneficiary Per-Month Estimate (in $)				
Difference-in-Differences	- $4.27	- $11.62	- $1.06	- $0.27
P-value	0.564	0.190	0.922	0.976
95% Confidence Interval	(-18.76 , 10.22)	(-29.00 , 5.77)	(-22.19 , 20.08)	(-17.69 , 17.15)
Relative Difference	-0.47%	-1.30%	-0.12%	-0.03%
Means (beneficiary-month, regression-adjusted)				
Baseline Enhanced MTM Mean	$900.35	$890.23	$891.78	$915.69
Intervention Period Enhanced MTM Mean	$1,015.86	$993.41	$1,009.69	$1,040.18
Baseline Comparison MTM Mean	$936.44	$929.76	$931.96	$945.68
Intervention Period Comparison MTM Mean	$1,056.22	$1,044.55	$1,050.92	$1,070.44

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.5: Parts A and B Expenditures, Cumulative and by Model Year, WellCare

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per-Beneficiary Per-Month Estimate (in $)				
Difference-in-Differences	- $0.09	$3.74	- $2.66	- $2.00
P-value	0.990	0.614	0.759	0.837
95% Confidence Interval	(-13.12 , 12.95)	(-10.77 , 18.24)	(-19.65 , 14.33)	(-21.06 , 17.07)
Relative Difference	-0.01%	0.41%	-0.29%	-0.22%
Means (beneficiary-month, regression-adjusted)				
Baseline Enhanced MTM Mean	$924.31	$920.54	$924.96	$928.37
Intervention Period Enhanced MTM Mean	$1,081.16	$1,053.28	$1,087.00	$1,109.91
Baseline Comparison MTM Mean	$911.17	$911.77	$908.92	$913.00
Intervention Period Comparison MTM Mean	$1,068.11	$1,040.77	$1,073.62	$1,096.54

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.6: Parts A and B Expenditures, Cumulative and by Model Year, BCBS FL

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per-Beneficiary Per-Month Estimate (in $)				
Difference-in-Differences	- $17.35	**- $45.52*****	$1.87	- $5.62
P-value	0.211	0.005	0.921	0.754
95% Confidence Interval	(-44.55 , 9.84)	(-77.26 , -13.78)	(-35.25 , 39.00)	(-40.80 , 29.57)
Relative Difference	-2.10%	-5.50%	0.23%	-0.68%
Means (beneficiary-month, regression-adjusted)				
Baseline Enhanced MTM Mean	$827.70	$827.21	$828.01	$827.94
Intervention Period Enhanced MTM Mean	$1,015.05	$959.85	$1,031.08	$1,061.26
Baseline Comparison MTM Mean	$849.52	$850.62	$849.29	$848.51
Intervention Period Comparison MTM Mean	$1,054.23	$1,028.78	$1,050.49	$1,087.45

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

B.3.2 Medication Use and Patient Safety

This subsection presents additional information and findings of the Model impacts on medication use and patient safety (supplementing Section 2.5 of the main report). Sample information and findings are presented first for the Model as a whole, and then by individual sponsor, both cumulatively and by year, in the following sequential subsections:

- Sample Information for Measures of Medication Use and Patient Safety

- Adherence

- Statin Use in Persons with Diabetes

- Drug-drug Interactions and Use of High-risk Medications

- Opioid Utilization

Sample Information for Measures of Medication Use and Patient Safety

Appendix Table B.3.7: Number and Proportion of Beneficiaries Meeting Measure Inclusion Criteria, Modelwide

	Treatment				Comparison			
	Baseline	**MY 1**	**MY 2**	**MY 3**	**Baseline**	**MY 1**	**MY 2**	**MY 3**
Total Number of Beneficiaries Included in Analyses	1,519,200	1,368,068	1,223,184	1,224,795	3,245,111	2,833,647	2,773,853	2,910,424
Adherence to Statins (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	573,061	501,778	470,165	474,949	721,196	616,560	587,809	605,634
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	37.72%	36.68%	38.44%	38.78%	22.22%	21.76%	21.19%	20.81%
Adherence to Oral Antidiabetics (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	82,187	71,591	63,675	63,367	86,239	74,680	67,908	68,043
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	5.41%	5.23%	5.21%	5.17%	2.66%	2.64%	2.45%	2.34%
Statin Use in Persons with Diabetes								
Number of Beneficiaries Meeting Measure Inclusion Criteria	114,469	98,641	88,500	83,986	130,855	111,964	102,899	97,907
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	7.53%	7.21%	7.24%	6.86%	4.03%	3.95%	3.71%	3.36%
Drug-drug Interactions								
Number of Beneficiaries Meeting Measure Inclusion Criteria	278,523	236,136	194,428	173,823	298,810	248,668	205,613	184,912
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	18.33%	17.26%	15.90%	14.19%	9.21%	8.78%	7.41%	6.35%
Use of High-risk Medications								
Number of Beneficiaries Meeting Measure Inclusion Criteria	1,108,038	965,587	887,366	881,164	2,026,331	1,673,990	1,531,847	1,556,565
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	72.94%	70.58%	72.55%	71.94%	62.44%	59.08%	55.22%	53.48%
Concurrent Use of Opioids with Benzodiazepines								
Number of Beneficiaries Meeting Measure Inclusion Criteria	165,103	132,723	93,062	74,308	208,212	162,589	114,261	89,588
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	10.87%	9.70%	7.61%	6.07%	6.42%	5.74%	4.12%	3.08%

Note: MY: Model Year; PDC: Proportion of Days Covered.

Appendix Table B.3.8: Number and Proportion of Beneficiaries Meeting Measure Inclusion Criteria, SilverScript/CVS

	Treatment				Comparison			
	Baseline	**MY 1**	**MY 2**	**MY 3**	**Baseline**	**MY 1**	**MY 2**	**MY 3**
Total Number of Beneficiaries Included in Analyses	617,342	550,353	552,784	543,711	1,600,794	1,452,457	1,433,342	1,426,192
Adherence to Statins (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	232,763	197,927	204,766	205,867	344,089	295,985	293,818	294,298
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	37.70%	35.96%	37.04%	37.86%	21.49%	20.38%	20.50%	20.64%
Adherence to Oral Antidiabetics (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	35,524	30,318	30,319	29,865	40,561	35,017	34,197	33,569
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	5.75%	5.51%	5.48%	5.49%	2.53%	2.41%	2.39%	2.35%
Statin Use in Persons with Diabetes								
Number of Beneficiaries Meeting Measure Inclusion Criteria	51,770	44,879	44,926	41,739	63,914	56,058	54,866	50,072
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	8.39%	8.15%	8.13%	7.68%	3.99%	3.86%	3.83%	3.51%
Drug-drug Interactions								
Number of Beneficiaries Meeting Measure Inclusion Criteria	107,646	88,719	81,414	72,647	133,836	111,149	96,955	85,193
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	17.44%	16.12%	14.73%	13.36%	8.36%	7.65%	6.76%	5.97%
Use of High-risk Medications								
Number of Beneficiaries Meeting Measure Inclusion Criteria	428,950	357,875	365,142	364,170	973,769	806,121	759,825	746,726
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	69.48%	65.03%	66.06%	66.98%	60.83%	55.50%	53.01%	52.36%
Concurrent Use of Opioids with Benzodiazepines								
Number of Beneficiaries Meeting Measure Inclusion Criteria	73,804	60,545	48,115	36,542	100,771	81,351	61,501	44,914
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	11.96%	11.00%	8.70%	6.72%	6.30%	5.60%	4.29%	3.15%

Note: MY: Model Year; PDC: Proportion of Days Covered.

Appendix Table B.3.9: Number and Proportion of Beneficiaries Meeting Measure Inclusion Criteria, Humana

	Treatment				Comparison			
	Baseline	**MY 1**	**MY 2**	**MY 3**	**Baseline**	**MY 1**	**MY 2**	**MY 3**
Total Number of Beneficiaries Included in Analyses	357,963	344,207	224,578	209,396	832,589	789,361	766,508	737,154
Adherence to Statins (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	113,068	104,495	75,502	73,409	150,966	136,275	116,579	114,177
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	31.59%	30.36%	33.62%	35.06%	18.13%	17.26%	15.21%	15.49%
Adherence to Oral Antidiabetics (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	18,086	16,847	10,910	10,234	18,167	16,864	12,411	11,764
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	5.05%	4.89%	4.86%	4.89%	2.18%	2.14%	1.62%	1.60%
Statin Use in Persons with Diabetes								
Number of Beneficiaries Meeting Measure Inclusion Criteria	27,306	25,367	16,972	15,167	30,276	28,074	21,511	19,044
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	7.63%	7.37%	7.56%	7.24%	3.64%	3.56%	2.81%	2.58%
Drug-drug Interactions								
Number of Beneficiaries Meeting Measure Inclusion Criteria	58,695	51,841	32,132	27,220	66,237	57,329	40,271	33,788
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	16.40%	15.06%	14.31%	13.00%	7.96%	7.26%	5.25%	4.58%
Use of High-risk Medications								
Number of Beneficiaries Meeting Measure Inclusion Criteria	221,100	203,109	143,154	134,482	469,681	416,482	351,742	325,042
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	61.77%	59.01%	63.74%	64.22%	56.41%	52.76%	45.89%	44.09%
Concurrent Use of Opioids with Benzodiazepines								
Number of Beneficiaries Meeting Measure Inclusion Criteria	45,411	38,216	19,642	14,866	56,987	46,148	26,298	19,329
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	12.69%	11.10%	8.75%	7.10%	6.84%	5.85%	3.43%	2.62%

Note: MY: Model Year; PDC: Proportion of Days Covered.

Appendix Table B.3.10: Number and Proportion of Beneficiaries Meeting Measure Inclusion Criteria, BCBS NPA

	Treatment				Comparison			
	Baseline	**MY 1**	**MY 2**	**MY 3**	**Baseline**	**MY 1**	**MY 2**	**MY 3**
Total Number of Beneficiaries Included in Analyses	174,645	170,795	163,065	153,192	290,759	280,123	271,220	260,071
Adherence to Statins (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	78,740	75,640	72,129	67,622	84,296	80,034	77,174	73,103
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	45.09%	44.29%	44.23%	44.14%	28.99%	28.57%	28.45%	28.11%
Adherence to Oral Antidiabetics (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	7,915	7,600	7,084	6,635	7,256	6,940	6,560	6,068
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	4.53%	4.45%	4.34%	4.33%	2.50%	2.48%	2.42%	2.33%
Statin Use in Persons with Diabetes								
Number of Beneficiaries Meeting Measure Inclusion Criteria	8,239	7,622	7,309	5,818	8,041	7,403	7,083	5,671
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	4.72%	4.46%	4.48%	3.80%	2.77%	2.64%	2.61%	2.18%
Drug-drug Interactions								
Number of Beneficiaries Meeting Measure Inclusion Criteria	42,161	39,208	33,451	28,152	37,529	34,306	29,432	24,759
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	24.14%	22.96%	20.51%	18.38%	12.91%	12.25%	10.85%	9.52%
Use of High-risk Medications								
Number of Beneficiaries Meeting Measure Inclusion Criteria	168,031	160,074	151,548	141,701	253,531	234,391	218,021	202,656
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	96.21%	93.72%	92.94%	92.50%	87.20%	83.67%	80.39%	77.92%
Concurrent Use of Opioids with Benzodiazepines								
Number of Beneficiaries Meeting Measure Inclusion Criteria	8,000	6,984	5,280	3,780	8,538	7,251	5,420	3,880
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	4.58%	4.09%	3.24%	2.47%	2.94%	2.59%	2.00%	1.49%

Note: MY: Model Year; PDC: Proportion of Days Covered.

Appendix Table B.3.11: Number and Proportion of Beneficiaries Meeting Measure Inclusion Criteria, UnitedHealth

	Treatment				Comparison			
	Baseline	**MY 1**	**MY 2**	**MY 3**	**Baseline**	**MY 1**	**MY 2**	**MY 3**
Total Number of Beneficiaries Included in Analyses	196,552	138,961	125,929	171,157	529,496	329,012	316,794	494,599
Adherence to Statins (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	71,914	52,487	49,283	63,382	100,719	67,232	63,085	88,464
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	36.59%	37.77%	39.14%	37.03%	19.02%	20.43%	19.91%	17.89%
Adherence to Oral Antidiabetics (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	8,854	6,106	5,350	7,442	9,888	6,436	5,760	8,316
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	4.50%	4.39%	4.25%	4.35%	1.87%	1.96%	1.82%	1.68%
Statin Use in Persons with Diabetes								
Number of Beneficiaries Meeting Measure Inclusion Criteria	13,180	7,922	7,080	10,692	16,170	9,121	8,175	13,083
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	6.71%	5.70%	5.62%	6.25%	3.05%	2.77%	2.58%	2.65%
Drug-drug Interactions								
Number of Beneficiaries Meeting Measure Inclusion Criteria	33,339	23,762	19,281	22,336	38,923	26,164	20,752	25,391
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	16.96%	17.10%	15.31%	13.05%	7.35%	7.95%	6.55%	5.13%
Use of High-risk Medications								
Number of Beneficiaries Meeting Measure Inclusion Criteria	152,834	117,706	107,435	128,265	349,739	235,808	208,066	280,097
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	77.76%	84.70%	85.31%	74.94%	66.05%	71.67%	65.68%	56.63%
Concurrent Use of Opioids with Benzodiazepines								
Number of Beneficiaries Meeting Measure Inclusion Criteria	19,075	11,438	8,176	10,334	25,105	14,077	9,798	12,930
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	9.70%	8.23%	6.49%	6.04%	4.74%	4.28%	3.09%	2.61%

Note: MY: Model Year; PDC: Proportion of Days Covered.

Appendix Table B.3.12: Number and Proportion of Beneficiaries Meeting Measure Inclusion Criteria, WellCare

	Treatment				Comparison			
	Baseline	**MY 1**	**MY 2**	**MY 3**	**Baseline**	**MY 1**	**MY 2**	**MY 3**
Total Number of Beneficiaries Included in Analyses	114,860	106,917	102,638	96,032	469,056	440,681	435,126	417,023
Adherence to Statins (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	49,191	44,652	42,981	40,383	99,501	89,410	83,894	77,290
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	42.83%	41.76%	41.88%	42.05%	21.21%	20.29%	19.28%	18.53%
Adherence to Oral Antidiabetics (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	8,883	7,937	7,374	6,726	11,616	10,393	9,467	8,578
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	7.73%	7.42%	7.18%	7.00%	2.48%	2.36%	2.18%	2.06%
Statin Use in Persons with Diabetes								
Number of Beneficiaries Meeting Measure Inclusion Criteria	10,902	9,949	9,453	8,299	15,747	14,369	13,447	11,466
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	9.49%	9.31%	9.21%	8.64%	3.36%	3.26%	3.09%	2.75%
Drug-drug Interactions								
Number of Beneficiaries Meeting Measure Inclusion Criteria	24,918	21,632	18,594	15,429	38,115	32,469	26,546	21,334
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	21.69%	20.23%	18.12%	16.07%	8.13%	7.37%	6.10%	5.12%
Use of High-risk Medications								
Number of Beneficiaries Meeting Measure Inclusion Criteria	80,895	73,012	69,174	64,579	284,557	251,244	223,194	198,190
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	70.43%	68.29%	67.40%	67.25%	60.67%	57.01%	51.29%	47.52%
Concurrent Use of Opioids with Benzodiazepines								
Number of Beneficiaries Meeting Measure Inclusion Criteria	15,388	12,488	9,628	7,270	23,587	18,660	13,584	9,772
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	13.40%	11.68%	9.38%	7.57%	5.03%	4.23%	3.12%	2.34%

Note: MY: Model Year; PDC: Proportion of Days Covered.

Appendix Table B.3.13: Number and Proportion of Beneficiaries Meeting Measure Inclusion Criteria, BCBS FL

	Treatment				Comparison			
	Baseline	**MY 1**	**MY 2**	**MY 3**	**Baseline**	**MY 1**	**MY 2**	**MY 3**
Total Number of Beneficiaries Included in Analyses	57,838	56,835	54,190	51,307	102,092	99,233	96,501	92,654
Adherence to Statins (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	27,385	26,577	25,504	24,286	30,439	29,060	27,959	26,460
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	47.35%	46.76%	47.06%	47.33%	29.82%	29.28%	28.97%	28.56%
Adherence to Oral Antidiabetics (PDC ≥ 80%)								
Number of Beneficiaries Meeting Measure Inclusion Criteria	2,925	2,783	2,638	2,465	3,002	2,833	2,645	2,473
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	5.06%	4.90%	4.87%	4.80%	2.94%	2.85%	2.74%	2.67%
Statin Use in Persons with Diabetes								
Number of Beneficiaries Meeting Measure Inclusion Criteria	3,072	2,902	2,760	2,271	3,241	3,063	2,923	2,432
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	5.31%	5.11%	5.09%	4.43%	3.17%	3.09%	3.03%	2.62%
Drug-drug Interactions								
Number of Beneficiaries Meeting Measure Inclusion Criteria	11,764	10,974	9,556	8,039	11,136	10,276	8,897	7,467
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	20.34%	19.31%	17.63%	15.67%	10.91%	10.36%	9.22%	8.06%
Use of High-risk Medications								
Number of Beneficiaries Meeting Measure Inclusion Criteria	56,228	53,811	50,913	47,967	90,596	84,397	78,242	72,357
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	97.22%	94.68%	93.95%	93.49%	88.74%	85.05%	81.08%	78.09%
Concurrent Use of Opioids with Benzodiazepines								
Number of Beneficiaries Meeting Measure Inclusion Criteria	3,425	3,052	2,221	1,516	3,628	3,227	2,368	1,592
Proportion of Beneficiaries Meeting Measure Inclusion Criteria	5.92%	5.37%	4.10%	2.95%	3.55%	3.25%	2.45%	1.72%

Note: MY: Model Year; PDC: Proportion of Days Covered.

Adherence

Appendix Table B.3.14: Adherence to Statins and Oral Antidiabetics, Cumulative and by Model Year, Modelwide

	Adherence to Statins (PDC ≥ 80%)				Adherence to Oral Antidiabetics (PDC ≥ 80%)			
	Cumulative	**MY 1**	**MY 2**	**MY 3**	**Cumulative**	**MY 1**	**MY 2**	**MY 3**
Percentage Point Change in Rate								
Difference-in-Differences	-0.14	-0.11	-0.10	**- 0.21***	**0.42***	**0.90*****	0.28	0.02
P-value	0.171	0.378	0.420	0.084	0.076	0.002	0.342	0.954
95% Confidence Interval	(-0.34 , 0.06)	(-0.35 , 0.13)	(-0.34 , 0.14)	(-0.44 , 0.03)	(-0.04 , 0.88)	(0.33 , 1.46)	(-0.30 , 0.86)	(-0.55 , 0.58)
Relative Difference	-0.17%	-0.14%	-0.13%	-0.26%	0.53%	1.14%	0.35%	0.02%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	78.95%	78.69%	78.97%	79.20%	79.01%	78.73%	79.10%	79.23%
Intervention Period Enhanced MTM Rate	83.40%	81.41%	83.88%	85.02%	83.11%	81.65%	83.40%	84.48%
Baseline Comparison MTM Rate	77.76%	77.54%	77.76%	78.00%	77.87%	77.66%	77.88%	78.09%
Intervention Period Comparison MTM Rate	82.35%	80.37%	82.76%	84.03%	81.55%	79.67%	81.90%	83.33%
Sample Information								
Total Enhanced MTM Observations	2,021,732				281,015			
Total Comparison Observations	2,533,342				297,078			
Total Enhanced MTM Beneficiaries	730,475				119,252			
Total Comparison Beneficiaries	981,520				128,059			

Notes: PDC: Proportion of Days Covered; MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.15: Adherence to Statins and Oral Antidiabetics, Cumulative and by Model Year, SilverScript/CVS

	Adherence to Statins (PDC ≥ 80%)				Adherence to Oral Antidiabetics (PDC ≥ 80%)			
	Cumulative	MY 1	MY 2	MY 3	Cumulative	MY 1	MY 2	MY 3
Percentage Point Change in Rate								
Difference-in-Differences	**- 0.57*****	**- 0.59*****	**- 0.61*****	**- 0.52*****	0.13	0.65	-0.07	-0.19
P-value	<0.001	<0.001	<0.001	0.001	0.691	0.102	0.873	0.637
95% Confidence Interval	(-0.83 , -0.32)	(-0.90 , -0.28)	(-0.92 , -0.29)	(-0.84 , -0.21)	(-0.52 , 0.79)	(-0.13 , 1.43)	(-0.87 , 0.74)	(-1.00 , 0.61)
Relative Difference	-0.73%	-0.75%	-0.77%	-0.66%	0.17%	0.83%	-0.08%	-0.25%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	78.50%	78.06%	78.51%	78.92%	78.70%	78.19%	78.76%	79.16%
Intervention Period Enhanced MTM Rate	82.34%	80.58%	82.45%	83.94%	82.31%	81.01%	82.44%	83.49%
Baseline Comparison MTM Rate	77.49%	77.12%	77.48%	77.85%	78.10%	77.79%	78.10%	78.41%
Intervention Period Comparison MTM Rate	81.90%	80.22%	82.02%	83.39%	81.57%	79.95%	81.84%	82.93%
Sample Information								
Total Enhanced MTM Observations	842,385				126,143			
Total Comparison Observations	1,229,436				143,476			
Total Enhanced MTM Beneficiaries	299,841				52,296			
Total Comparison Beneficiaries	475,609				61,382			

Notes: PDC: Proportion of Days Covered; MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.16: Adherence to Statins and Oral Antidiabetics, Cumulative and by Model Year, Humana

	Adherence to Statins (PDC ≥ 80%)				Adherence to Oral Antidiabetics (PDC ≥ 80%)			
	Cumulative	MY 1	MY 2	MY 3	Cumulative	MY 1	MY 2	MY 3
Percentage Point Change in Rate								
Difference-in-Differences	0.37	**0.67****	0.45	-0.14	0.33	0.52	0.33	0.02
P-value	0.105	0.014	0.101	0.599	0.548	0.417	0.639	0.975
95% Confidence Interval	(-0.08 , 0.81)	(0.13 , 1.20)	(-0.09 , 0.98)	(-0.68 , 0.39)	(-0.74 , 1.40)	(-0.73 , 1.76)	(-1.04 , 1.69)	(-1.35 , 1.39)
Relative Difference	0.49%	0.90%	0.60%	-0.19%	0.43%	0.68%	0.43%	0.03%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	75.07%	74.68%	75.15%	75.53%	75.81%	75.46%	75.95%	76.25%
Intervention Period Enhanced MTM Rate	81.31%	78.18%	82.85%	84.17%	80.88%	78.61%	81.62%	83.85%
Baseline Comparison MTM Rate	73.50%	73.19%	73.52%	73.92%	73.36%	73.03%	73.41%	73.84%
Intervention Period Comparison MTM Rate	79.37%	76.02%	80.77%	82.71%	78.10%	75.67%	78.76%	81.41%
Sample Information								
Total Enhanced MTM Observations	366,703				56,110			
Total Comparison Observations	518,305				59,240			
Total Enhanced MTM Beneficiaries	147,483				26,138			
Total Comparison Beneficiaries	212,870				27,284			

Notes: PDC: Proportion of Days Covered; MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.17: Adherence to Statins and Oral Antidiabetics, Cumulative and by Model Year, BCBS NPA

	Adherence to Statins (PDC ≥ 80%)				Adherence to Oral Antidiabetics (PDC ≥ 80%)			
	Cumulative	MY 1	MY 2	MY 3	Cumulative	MY 1	MY 2	MY 3
Percentage Point Change in Rate								
Difference-in-Differences	0.09	-0.14	0.52	-0.10	0.62	1.46	0.27	0.04
P-value	0.749	0.705	0.130	0.779	0.377	0.131	0.749	0.965
95% Confidence Interval	(-0.48 , 0.67)	(-0.88 , 0.59)	(-0.15 , 1.20)	(-0.82 , 0.61)	(-0.76 , 2.01)	(-0.44 , 3.37)	(-1.38 , 1.92)	(-1.61 , 1.69)
Relative Difference	0.11%	-0.16%	0.61%	-0.12%	0.71%	1.67%	0.31%	0.04%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	86.20%	86.18%	86.21%	86.21%	87.88%	87.87%	87.87%	87.90%
Intervention Period Enhanced MTM Rate	88.98%	88.10%	89.27%	89.66%	89.45%	89.36%	89.34%	89.66%
Baseline Comparison MTM Rate	84.38%	84.34%	84.40%	84.41%	86.06%	86.01%	86.08%	86.09%
Intervention Period Comparison MTM Rate	87.07%	86.41%	86.94%	87.96%	87.00%	86.03%	87.28%	87.82%
Sample Information								
Total Enhanced MTM Observations	294,181				29,238			
Total Comparison Observations	314,676				26,828			
Total Enhanced MTM Beneficiaries	95,667				11,316			
Total Comparison Beneficiaries	108,942				10,494			

Notes: PDC: Proportion of Days Covered; MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.18: Adherence to Statins and Oral Antidiabetics, Cumulative and by Model Year, UnitedHealth

	Adherence to Statins (PDC ≥ 80%)				Adherence to Oral Antidiabetics (PDC ≥ 80%)			
	Cumulative	MY 1	MY 2	MY 3	Cumulative	MY 1	MY 2	MY 3
Percentage Point Change in Rate								
Difference-in-Differences	0.10	0.37	-0.23	0.13	**1.86****	**2.63****	**2.03***	1.11
P-value	0.748	0.369	0.558	0.688	0.015	0.010	0.057	0.186
95% Confidence Interval	(-0.50 , 0.69)	(-0.43 , 1.16)	(-1.00 , 0.54)	(-0.50 , 0.76)	(0.36 , 3.37)	(0.62 , 4.64)	(-0.06 , 4.12)	(-0.54 , 2.77)
Relative Difference	0.12%	0.47%	-0.30%	0.17%	2.42%	3.41%	2.63%	1.45%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	77.67%	77.50%	77.57%	77.88%	77.06%	77.18%	77.21%	76.84%
Intervention Period Enhanced MTM Rate	82.61%	80.56%	82.98%	84.03%	82.92%	81.82%	83.57%	83.35%
Baseline Comparison MTM Rate	76.93%	76.74%	76.81%	77.19%	77.11%	77.02%	77.03%	77.26%
Intervention Period Comparison MTM Rate	81.78%	79.45%	82.44%	83.20%	81.11%	79.03%	81.35%	82.65%
Sample Information								
Total Enhanced MTM Observations	237,269				29,766			
Total Comparison Observations	319,766				30,415			
Total Enhanced MTM Beneficiaries	91,515				12,791			
Total Comparison Beneficiaries	136,359				14,428			

Notes: PDC: Proportion of Days Covered; MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.19: Adherence to Statins and Oral Antidiabetics, Cumulative and by Model Year, WellCare

	Adherence to Statins (PDC ≥ 80%)				Adherence to Oral Antidiabetics (PDC ≥ 80%)			
	Cumulative	MY 1	MY 2	MY 3	Cumulative	MY 1	MY 2	MY 3
Percentage Point Change in Rate								
Difference-in-Differences	0.31	0.17	0.30	0.46	0.69	**1.20***	0.56	0.21
P-value	0.213	0.551	0.324	0.132	0.269	0.096	0.468	0.788
95% Confidence Interval	(-0.18 , 0.79)	(-0.40 , 0.75)	(-0.29 , 0.89)	(-0.14 , 1.07)	(-0.53 , 1.90)	(-0.21 , 2.62)	(-0.95 , 2.07)	(-1.34 , 1.76)
Relative Difference	0.39%	0.22%	0.38%	0.58%	0.86%	1.52%	0.71%	0.27%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	79.24%	79.01%	79.30%	79.43%	79.39%	79.26%	79.42%	79.51%
Intervention Period Enhanced MTM Rate	83.49%	81.93%	83.72%	84.97%	83.59%	82.60%	83.47%	84.88%
Baseline Comparison MTM Rate	78.16%	77.98%	78.19%	78.32%	78.54%	78.50%	78.53%	78.58%
Intervention Period Comparison MTM Rate	82.10%	80.72%	82.32%	83.40%	82.05%	80.63%	82.02%	83.74%
Sample Information								
Total Enhanced MTM Observations	177,403				30,943			
Total Comparison Observations	350,355				40,077			
Total Enhanced MTM Beneficiaries	61,859				12,398			
Total Comparison Beneficiaries	136,711				16,953			

Notes: PDC: Proportion of Days Covered; MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.20: Adherence to Statins and Oral Antidiabetics, Cumulative and by Model Year, BCBS FL

	Adherence to Statins (PDC ≥ 80%)				Adherence to Oral Antidiabetics (PDC ≥ 80%)			
	Cumulative	MY 1	MY 2	MY 3	Cumulative	MY 1	MY 2	MY 3
Percentage Point Change in Rate								
Difference-in-Differences	0.07	-0.99	0.57	0.71	1.13	-0.41	2.18	1.73
P-value	0.906	0.141	0.431	0.279	0.351	0.762	0.152	0.255
95% Confidence Interval	(-1.09 , 1.23)	(-2.31 , 0.33)	(-0.85 , 1.99)	(-0.57 , 1.99)	(-1.24 , 3.49)	(-3.07 , 2.25)	(-0.80 , 5.16)	(-1.25 , 4.71)
Relative Difference	0.09%	-1.24%	0.71%	0.88%	1.38%	-0.50%	2.67%	2.12%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	79.79%	79.70%	79.82%	79.86%	81.63%	81.49%	81.67%	81.73%
Intervention Period Enhanced MTM Rate	84.50%	82.00%	85.09%	86.63%	85.15%	82.86%	85.25%	87.63%
Baseline Comparison MTM Rate	79.43%	79.39%	79.43%	79.47%	80.49%	80.41%	80.51%	80.55%
Intervention Period Comparison MTM Rate	84.08%	82.68%	84.14%	85.54%	82.89%	82.19%	81.91%	84.72%
Sample Information								
Total Enhanced MTM Observations	103,791				10,815			
Total Comparison Observations	113,972				10,958			
Total Enhanced MTM Beneficiaries	34,110				4,313			
Total Comparison Beneficiaries	40,399				4,413			

Notes: PDC: Proportion of Days Covered; MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Statin Use in Persons with Diabetes

Appendix Table B.3.21: Statin Use in Persons with Diabetes, Cumulative and by Model Year, Modelwide

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	**0.49*****	**0.48*****	**0.76*****	0.20
P-value	0.006	0.010	0.001	0.389
95% Confidence Interval	(0.14 , 0.84)	(0.12 , 0.85)	(0.33 , 1.20)	(-0.26 , 0.66)
Relative Difference	0.65%	0.65%	1.02%	0.27%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	74.72%	74.57%	74.69%	74.94%
Intervention Period Enhanced MTM Rate	78.25%	76.60%	78.69%	79.72%
Baseline Comparison MTM Rate	74.75%	74.70%	74.75%	74.79%
Intervention Period Comparison MTM Rate	77.78%	76.26%	77.98%	79.37%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 386,259 (150,059 beneficiaries). Number of comparison observations: 444,368 (176,253 beneficiaries).

Appendix Table B.3.22: Statin Use in Persons with Diabetes, Cumulative and by Model Year, SilverScript/CVS

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	0.09	0.38	0.18	-0.32
P-value	0.727	0.148	0.550	0.310
95% Confidence Interval	(-0.39 , 0.57)	(-0.13 , 0.88)	(-0.41 , 0.76)	(-0.95 , 0.30)
Relative Difference	0.11%	0.50%	0.24%	-0.43%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	74.81%	74.66%	74.81%	74.98%
Intervention Period Enhanced MTM Rate	78.17%	76.75%	78.43%	79.41%
Baseline Comparison MTM Rate	74.43%	74.35%	74.41%	74.54%
Intervention Period Comparison MTM Rate	77.70%	76.05%	77.84%	79.30%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 183,675 (68,254 beneficiaries). Number of comparison observations: 225,319 (86,968 beneficiaries).

Appendix Table B.3.23: Statin Use in Persons with Diabetes, Cumulative and by Model Year, Humana

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	**1.35***	**0.83****	**1.92***	**1.58***
P-value	<0.001	0.034	<0.001	0.003
95% Confidence Interval	(0.60 , 2.10)	(0.06 , 1.60)	(0.94 , 2.89)	(0.54 , 2.63)
Relative Difference	1.84%	1.14%	2.62%	2.16%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	73.25%	73.15%	73.26%	73.40%
Intervention Period Enhanced MTM Rate	77.19%	75.20%	78.05%	79.55%
Baseline Comparison MTM Rate	74.07%	74.03%	74.07%	74.16%
Intervention Period Comparison MTM Rate	76.67%	75.25%	76.94%	78.73%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 84,936 (35,637 beneficiaries). Number of comparison observations: 99,044 (41,202 beneficiaries).

Appendix Table B.3.24: Statin Use in Persons with Diabetes, Cumulative and by Model Year, BCBS NPA

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	0.49	0.07	0.93	0.49
P-value	0.499	0.910	0.309	0.654
95% Confidence Interval	(-0.94 , 1.92)	(-1.21 , 1.36)	(-0.86 , 2.73)	(-1.65 , 2.63)
Relative Difference	0.63%	0.10%	1.20%	0.63%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	77.70%	77.67%	77.74%	77.68%
Intervention Period Enhanced MTM Rate	80.49%	79.48%	80.52%	81.78%
Baseline Comparison MTM Rate	78.02%	78.00%	78.04%	78.03%
Intervention Period Comparison MTM Rate	80.32%	79.74%	79.88%	81.64%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 29,003 (10,674 beneficiaries). Number of comparison observations: 28,215 (10,570 beneficiaries).

Appendix Table B.3.25: Statin Use in Persons with Diabetes, Cumulative and by Model Year, UnitedHealth

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	0.30	0.72	0.81	-0.35
P-value	0.582	0.287	0.291	0.571
95% Confidence Interval	(-0.77 , 1.36)	(-0.60 , 2.03)	(-0.70 , 2.32)	(-1.56 , 0.86)
Relative Difference	0.40%	0.98%	1.11%	-0.47%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	74.05%	73.28%	73.42%	75.05%
Intervention Period Enhanced MTM Rate	77.02%	75.08%	77.49%	78.15%
Baseline Comparison MTM Rate	74.04%	73.98%	74.05%	74.09%
Intervention Period Comparison MTM Rate	76.71%	75.06%	77.30%	77.54%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 38,935 (17,083 beneficiaries). Number of comparison observations: 46,619 (21,282 beneficiaries).

Appendix Table B.3.26: Statin Use in Persons with Diabetes, Cumulative and by Model Year, WellCare

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	0.22	0.26	0.46	-0.11
P-value	0.656	0.611	0.443	0.875
95% Confidence Interval	(-0.75 , 1.19)	(-0.75 , 1.27)	(-0.72 , 1.65)	(-1.42 , 1.21)
Relative Difference	0.29%	0.34%	0.61%	-0.14%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	76.09%	76.02%	76.11%	76.16%
Intervention Period Enhanced MTM Rate	79.68%	78.10%	79.95%	81.25%
Baseline Comparison MTM Rate	75.49%	75.51%	75.50%	75.45%
Intervention Period Comparison MTM Rate	78.85%	77.33%	78.88%	80.65%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 38,696 (14,278 beneficiaries). Number of comparison observations: 55,137 (21,568 beneficiaries).

Appendix Table B.3.27: Statin Use in Persons with Diabetes, Cumulative and by Model Year, BCBS FL

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	1.05	0.33	1.77	1.10
P-value	0.322	0.762	0.162	0.430
95% Confidence Interval	(-1.03 , 3.13)	(-1.82 , 2.48)	(-0.71 , 4.24)	(-1.63 , 3.83)
Relative Difference	1.39%	0.44%	2.33%	1.45%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	75.61%	75.60%	75.61%	75.63%
Intervention Period Enhanced MTM Rate	80.39%	78.05%	80.76%	82.92%
Baseline Comparison MTM Rate	76.64%	76.55%	76.68%	76.70%
Intervention Period Comparison MTM Rate	80.36%	78.67%	80.06%	82.89%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 11,014 (4,133 beneficiaries). Number of comparison observations: 11,669 (4,444 beneficiaries).

Drug-drug Interactions and Use of High-risk Medications

Appendix Table B.3.28: Drug-drug Interactions and Use of High-risk Medications, Cumulative and by Model Year, Modelwide

	Drug-drug Interactions				Use of High-risk Medications			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate								
Difference-in-Differences	**0.35***	**0.28***	**0.38***	**0.43***	0.05	**0.22***	-0.09	-0.01
P-value	<0.001	0.002	<0.001	<0.001	0.336	<0.001	0.116	0.899
95% Confidence Interval	(0.20 , 0.50)	(0.10 , 0.45)	(0.19 , 0.57)	(0.23 , 0.63)	(-0.05 , 0.14)	(0.12 , 0.32)	(-0.21 , 0.02)	(-0.12 , 0.11)
Relative Difference	8.54%	6.67%	9.23%	10.32%	0.33%	1.65%	-0.69%	-0.05%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	4.13%	4.13%	4.12%	4.13%	13.59%	13.49%	13.58%	13.70%
Intervention Period Enhanced MTM Rate	4.14%	4.39%	4.12%	3.84%	13.67%	13.95%	13.53%	13.49%
Baseline Comparison MTM Rate	4.65%	4.67%	4.65%	4.63%	14.19%	14.18%	14.15%	14.24%
Intervention Period Comparison MTM Rate	4.32%	4.66%	4.27%	3.91%	14.22%	14.41%	14.20%	14.04%
Sample Information								
Total Enhanced MTM Observations	884,922				3,863,433			
Total Comparison Observations	940,300				6,830,083			
Total Enhanced MTM Beneficiaries	380,475				1,120,610			
Total Comparison Beneficiaries	426,028				2,040,237			

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.29: Drug-drug Interactions and Use of High-risk Medications, Cumulative and by Model Year, SilverScript/CVS

	Drug-drug Interactions				Use of High-risk Medications			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate								
Difference-in-Differences	**0.27***	0.16	**0.41***	**0.23***	**0.21***	**0.42***	**0.25***	-0.04
P-value	0.010	0.199	0.002	0.081	<0.001	<0.001	0.001	0.615
95% Confidence Interval	(0.06 , 0.47)	(-0.08 , 0.40)	(0.15 , 0.67)	(-0.03 , 0.50)	(0.10 , 0.32)	(0.30 , 0.55)	(0.11 , 0.39)	(-0.19 , 0.11)
Relative Difference	5.95%	3.53%	9.18%	5.33%	1.53%	3.08%	1.82%	-0.29%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	4.47%	4.53%	4.47%	4.40%	13.71%	13.74%	13.72%	13.67%
Intervention Period Enhanced MTM Rate	4.44%	4.74%	4.48%	4.01%	14.06%	14.36%	14.14%	13.68%
Baseline Comparison MTM Rate	4.84%	4.90%	4.83%	4.78%	14.00%	14.07%	13.97%	13.94%
Intervention Period Comparison MTM Rate	4.54%	4.96%	4.43%	4.15%	14.14%	14.27%	14.14%	14.00%
Sample Information								
Total Enhanced MTM Observations	351,526				1,528,725			
Total Comparison Observations	428,366				3,309,825			
Total Enhanced MTM Beneficiaries	151,607				435,537			
Total Comparison Beneficiaries	196,783				981,254			

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.30: Drug-drug Interactions and Use of High-risk Medications, Cumulative and by Model Year, Humana

	Drug-drug Interactions				Use of High-risk Medications			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate								
Difference-in-Differences	**0.26***	0.13	0.28	**0.47****	**0.80*****	**1.26*****	**0.54*****	**0.36*****
P-value	0.085	0.460	0.137	0.021	<0.001	<0.001	<0.001	0.009
95% Confidence Interval	(-0.04 , 0.55)	(-0.21 , 0.47)	(-0.09 , 0.66)	(0.07 , 0.86)	(0.60 , 0.99)	(1.05 , 1.47)	(0.29 , 0.80)	(0.09 , 0.63)
Relative Difference	6.70%	3.38%	7.46%	11.92%	5.35%	8.64%	3.62%	2.36%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	3.82%	3.77%	3.82%	3.92%	14.89%	14.62%	14.99%	15.19%
Intervention Period Enhanced MTM Rate	3.53%	3.71%	3.39%	3.37%	15.74%	16.18%	15.47%	15.37%
Baseline Comparison MTM Rate	4.87%	4.85%	4.86%	4.92%	15.17%	15.06%	15.15%	15.37%
Intervention Period Comparison MTM Rate	4.32%	4.66%	4.14%	3.90%	15.23%	15.35%	15.09%	15.18%
Sample Information								
Total Enhanced MTM Observations	170,175				704,439			
Total Comparison Observations	197,976				1,569,115			
Total Enhanced MTM Beneficiaries	80,176				223,742			
Total Comparison Beneficiaries	95,121				472,660			

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.31: Drug-drug Interactions and Use of High-risk Medications, Cumulative and by Model Year, BCBS NPA

	Drug-drug Interactions				Use of High-risk Medications			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate								
Difference-in-Differences	**0.47***	**0.56***	0.10	**0.79****	-0.10	**- 0.27***	**- 0.39****	**0.40****
P-value	0.069	0.068	0.760	0.033	0.455	0.071	0.025	0.015
95% Confidence Interval	(-0.04 , 0.98)	(-0.04 , 1.16)	(-0.55 , 0.76)	(0.06 , 1.51)	(-0.37 , 0.17)	(-0.56 , 0.02)	(-0.73 , -0.05)	(0.08 , 0.72)
Relative Difference	12.48%	14.84%	2.69%	20.85%	-1.03%	-2.73%	-3.96%	4.00%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	3.78%	3.77%	3.79%	3.78%	9.90%	9.87%	9.91%	9.91%
Intervention Period Enhanced MTM Rate	3.91%	4.22%	3.81%	3.61%	9.54%	9.54%	9.36%	9.74%
Baseline Comparison MTM Rate	4.30%	4.30%	4.30%	4.29%	12.18%	12.18%	12.18%	12.18%
Intervention Period Comparison MTM Rate	3.96%	4.19%	4.22%	3.33%	11.93%	12.12%	12.02%	11.61%
Sample Information								
Total Enhanced MTM Observations	143,052				622,071			
Total Comparison Observations	126,136				910,707			
Total Enhanced MTM Beneficiaries	53,446				168,818			
Total Comparison Beneficiaries	49,923				254,431			

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.32: Drug-drug Interactions and Use of High-risk Medications, Cumulative and by Model Year, UnitedHealth

	Drug-drug Interactions				Use of High-risk Medications			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate								
Difference-in-Differences	0.34	**0.47***	0.42	0.14	**- 0.46*****	**- 0.45****	**- 0.54*****	**- 0.41****
P-value	0.103	0.073	0.158	0.570	0.002	0.014	0.009	0.012
95% Confidence Interval	(-0.07 , 0.75)	(-0.04 , 0.97)	(-0.16 , 1.00)	(-0.34 , 0.62)	(-0.76 , -0.17)	(-0.80 , -0.09)	(-0.94 , -0.14)	(-0.73 , -0.09)
Relative Difference	7.70%	10.62%	9.55%	3.11%	-2.87%	-2.79%	-3.39%	-2.52%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	4.41%	4.38%	4.37%	4.49%	16.06%	15.98%	15.96%	16.21%
Intervention Period Enhanced MTM Rate	4.53%	4.85%	4.50%	4.20%	15.78%	16.12%	15.68%	15.53%
Baseline Comparison MTM Rate	4.42%	4.44%	4.44%	4.38%	15.95%	15.97%	15.93%	15.96%
Intervention Period Comparison MTM Rate	4.19%	4.45%	4.15%	3.95%	16.13%	16.56%	16.19%	15.69%
Sample Information								
Total Enhanced MTM Observations	98,968				509,158			
Total Comparison Observations	111,529				1,080,810			
Total Enhanced MTM Beneficiaries	45,329				153,865			
Total Comparison Beneficiaries	54,571				350,876			

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.33: Drug-drug Interactions and Use of High-risk Medications, Cumulative and by Model Year, WellCare

	Drug-drug Interactions				Use of High-risk Medications			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate								
Difference-in-Differences	**0.41****	0.20	0.38	**0.75*****	**- 0.54*****	**- 0.79*****	**- 0.83*****	0.04
P-value	0.032	0.384	0.117	0.004	<0.001	<0.001	<0.001	0.796
95% Confidence Interval	(0.04 , 0.79)	(-0.25 , 0.65)	(-0.10 , 0.86)	(0.23 , 1.26)	(-0.77 , -0.32)	(-1.02 , -0.57)	(-1.10 , -0.55)	(-0.27 , 0.36)
Relative Difference	9.96%	4.81%	9.25%	18.13%	-3.91%	-5.75%	-5.92%	0.30%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	4.14%	4.15%	4.15%	4.11%	13.89%	13.78%	13.96%	13.93%
Intervention Period Enhanced MTM Rate	4.32%	4.58%	4.23%	4.06%	13.58%	13.19%	13.39%	14.21%
Baseline Comparison MTM Rate	4.61%	4.59%	4.61%	4.62%	14.52%	14.48%	14.54%	14.54%
Intervention Period Comparison MTM Rate	4.37%	4.82%	4.31%	3.83%	14.75%	14.69%	14.79%	14.78%
Sample Information								
Total Enhanced MTM Observations	80,823				289,581			
Total Comparison Observations	118,773				961,999			
Total Enhanced MTM Beneficiaries	33,634				82,294			
Total Comparison Beneficiaries	54,507				286,257			

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Appendix Table B.3.34: Drug-drug Interactions and Use of High-risk Medications, Cumulative and by Model Year, BCBS FL

	Drug-drug Interactions				Use of High-risk Medications			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate								
Difference-in-Differences	0.53	0.67	0.67	0.18	**- 1.07***	**- 0.80***	**- 1.33***	**- 1.08***
P-value	0.201	0.101	0.218	0.779	<0.001	0.001	<0.001	<0.001
95% Confidence Interval	(-0.28 , 1.35)	(-0.13 , 1.47)	(-0.4 , 1.73)	(-1.07 , 1.43)	(-1.48 , -0.65)	(-1.26 , -0.35)	(-1.86 , -0.8)	(-1.65 , -0.5)
Relative Difference	16.84%	21.20%	21.19%	5.69%	-8.57%	-6.46%	-10.71%	-8.67%
Rates (regression-adjusted)								
Baseline Enhanced MTM Rate	3.16%	3.16%	3.16%	3.15%	12.44%	12.44%	12.44%	12.43%
Intervention Period Enhanced MTM Rate	3.64%	3.91%	3.61%	3.30%	11.79%	12.22%	11.73%	11.37%
Baseline Comparison MTM Rate	3.95%	3.92%	3.96%	3.96%	13.02%	13.03%	13.03%	13.01%
Intervention Period Comparison MTM Rate	3.89%	3.99%	3.75%	3.93%	13.44%	13.61%	13.65%	13.03%
Sample Information								
Total Enhanced MTM Observations	40,378				209,459			
Total Comparison Observations	37,834				326,953			
Total Enhanced MTM Beneficiaries	16,283				56,354			
Total Comparison Beneficiaries	16,059				90,747			

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year.

Opioid Utilization

Appendix Table B.3.35: Concurrent Use of Opioids with Benzodiazepines, Cumulative and by Model Year, Modelwide

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	**1.20***	**1.22***	**1.20***	**1.17***
P-value	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(0.88 , 1.52)	(0.88 , 1.56)	(0.78 , 1.62)	(0.70 , 1.63)
Relative Difference	4.10%	4.15%	4.09%	4.03%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	29.27%	29.42%	29.32%	28.94%
Intervention Period Enhanced MTM Rate	27.91%	29.79%	27.69%	24.83%
Baseline Comparison MTM Rate	29.18%	29.36%	29.21%	28.82%
Intervention Period Comparison MTM Rate	26.62%	28.51%	26.38%	23.55%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 466,192 (235,238 beneficiaries). Number of comparison observations: 575,835 (301,403 beneficiaries).

Appendix Table B.3.36: Concurrent Use of Opioids with Benzodiazepines, Cumulative and by Model Year, SilverScript/CVS

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	**0.94***	**0.71***	**0.96***	**1.31***
P-value	<0.001	0.003	0.001	<0.001
95% Confidence Interval	(0.50 , 1.39)	(0.24 , 1.18)	(0.40 , 1.53)	(0.65 , 1.96)
Relative Difference	3.17%	2.36%	3.27%	4.41%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	29.25%	29.41%	29.20%	29.07%
Intervention Period Enhanced MTM Rate	28.07%	29.76%	27.99%	25.37%
Baseline Comparison MTM Rate	29.39%	29.56%	29.36%	29.15%
Intervention Period Comparison MTM Rate	27.26%	29.20%	27.19%	24.15%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 219,494 (105,210 beneficiaries). Number of comparison observations: 289,107 (147,521 beneficiaries).

Appendix Table B.3.37: Concurrent Use of Opioids with Benzodiazepines, Cumulative and by Model Year, Humana

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	**1.65***	**2.07***	**1.14****	**1.22****
P-value	<0.001	<0.001	0.014	0.018
95% Confidence Interval	(1.02 , 2.27)	(1.42 , 2.72)	(0.23 , 2.04)	(0.21 , 2.24)
Relative Difference	5.19%	6.53%	3.58%	3.87%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	31.68%	31.71%	31.69%	31.60%
Intervention Period Enhanced MTM Rate	29.81%	31.98%	28.63%	25.80%
Baseline Comparison MTM Rate	31.33%	31.40%	31.25%	31.24%
Intervention Period Comparison MTM Rate	27.81%	29.60%	27.06%	24.22%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 118,361 (61,876 beneficiaries). Number of comparison observations: 149,041 (79,984 beneficiaries).

Appendix Table B.3.38: Concurrent Use of Opioids with Benzodiazepines, Cumulative and by Model Year, BCBS NPA

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	0.63	0.29	0.91	0.88
P-value	0.452	0.764	0.347	0.433
95% Confidence Interval	(-1.01 , 2.27)	(-1.58 , 2.15)	(-0.99 , 2.81)	(-1.31 , 3.07)
Relative Difference	3.84%	1.75%	5.52%	5.30%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	16.42%	16.29%	16.51%	16.54%
Intervention Period Enhanced MTM Rate	15.66%	16.23%	15.86%	14.34%
Baseline Comparison MTM Rate	19.74%	19.73%	19.74%	19.77%
Intervention Period Comparison MTM Rate	18.35%	19.38%	18.17%	16.69%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 24,060 (14,035 beneficiaries). Number of comparison observations: 25,109 (14,726 beneficiaries).

Appendix Table B.3.39: Concurrent Use of Opioids with Benzodiazepines, Cumulative and by Model Year, UnitedHealth

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	**1.38***	**1.27**	**2.72***	0.44
P-value	0.006	0.039	<0.001	0.469
95% Confidence Interval	(0.39 , 2.37)	(0.07 , 2.47)	(1.25 , 4.19)	(-0.75 , 1.64)
Relative Difference	4.32%	3.81%	8.19%	1.51%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	31.88%	33.28%	33.18%	29.30%
Intervention Period Enhanced MTM Rate	30.24%	32.91%	32.05%	25.85%
Baseline Comparison MTM Rate	29.21%	30.15%	30.00%	27.54%
Intervention Period Comparison MTM Rate	26.19%	28.52%	26.15%	23.64%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 49,116 (26,716 beneficiaries). Number of comparison observations: 62,022 (35,441 beneficiaries).

Appendix Table B.3.40: Concurrent Use of Opioids with Benzodiazepines, Cumulative and by Model Year, WellCare

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	-0.10	-0.35	0.01	0.20
P-value	0.837	0.479	0.984	0.777
95% Confidence Interval	(-1.02 , 0.83)	(-1.33 , 0.63)	(-1.19 , 1.21)	(-1.18 , 1.58)
Relative Difference	-0.33%	-1.20%	0.04%	0.68%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	29.45%	29.45%	29.48%	29.42%
Intervention Period Enhanced MTM Rate	27.36%	29.13%	27.41%	24.26%
Baseline Comparison MTM Rate	28.81%	28.87%	28.79%	28.74%
Intervention Period Comparison MTM Rate	26.82%	28.90%	26.71%	23.39%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 44,944 (21,715 beneficiaries). Number of comparison observations: 65,837 (34,807 beneficiaries).

Appendix Table B.3.41: Concurrent Use of Opioids with Benzodiazepines, Cumulative and by Model Year, BCBS FL

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Percentage Point Change in Rate				
Difference-in-Differences	**9.47*****	**9.59*****	**8.89*****	**10.05*****
P-value	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(7.31 , 11.62)	(7.41 , 11.77)	(6.02 , 11.76)	(6.64 , 13.46)
Relative Difference	61.32%	62.39%	57.35%	65.04%
Rates (regression-adjusted)				
Baseline Enhanced MTM Rate	15.44%	15.38%	15.50%	15.45%
Intervention Period Enhanced MTM Rate	25.15%	24.98%	25.84%	24.47%
Baseline Comparison MTM Rate	20.21%	20.22%	20.16%	20.23%
Intervention Period Comparison MTM Rate	20.45%	20.23%	21.61%	19.20%

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-year. Number of Enhanced MTM observations: 10,217 (5,686 beneficiaries). Number of comparison observations: 10,823 (6,061 beneficiaries).

B.3.3 Setting-specific Medicare Expenditures

This subsection presents the Model impacts on Medicare expenditures by service delivery setting (supplementing Section 2.6 of the main report), first for the cumulative time period and then for each Model Year separately. Cumulative expenditures by setting for the Model as a whole are presented in Section 2.6 of the report body and Modelwide expenditures by year are presented in the second subsection, below.

Setting-specific Medicare Expenditures, Cumulative

Appendix Table B.3.42: Setting-specific Medicare Expenditures, Cumulative, SilverScript/CVS

	Inpatient	Institutional Post-Acute Care	Emergency Department (ED)	Outpatient Non-ED	Ancillary Services
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	- $3.86**	- $4.06***	$1.09***	$3.60***	$0.97***
P-value	0.041	0.002	<0.001	<0.001	<0.001
95% Confidence Interval	(-7.58 , -0.15)	(-6.66 , -1.45)	(0.81 , 1.37)	(2.46 , 4.74)	(0.44 , 1.49)
Relative Difference	-1.40%	-3.26%	3.49%	1.82%	1.05%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$276.55	$124.44	$31.22	$197.53	$92.15
Intervention Period Enhanced MTM Mean	$329.97	$141.64	$33.88	$211.70	$97.08
Baseline Comparison MTM Mean	$274.37	$130.87	$33.02	$193.56	$94.31
Intervention Period Comparison MTM Mean	$331.65	$152.13	$34.59	$204.13	$98.27

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.43: Setting-specific Medicare Expenditures, Cumulative, Humana

	Inpatient	Institutional Post-Acute Care	Emergency Department (ED)	Outpatient Non-ED	Ancillary Services
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	**- $5.54***	**- $5.89***	**$1.06***	**$2.45***	- $0.22
P-value	0.081	0.008	<0.001	0.008	0.626
95% Confidence Interval	(-11.75 , 0.68)	(-10.24 , -1.54)	(0.50 , 1.63)	(0.65 , 4.25)	(-1.11 , 0.67)
Relative Difference	-1.78%	-4.65%	3.01%	1.30%	-0.24%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$310.61	$126.61	$35.32	$188.16	$90.73
Intervention Period Enhanced MTM Mean	$350.83	$136.07	$35.69	$201.93	$93.48
Baseline Comparison MTM Mean	$304.75	$135.51	$37.85	$187.81	$94.73
Intervention Period Comparison MTM Mean	$350.51	$150.85	$37.16	$199.13	$97.70

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.44: Setting-specific Medicare Expenditures, Cumulative, BCBS NPA

	Inpatient	Institutional Post-Acute Care	Emergency Department (ED)	Outpatient Non-ED	Ancillary Services
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	- $1.58	$8.35	$0.29	$0.08	**$2.24***
P-value	0.752	0.127	0.345	0.969	0.007
95% Confidence Interval	(-11.34 , 8.19)	(-2.38 , 19.08)	(-0.31 , 0.90)	(-4.12 , 4.28)	(0.62 , 3.86)
Relative Difference	-0.81%	9.43%	1.69%	0.05%	2.75%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$193.95	$88.54	$17.25	$181.22	$81.61
Intervention Period Enhanced MTM Mean	$248.28	$118.71	$21.84	$200.66	$87.93
Baseline Comparison MTM Mean	$203.16	$99.27	$20.13	$192.83	$86.15
Intervention Period Comparison MTM Mean	$259.06	$121.09	$24.43	$212.19	$90.22

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.45: Setting-specific Medicare Expenditures, Cumulative, UnitedHealth

	Inpatient	Institutional Post-Acute Care	Emergency Department (ED)	Outpatient Non-ED	Ancillary Services
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	**- $13.65*****	**- $10.42*****	**$1.07*****	**$6.71*****	**$2.69*****
P-value	0.001	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(-21.79 , -5.51)	(-15.68 , -5.16)	(0.5 , 1.63)	(3.39 , 10.03)	(1.28 , 4.11)
Relative Difference	-5.28%	-10.76%	4.00%	3.01%	2.63%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$258.46	$96.86	$26.65	$222.58	$102.47
Intervention Period Enhanced MTM Mean	$300.81	$111.98	$28.62	$233.53	$104.30
Baseline Comparison MTM Mean	$251.63	$104.70	$27.79	$223.54	$106.19
Intervention Period Comparison MTM Mean	$307.63	$130.24	$28.68	$227.78	$105.33

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.46: Setting-specific Medicare Expenditures, Cumulative, WellCare

	Inpatient	Institutional Post-Acute Care	Emergency Department (ED)	Outpatient Non-ED	Ancillary Services
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	$4.83	- $3.13	**$0.96*****	$1.80	$0.00
P-value	0.194	0.226	0.002	0.125	0.993
95% Confidence Interval	(-2.45 , 12.10)	(-8.18 , 1.93)	(0.35 , 1.56)	(-0.50 , 4.11)	(-1.04 , 1.05)
Relative Difference	1.71%	-2.57%	2.82%	0.91%	0.01%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$281.98	$121.62	$33.94	$197.45	$91.25
Intervention Period Enhanced MTM Mean	$345.01	$146.42	$36.70	$211.36	$95.80
Baseline Comparison MTM Mean	$274.91	$118.44	$33.26	$190.16	$92.32
Intervention Period Comparison MTM Mean	$333.11	$146.37	$35.08	$202.26	$96.87

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.47: Setting-specific Medicare Expenditures, Cumulative, BCBS FL

	Inpatient	Institutional Post-Acute Care	Emergency Department (ED)	Outpatient Non-ED	Ancillary Services
Per-Beneficiary Per-Month Estimate (in $)					
Difference-in-Differences	**- $20.76*****	**- $18.43*****	$0.35	**$5.45***	$0.64
P-value	0.003	<0.001	0.521	0.077	0.536
95% Confidence Interval	(-34.51 , -7.00)	(-28.73 , -8.12)	(-0.71 , 1.40)	(-0.60 , 11.51)	(-1.39 , 2.68)
Relative Difference	-9.76%	-23.37%	1.82%	2.30%	0.61%
Means (beneficiary-month, regression-adjusted)					
Baseline Enhanced MTM Mean	$212.60	$78.83	$19.03	$236.71	$105.84
Intervention Period Enhanced MTM Mean	$281.62	$104.92	$23.94	$252.56	$109.72
Baseline Comparison MTM Mean	$201.05	$95.88	$19.20	$232.32	$100.21
Intervention Period Comparison MTM Mean	$290.82	$140.40	$23.76	$242.71	$103.44

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

Setting-specific Medicare Expenditures by Model Year

Appendix Table B.3.48: Expenditures for Inpatient Services and Institutional Post-acute Care by Model Year, Modelwide

	Inpatient			Institutional Post-Acute Care		
	Model Year 1	**Model Year 2**	**Model Year 3**	**Model Year 1**	**Model Year 2**	**Model Year 3**
Per-Beneficiary Per-Month Estimate (in $)						
Difference-in-Differences	**- $3.19***	**- $6.10***	**- $7.20***	**- $4.49***	**- $4.49***	**- $3.12**
P-value	0.076	0.002	<0.001	0.005	0.002	0.022
95% Confidence Interval	(-6.72 , 0.34)	(-9.89 , -2.30)	(-10.93 , -3.47)	(-7.60 , -1.39)	(-7.39 , -1.58)	(-5.79 , -0.45)
Relative Difference	-1.18%	-2.26%	-2.65%	-3.89%	-3.89%	-2.70%
Means (beneficiary-month, regression-adjusted)						
Baseline Enhanced MTM Mean	$271.00	$270.03	$271.29	$115.68	$115.42	$115.59
Intervention Period Enhanced MTM Mean	$331.55	$312.31	$309.45	$137.37	$130.51	$129.47
Baseline Comparison MTM Mean	$268.47	$266.40	$268.44	$123.83	$122.55	$122.21
Intervention Period Comparison MTM Mean	$332.21	$314.78	$313.80	$150.01	$142.13	$139.20

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 59,785,685 (1,519,200 beneficiaries). Number of comparison observations: 117,140,427 (3,245,111 beneficiaries).

Appendix Table B.3.49: Expenditures for Inpatient Services and Institutional Post-acute Care by Model Year, SilverScript/CVS

	Inpatient			Institutional Post-Acute Care		
	Model Year 1	**Model Year 2**	**Model Year 3**	**Model Year 1**	**Model Year 2**	**Model Year 3**
Per-Beneficiary Per-Month Estimate (in $)						
Difference-in-Differences	- $2.13	- $3.49	**- $6.21**	**- $3.67**	**- $5.48***	**- $2.96***
P-value	0.358	0.159	0.015	0.024	0.001	0.090
95% Confidence Interval	(-6.67 , 2.41)	(-8.35 , 1.37)	(-11.23 , -1.19)	(-6.87 , -0.48)	(-8.83 , -2.13)	(-6.38 , 0.46)
Relative Difference	-0.76%	-1.27%	-2.26%	-2.93%	-4.42%	-2.39%
Means (beneficiary-month, regression-adjusted)						
Baseline Enhanced MTM Mean	$279.48	$275.76	$274.14	$125.36	$124.16	$123.71
Intervention Period Enhanced MTM Mean	$339.61	$329.01	$320.20	$145.45	$140.35	$138.77
Baseline Comparison MTM Mean	$277.54	$272.90	$272.41	$132.80	$130.23	$129.40
Intervention Period Comparison MTM Mean	$339.81	$329.65	$324.68	$156.55	$151.91	$147.42

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.50: Expenditures for Inpatient Services and Institutional Post-acute Care by Model Year, Humana

	Inpatient			Institutional Post-Acute Care		
	Model Year 1	**Model Year 2**	**Model Year 3**	**Model Year 1**	**Model Year 2**	**Model Year 3**
Per-Beneficiary Per-Month Estimate (in $)						
Difference-in-Differences	- $0.29	**- $6.97***	**- $14.05***	- $4.32	**- $5.42**	**- $9.44***
P-value	0.941	0.094	0.001	0.111	0.048	0.001
95% Confidence Interval	(-7.92 , 7.35)	(-15.14 , 1.20)	(-22.32 , -5.78)	(-9.64 , 0.99)	(-10.79 , -0.04)	(-14.93 , -3.96)
Relative Difference	-0.09%	-2.24%	-4.52%	-3.41%	-4.28%	-7.47%
Means (beneficiary-month, regression-adjusted)						
Baseline Enhanced MTM Mean	$310.51	$310.78	$310.61	$126.86	$126.46	$126.32
Intervention Period Enhanced MTM Mean	$378.02	$331.10	$320.64	$150.13	$125.10	$121.29
Baseline Comparison MTM Mean	$305.17	$303.96	$304.84	$136.20	$135.04	$134.70
Intervention Period Comparison MTM Mean	$372.97	$331.24	$328.93	$163.80	$139.11	$139.11

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.51: Expenditures for Inpatient Services and Institutional Post-acute Care by Model Year, BCBS NPA

	Inpatient			Institutional Post-Acute Care		
	Model Year 1	**Model Year 2**	**Model Year 3**	**Model Year 1**	**Model Year 2**	**Model Year 3**
Per-Beneficiary Per-Month Estimate (in $)						
Difference-in-Differences	- $0.33	- $4.55	$0.21	$2.99	$8.70	**$14.10**
P-value	0.953	0.486	0.973	0.729	0.177	0.016
95% Confidence Interval	(-11.56 , 10.89)	(-17.37 , 8.26)	(-11.75 , 12.17)	(-13.96 , 19.94)	(-3.94 , 21.34)	(2.59 , 25.61)
Relative Difference	-0.17%	-2.35%	0.11%	3.38%	9.83%	15.92%
Means (beneficiary-month, regression-adjusted)						
Baseline Enhanced MTM Mean	$193.27	$194.19	$194.49	$88.50	$88.56	$88.57
Intervention Period Enhanced MTM Mean	$248.27	$246.20	$250.52	$114.77	$119.39	$122.48
Baseline Comparison MTM Mean	$203.18	$202.95	$203.37	$99.44	$98.85	$99.53
Intervention Period Comparison MTM Mean	$258.52	$259.52	$259.20	$122.71	$120.97	$119.35

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.52: Expenditures for Inpatient Services and Institutional Post-acute Care by Model Year, UnitedHealth

	Inpatient			Institutional Post-Acute Care		
	Model Year 1	**Model Year 2**	**Model Year 3**	**Model Year 1**	**Model Year 2**	**Model Year 3**
Per-Beneficiary Per-Month Estimate (in $)						
Difference-in-Differences	**- $14.01****	**- $17.33*****	**- $10.54****	**- $9.38*****	**- $12.30*****	**- $9.91*****
P-value	0.010	0.003	0.038	0.006	0.003	0.001
95% Confidence Interval	(-24.69 , -3.33)	(-28.73 , -5.92)	(-20.48 , -0.61)	(-16.12 , -2.63)	(-20.39 , -4.21)	(-15.68 , -4.13)
Relative Difference	-5.57%	-6.88%	-3.91%	-9.96%	-13.07%	-9.78%
Means (beneficiary-month, regression-adjusted)						
Baseline Enhanced MTM Mean	$251.60	$252.00	$269.34	$94.18	$94.11	$101.30
Intervention Period Enhanced MTM Mean	$302.44	$286.28	$310.36	$112.77	$108.83	$113.68
Baseline Comparison MTM Mean	$244.30	$244.96	$263.08	$103.40	$103.28	$106.91
Intervention Period Comparison MTM Mean	$309.17	$296.56	$314.64	$131.36	$130.30	$129.20

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.53: Expenditures for Inpatient Services and Institutional Post-acute Care by Model Year, WellCare

	Inpatient			Institutional Post-Acute Care		
	Model Year 1	**Model Year 2**	**Model Year 3**	**Model Year 1**	**Model Year 2**	**Model Year 3**
Per-Beneficiary Per-Month Estimate (in $)						
Difference-in-Differences	$6.03	$3.28	$5.06	- $2.09	- $4.21	- $3.20
P-value	0.181	0.500	0.335	0.499	0.212	0.365
95% Confidence Interval	(-2.81 , 14.88)	(-6.26 , 12.83)	(-5.23 , 15.35)	(-8.15 , 3.97)	(-10.81 , 2.40)	(-10.14 , 3.73)
Relative Difference	2.15%	1.16%	1.79%	-1.73%	-3.46%	-2.61%
Means (beneficiary-month, regression-adjusted)						
Baseline Enhanced MTM Mean	$280.72	$282.37	$283.13	$120.63	$121.56	$122.93
Intervention Period Enhanced MTM Mean	$347.67	$342.65	$344.32	$145.15	$146.64	$147.80
Baseline Comparison MTM Mean	$275.33	$274.15	$275.25	$118.15	$117.71	$119.63
Intervention Period Comparison MTM Mean	$336.24	$331.15	$331.38	$144.76	$146.99	$147.70

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.54: Expenditures for Inpatient Services and Institutional Post-acute Care by Model Year, BCBS FL

	Inpatient			Institutional Post-Acute Care		
	Model Year 1	**Model Year 2**	**Model Year 3**	**Model Year 1**	**Model Year 2**	**Model Year 3**
Per-Beneficiary Per-Month Estimate (in $)						
Difference-in-Differences	**- $27.70*****	- $14.07	**- $19.95****	**- $27.36*****	**- $14.83****	**- $12.02***
P-value	0.002	0.144	0.024	<0.001	0.041	0.058
95% Confidence Interval	(-45.57 , -9.83)	(-32.92 , 4.78)	(-37.23 , -2.68)	(-39.6 , -15.12)	(-29.08 , -0.58)	(-24.45 , 0.40)
Relative Difference	-13.04%	-6.61%	-9.38%	-34.62%	-18.82%	-15.29%
Means (beneficiary-month, regression-adjusted)						
Baseline Enhanced MTM Mean	$212.42	$212.73	$212.68	$79.02	$78.80	$78.63
Intervention Period Enhanced MTM Mean	$274.84	$286.30	$284.38	$99.22	$108.14	$108.02
Baseline Comparison MTM Mean	$201.33	$201.04	$200.75	$96.18	$95.80	$95.62
Intervention Period Comparison MTM Mean	$291.46	$288.67	$292.40	$143.74	$139.97	$137.04

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

Appendix Table B.3.55: Expenditures for Emergency Department (ED), Outpatient Non-ED Services, and Ancillary Services by Model Year, Modelwide

	Emergency Department (ED)			Outpatient Non-Emergency			Ancillary Services		
	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3
Per-Beneficiary Per-Month Estimate (in $)									
Difference-in-Differences	**$0.81*****	**$0.98*****	**$1.11*****	**$2.16*****	**$3.67*****	**$3.42*****	**$0.47****	**$1.29*****	**$1.58*****
P-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.049	<0.001	<0.001
95% Confidence Interval	(0.54 , 1.08)	(0.68 , 1.27)	(0.82 , 1.40)	(1.04 , 3.28)	(2.41 , 4.92)	(2.05 , 4.78)	(0.00 , 0.94)	(0.72 , 1.86)	(0.96 , 2.21)
Relative Difference	2.72%	3.30%	3.71%	1.11%	1.85%	1.71%	0.51%	1.40%	1.70%
Means (beneficiary-month, regression-adjusted)									
Baseline Enhanced MTM Mean	$29.73	$29.54	$30.01	$195.45	$197.77	$200.15	$91.48	$92.16	$92.98
Intervention Period Enhanced MTM Mean	$32.58	$31.27	$31.31	$201.92	$215.16	$223.03	$92.45	$97.74	$99.94
Baseline Comparison MTM Mean	$31.62	$31.25	$31.70	$195.46	$196.23	$198.55	$94.67	$94.58	$95.24
Intervention Period Comparison MTM Mean	$33.67	$32.01	$31.88	$199.76	$209.96	$218.00	$95.16	$98.87	$100.62

Notes: MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 59,785,685 (1,519,200 beneficiaries). Number of comparison observations: 117,140,427 (3,245,111 beneficiaries).

Appendix Table B.3.56: Expenditures for Emergency Department (ED), Outpatient Non-ED Services, and Ancillary Services by Model Year, SilverScript/CVS

	Emergency Department (ED)			Outpatient Non-Emergency			Ancillary Services		
	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3
Per-Beneficiary Per-Month Estimate (in $)									
Difference-in-Differences	**$0.97*****	**$1.10*****	**$1.22*****	**$2.39*****	**$3.60*****	**$4.96*****	$0.23	**$0.86****	**$1.90*****
P-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.426	0.011	<0.001
95% Confidence Interval	(0.66 , 1.28)	(0.74 , 1.46)	(0.84 , 1.59)	(1.09 , 3.68)	(2.13 , 5.06)	(3.36 , 6.55)	(-0.34 , 0.81)	(0.19 , 1.52)	(1.14 , 2.67)
Relative Difference	3.06%	3.53%	3.95%	1.23%	1.82%	2.47%	0.26%	0.93%	2.04%
Means (beneficiary-month, regression-adjusted)									
Baseline Enhanced MTM Mean	$31.71	$31.10	$30.79	$194.50	$197.41	$201.05	$91.36	$92.08	$93.11
Intervention Period Enhanced MTM Mean	$34.57	$33.95	$33.03	$201.26	$212.31	$222.71	$92.57	$97.99	$101.14
Baseline Comparison MTM Mean	$33.64	$32.84	$32.51	$191.66	$192.77	$196.55	$94.25	$93.94	$94.77
Intervention Period Comparison MTM Mean	$35.53	$34.60	$33.54	$196.03	$204.07	$213.26	$95.22	$98.99	$100.91

Notes: MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.57: Expenditures for Emergency Department (ED), Outpatient Non-ED Services, and Ancillary Services by Model Year, Humana

	Emergency Department (ED)			Outpatient Non-Emergency			Ancillary Services		
	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3
Per-Beneficiary Per-Month Estimate (in $)									
Difference-in-Differences	**$0.71***	**$1.56*****	**$1.18*****	$1.55	**$3.83*****	**$2.63****	- $0.73	$0.15	$0.34
P-value	0.059	<0.001	0.002	0.126	0.002	0.043	0.133	0.803	0.623
95% Confidence Interval	(-0.03 , 1.45)	(0.83 , 2.28)	(0.44 , 1.93)	(-0.44 , 3.53)	(1.44 , 6.22)	(0.09 , 5.17)	(-1.68 , 0.22)	(-1.06 , 1.37)	(-1.01 , 1.69)
Relative Difference	2.02%	4.41%	3.35%	0.83%	2.02%	1.37%	-0.81%	0.17%	0.37%
Means (beneficiary-month, regression-adjusted)									
Baseline Enhanced MTM Mean	$35.34	$35.28	$35.32	$185.57	$189.09	$192.13	$89.83	$91.08	$92.10
Intervention Period Enhanced MTM Mean	$38.02	$34.10	$32.98	$190.28	$209.18	$216.24	$90.06	$95.91	$97.34
Baseline Comparison MTM Mean	$38.01	$37.68	$37.75	$186.21	$187.56	$191.18	$94.32	$94.57	$95.70
Intervention Period Comparison MTM Mean	$39.98	$34.94	$34.23	$189.37	$203.83	$212.65	$95.29	$99.24	$100.60

Notes: MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.58: Expenditures for Emergency Department (ED), Outpatient Non-ED Services, and Ancillary Services by Model Year, BCBS NPA

	Emergency Department (ED)			Outpatient Non-Emergency			Ancillary Services		
	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3
Per-Beneficiary Per-Month Estimate (in $)									
Difference-in-Differences	**$0.57***	- $0.06	$0.35	$2.21	- $0.76	- $1.44	**$3.58*****	**$1.91***	$1.07
P-value	0.099	0.891	0.416	0.325	0.752	0.630	<0.001	0.063	0.347
95% Confidence Interval	(-0.11 , 1.24)	(-0.85 , 0.74)	(-0.49 , 1.19)	(-2.19 , 6.6)	(-5.47 , 3.95)	(-7.32 , 4.43)	(1.94 , 5.22)	(-0.11 , 3.93)	(-1.16 , 3.29)
Relative Difference	3.30%	-0.32%	2.01%	1.22%	-0.42%	-0.79%	4.40%	2.34%	1.31%
Means (beneficiary-month, regression-adjusted)									
Baseline Enhanced MTM Mean	$17.22	$17.26	$17.28	$180.62	$181.45	$181.65	$81.44	$81.69	$81.74
Intervention Period Enhanced MTM Mean	$20.81	$21.89	$22.98	$191.50	$201.97	$209.74	$84.70	$89.13	$90.33
Baseline Comparison MTM Mean	$20.11	$20.10	$20.17	$192.68	$192.72	$193.10	$86.08	$86.16	$86.23
Intervention Period Comparison MTM Mean	$23.12	$24.78	$25.54	$201.35	$214.00	$222.63	$85.76	$91.69	$93.75

Notes: MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.59: Expenditures for Emergency Department (ED), Outpatient Non-ED Services, and Ancillary Services by Model Year, UnitedHealth

	Emergency Department (ED)			Outpatient Non-Emergency			Ancillary Services		
	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3
Per-Beneficiary Per-Month Estimate (in $)									
Difference-in-Differences	**$0.79****	**$1.14*****	**$1.25*****	**$3.87***	**$9.57*****	**$7.03*****	**$1.62***	**$3.75*****	**$2.84*****
P-value	0.028	0.004	<0.001	0.057	<0.001	<0.001	0.059	<0.001	0.001
95% Confidence Interval	(0.09 , 1.49)	(0.37 , 1.91)	(0.61 , 1.89)	(-0.12 , 7.86)	(5.06 , 14.09)	(3.45 , 10.61)	(-0.06 , 3.30)	(1.75 , 5.76)	(1.17 , 4.50)
Relative Difference	3.20%	4.63%	4.17%	1.72%	4.24%	3.22%	1.56%	3.62%	2.81%
Means (beneficiary-month, regression-adjusted)									
Baseline Enhanced MTM Mean	$24.64	$24.65	$29.94	$224.93	$225.94	$217.99	$103.26	$103.62	$100.90
Intervention Period Enhanced MTM Mean	$27.14	$26.40	$31.58	$228.16	$240.38	$233.05	$102.72	$105.84	$104.52
Baseline Comparison MTM Mean	$25.87	$25.85	$30.93	$226.36	$227.21	$218.30	$107.40	$107.56	$104.10
Intervention Period Comparison MTM Mean	$27.58	$26.47	$31.32	$225.73	$232.08	$226.32	$105.25	$106.02	$104.88

Notes: MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.60: Expenditures for Emergency Department (ED), Outpatient Non-ED Services, and Ancillary Services by Model Year, WellCare

	Emergency Department (ED)			Outpatient Non-Emergency			Ancillary Services		
	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3
Per-Beneficiary Per-Month Estimate (in $)									
Difference-in-Differences	**$1.19***	**$0.91**	$0.71	$1.93	$1.75	$1.70	- $0.42	$0.21	$0.31
P-value	<0.001	0.018	0.103	0.149	0.241	0.309	0.455	0.764	0.709
95% Confidence Interval	(0.54 , 1.83)	(0.16 , 1.67)	(-0.14 , 1.57)	(-0.69 , 4.56)	(-1.17 , 4.68)	(-1.58 , 4.98)	(-1.51 , 0.67)	(-1.15 , 1.56)	(-1.30 , 1.92)
Relative Difference	3.52%	2.69%	2.08%	0.99%	0.88%	0.86%	-0.46%	0.23%	0.33%
Means (beneficiary-month, regression-adjusted)									
Baseline Enhanced MTM Mean	$33.77	$33.88	$34.21	$195.78	$198.08	$198.87	$90.58	$91.46	$91.85
Intervention Period Enhanced MTM Mean	$36.93	$36.84	$36.27	$203.74	$212.20	$220.08	$91.52	$97.67	$99.10
Baseline Comparison MTM Mean	$33.30	$33.11	$33.39	$189.43	$190.29	$190.95	$92.16	$92.27	$92.57
Intervention Period Comparison MTM Mean	$35.26	$35.16	$34.75	$195.45	$202.66	$210.46	$93.52	$98.28	$99.51

Notes: MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.61: Expenditures for Emergency Department (ED), Outpatient Non-ED Services, and Ancillary Services by Model Year, BCBS FL

	Emergency Department (ED)			Outpatient Non-Emergency			Ancillary Services		
	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3	MY 1	MY 2	MY 3
Per-Beneficiary Per-Month Estimate (in $)									
Difference-in-Differences	$0.53	- $0.21	$0.73	$0.76	**$8.63**	**$7.44***	- $0.72	$1.50	$1.28
P-value	0.331	0.825	0.253	0.834	0.019	0.052	0.526	0.240	0.392
95% Confidence Interval	(-0.54 , 1.61)	(-2.11 , 1.68)	(-0.52 , 1.98)	(-6.35 , 7.87)	(1.41 , 15.85)	(-0.08 , 14.96)	(-2.95 , 1.51)	(-1.00 , 4.01)	(-1.66 , 4.22)
Relative Difference	2.81%	-1.12%	3.83%	0.32%	3.64%	3.14%	-0.68%	1.42%	1.21%
Means (beneficiary-month, regression-adjusted)									
Baseline Enhanced MTM Mean	$19.00	$19.06	$19.05	$236.34	$236.88	$236.95	$105.79	$105.87	$105.88
Intervention Period Enhanced MTM Mean	$22.63	$24.38	$24.99	$241.60	$254.35	$263.22	$105.88	$110.44	$113.33
Baseline Comparison MTM Mean	$19.21	$19.19	$19.18	$232.33	$232.32	$232.30	$100.28	$100.21	$100.14
Intervention Period Comparison MTM Mean	$22.31	$24.73	$24.39	$236.83	$241.16	$251.13	$101.10	$103.28	$106.31

Notes: MY: Model Year. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

B.3.4 Health Service Utilization

This subsection presents the Model impacts on health service utilization (supplementing Section 2.6 of the main report) first for the Model as a whole, and then by individual sponsor. Findings, both cumulatively and by year, for utilization outcomes are presented following sequential subsections:

- Inpatient Services

- Hospital Readmissions

- Skilled Nursing Facility Services

- Outpatient Services

- Evaluation and Management Visits

Inpatient Services

Appendix Table B.3.62: Inpatient Admissions and Length of Stay, Cumulative and by Model Year, Modelwide

	Inpatient Admissions				Inpatient Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	-0.05	**0.24***	-0.20	**-0.26***	0.69	**2.28****	-0.54	0.02
P-value	0.618	0.057	0.159	0.057	0.437	0.029	0.647	0.984
95% Confidence Interval	(-0.26 , 0.15)	(-0.01 , 0.48)	(-0.47 , 0.08)	(-0.52 , 0.01)	(-1.06 , 2.44)	(0.24 , 4.33)	(-2.83 , 1.76)	(-2.22 , 2.27)
Relative Difference	-0.21%	0.92%	-0.77%	-1.01%	0.41%	1.34%	-0.32%	0.01%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	25.49	25.53	25.41	25.52	169.88	170.55	169.09	169.88
Intervention Period Enhanced MTM Mean	28.81	30.10	28.19	27.87	194.29	205.99	189.29	185.11
Baseline Comparison MTM Mean	25.14	25.23	25.00	25.17	167.94	168.93	166.66	168.06
Intervention Period Comparison MTM Mean	28.52	29.57	27.98	27.78	191.65	202.08	187.40	183.27

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 59,785,685 (1,519,200 beneficiaries). Number of comparison observations: 117,140,427 (3,245,111 beneficiaries).

Appendix Table B.3.63: Inpatient Admissions and Length of Stay, Cumulative and by Model Year, SilverScript/CVS

	Inpatient Admissions				Inpatient Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	0.03	0.23	0.01	-0.16	0.97	2.16	0.46	0.16
P-value	0.785	0.117	0.941	0.344	0.431	0.130	0.770	0.919
95% Confidence Interval	(-0.21 , 0.28)	(-0.06 , 0.52)	(-0.31 , 0.33)	(-0.50 , 0.17)	(-1.44 , 3.37)	(-0.64 , 4.97)	(-2.64 , 3.57)	(-2.98 , 3.31)
Relative Difference	0.13%	0.88%	0.05%	-0.63%	0.54%	1.19%	0.26%	0.09%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	26.07	26.36	25.98	25.84	178.81	182.05	178.08	175.98
Intervention Period Enhanced MTM Mean	30.03	31.00	29.90	29.07	208.41	217.98	207.88	198.28
Baseline Comparison MTM Mean	25.69	26.03	25.55	25.46	176.27	179.88	175.25	173.33
Intervention Period Comparison MTM Mean	29.61	30.43	29.45	28.85	204.91	213.64	204.59	195.47

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.64: Inpatient Admissions and Length of Stay, Cumulative and by Model Year, Humana

	Inpatient Admissions				Inpatient Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	0.19	**0.91***	-0.21	**-0.73**	**3.74***	**6.75***	2.32	-0.47
P-value	0.415	0.001	0.507	0.022	0.083	0.005	0.415	0.873
95% Confidence Interval	(-0.27 , 0.66)	(0.38 , 1.44)	(-0.82 , 0.41)	(-1.36 , -0.10)	(-0.49 , 7.98)	(2.01 , 11.50)	(-3.26 , 7.91)	(-6.18 , 5.25)
Relative Difference	0.65%	3.04%	-0.69%	-2.45%	1.81%	3.25%	1.13%	-0.23%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	29.95	29.97	29.93	29.92	206.85	207.62	206.47	205.80
Intervention Period Enhanced MTM Mean	31.69	34.58	29.53	28.57	222.16	245.62	204.64	196.66
Baseline Comparison MTM Mean	29.60	29.68	29.50	29.55	204.67	205.88	203.85	203.25
Intervention Period Comparison MTM Mean	31.15	33.37	29.31	28.94	216.23	237.12	199.69	194.57

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.65: Inpatient Admissions and Length of Stay, Cumulative and by Model Year, BCBS NPA

	Inpatient Admissions				Inpatient Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	-0.35	-0.38	-0.21	-0.48	**-3.84***	-2.75	-3.73	**-5.20***
P-value	0.353	0.410	0.652	0.298	0.095	0.323	0.203	0.068
95% Confidence Interval	(-1.10 , 0.39)	(-1.27 , 0.52)	(-1.12 , 0.7)	(-1.39 , 0.43)	(-8.34 , 0.67)	(-8.19 , 2.70)	(-9.47 , 2.01)	(-10.78 , 0.38)
Relative Difference	-2.03%	-2.17%	-1.21%	-2.76%	-4.05%	-2.91%	-3.93%	-5.47%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	17.42	17.37	17.44	17.45	94.79	94.50	94.89	95.01
Intervention Period Enhanced MTM Mean	22.43	22.31	22.47	22.53	126.82	126.75	127.15	126.53
Baseline Comparison MTM Mean	18.08	18.07	18.05	18.10	99.96	100.05	99.78	100.05
Intervention Period Comparison MTM Mean	23.44	23.38	23.30	23.66	135.83	135.05	135.77	136.78

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.66: Inpatient Admissions and Length of Stay, Cumulative and by Model Year, UnitedHealth

	Inpatient Admissions				Inpatient Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	-0.35	-0.33	**-0.66***	-0.13	0.67	1.04	-3.96	3.86
P-value	0.178	0.343	0.074	0.675	0.753	0.712	0.198	0.150
95% Confidence Interval	(-0.86 , 0.16)	(-1.01 , 0.35)	(-1.39 , 0.06)	(-0.72 , 0.47)	(-3.52 , 4.87)	(-4.46 , 6.54)	(-9.98 , 2.06)	(-1.40 , 9.12)
Relative Difference	-1.47%	-1.43%	-2.87%	-0.51%	0.44%	0.71%	-2.71%	2.36%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	23.75	23.08	23.09	24.84	152.80	146.21	146.15	163.59
Intervention Period Enhanced MTM Mean	26.73	26.88	25.59	27.45	176.15	177.44	164.10	184.13
Baseline Comparison MTM Mean	23.07	22.32	22.36	24.26	149.18	141.14	141.16	162.27
Intervention Period Comparison MTM Mean	26.39	26.45	25.51	26.99	171.85	171.33	163.08	178.95

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.67: Inpatient Admissions and Length of Stay, Cumulative and by Model Year, WellCare

	Inpatient Admissions				Inpatient Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	0.27	0.33	-0.13	**0.66***	1.39	1.63	-0.13	2.83
P-value	0.292	0.257	0.687	0.072	0.566	0.551	0.966	0.394
95% Confidence Interval	(-0.23 , 0.78)	(-0.24 , 0.91)	(-0.79 , 0.52)	(-0.06 , 1.38)	(-3.35 , 6.12)	(-3.72 , 6.97)	(-6.37 , 6.10)	(-3.67 , 9.32)
Relative Difference	1.03%	1.26%	-0.51%	2.48%	0.78%	0.92%	-0.08%	1.59%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	26.49	26.39	26.51	26.62	177.09	176.11	177.22	178.18
Intervention Period Enhanced MTM Mean	31.08	31.32	30.73	31.19	212.20	214.21	212.09	209.78
Baseline Comparison MTM Mean	25.44	25.46	25.35	25.53	169.48	169.93	168.71	169.79
Intervention Period Comparison MTM Mean	29.76	30.07	29.71	29.44	203.21	206.41	203.71	198.56

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.68: Inpatient Admissions and Length of Stay, Cumulative and by Model Year, BCBS FL

	Inpatient Admissions				Inpatient Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	-0.58	-0.40	-0.71	-0.64	0.15	-0.30	0.98	-0.22
P-value	0.303	0.544	0.426	0.370	0.969	0.949	0.860	0.966
95% Confidence Interval	(-1.67 , 0.52)	(-1.71 , 0.9)	(-2.44 , 1.03)	(-2.03 , 0.76)	(-7.52 , 7.83)	(-9.41 , 8.82)	(-9.95 , 11.92)	(-10.21 , 9.78)
Relative Difference	-2.97%	-2.08%	-3.63%	-3.28%	0.14%	-0.27%	0.88%	-0.19%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	19.41	19.40	19.43	19.42	112.30	112.32	112.34	112.24
Intervention Period Enhanced MTM Mean	25.12	24.48	25.26	25.72	155.67	153.12	156.98	157.20
Baseline Comparison MTM Mean	18.80	18.84	18.80	18.77	113.03	113.31	112.97	112.77
Intervention Period Comparison MTM Mean	25.09	24.33	25.33	25.71	156.24	154.41	156.62	157.94

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

Hospital Readmissions

Appendix Table B.3.69: Rate of Hospital Readmissions, Cumulative and by Model Year, Modelwide

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000 Index Admissions Estimate				
Difference-in-Differences	**- 5.08*****	**- 3.39*****	**- 6.02*****	**- 6.27*****
P-value	<0.001	0.006	<0.001	<0.001
95% Confidence Interval	(-7.14 , -3.01)	(-5.79 , -0.99)	(-8.67 , -3.36)	(-8.95 , -3.60)
Relative Difference	-3.41%	-2.27%	-4.04%	-4.22%
Rates of Readmissions per 1,000 Index Admissions (regression-adjusted)				
Baseline Enhanced MTM Rate	149.04	149.45	148.99	148.53
Intervention Period Enhanced MTM Rate	174.56	176.81	173.52	172.74
Baseline Comparison MTM Rate	142.54	142.47	142.46	142.69
Intervention Period Comparison MTM Rate	173.14	173.22	173.00	173.17

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is an index admission. Number of Enhanced MTM observations: 1,463,217 (614,151 beneficiaries). Number of comparison observations: 2,872,826 (1,223,161 beneficiaries).

Appendix Table B.3.70: Rate of Hospital Readmissions, Cumulative and by Model Year, SilverScript/CVS

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000 Index Admissions Estimate				
Difference-in-Differences	**- 5.19*****	**- 3.43***	**- 4.94****	**- 7.52*****
P-value	0.001	0.064	0.013	<0.001
95% Confidence Interval	(-8.32 , -2.07)	(-7.07 , 0.20)	(-8.84 , -1.03)	(-11.54 , -3.49)
Relative Difference	-3.46%	-2.28%	-3.29%	-5.03%
Rates of Readmissions per 1,000 Index Admissions (regression-adjusted)				
Baseline Enhanced MTM Rate	150.01	150.53	149.88	149.56
Intervention Period Enhanced MTM Rate	176.14	177.87	176.96	173.23
Baseline Comparison MTM Rate	144.18	144.28	143.88	144.40
Intervention Period Comparison MTM Rate	175.50	175.06	175.90	175.59

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is an index admission. Number of Enhanced MTM observations: 632,401 (255,407 beneficiaries). Number of comparison observations: 1,471,574 (616,910 beneficiaries).

Appendix Table B.3.71: Rate of Hospital Readmissions, Cumulative and by Model Year, Humana

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000 Index Admissions Estimate				
Difference-in-Differences	**- 4.19***	-1.64	**- 5.68***	**- 8.27****
P-value	0.054	0.501	0.060	0.009
95% Confidence Interval	(-8.47 , 0.08)	(-6.41 , 3.13)	(-11.59 , 0.24)	(-14.48 , -2.06)
Relative Difference	-2.56%	-1.00%	-3.47%	-5.06%
Rates of Readmissions per 1,000 Index Admissions (regression-adjusted)				
Baseline Enhanced MTM Rate	163.69	163.89	163.50	163.44
Intervention Period Enhanced MTM Rate	187.09	191.23	183.66	181.70
Baseline Comparison MTM Rate	154.86	154.37	155.11	155.68
Intervention Period Comparison MTM Rate	182.46	183.35	180.95	182.22

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is an index admission. Number of Enhanced MTM observations: 332,799 (135,788 beneficiaries). Number of comparison observations: 740,594 (309,964 beneficiaries).

Appendix Table B.3.72: Rate of Hospital Readmissions, Cumulative and by Model Year, BCBS NPA

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000 Index Admissions Estimate				
Difference-in-Differences	**- 5.52****	**- 8.25****	**- 6.61***	-1.28
P-value	0.043	0.012	0.051	0.716
95% Confidence Interval	(-10.88 , -0.17)	(-14.68 , -1.82)	(-13.26 , 0.04)	(-8.18 , 5.62)
Relative Difference	-5.63%	-8.41%	-6.73%	-1.30%
Rates of Readmissions per 1,000 Index Admissions (regression-adjusted)				
Baseline Enhanced MTM Rate	98.18	98.13	98.25	98.16
Intervention Period Enhanced MTM Rate	127.30	125.98	126.24	129.91
Baseline Comparison MTM Rate	103.06	102.96	103.02	103.20
Intervention Period Comparison MTM Rate	137.70	139.06	137.63	136.23

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is an index admission. Number of Enhanced MTM observations: 154,220 (75,754 beneficiaries). Number of comparison observations: 235,830 (113,434 beneficiaries).

Appendix Table B.3.73: Rate of Hospital Readmissions, Cumulative and by Model Year, UnitedHealth

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000 Index Admissions Estimate				
Difference-in-Differences	**- 7.17****	-2.25	**- 11.88*****	**- 8.02****
P-value	0.012	0.548	0.004	0.019
95% Confidence Interval	(-12.79 , -1.56)	(-9.61 , 5.10)	(-19.86 , -3.89)	(-14.71 , -1.33)
Relative Difference	-4.91%	-1.52%	-8.03%	-5.61%
Rates of Readmissions per 1,000 Index Admissions (regression-adjusted)				
Baseline Enhanced MTM Rate	146.01	147.97	147.92	142.93
Intervention Period Enhanced MTM Rate	172.02	177.23	168.61	169.98
Baseline Comparison MTM Rate	136.87	137.81	138.36	134.96
Intervention Period Comparison MTM Rate	170.05	169.31	170.93	170.04

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is an index admission. Number of Enhanced MTM observations: 165,611 (72,917 beneficiaries). Number of comparison observations: 385,484 (176,597 beneficiaries).

Appendix Table B.3.74: Rate of Hospital Readmissions, Cumulative and by Model Year, WellCare

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000 Index Admissions Estimate				
Difference-in-Differences	-2.23	-5.45	-2.14	1.71
P-value	0.521	0.172	0.622	0.707
95% Confidence Interval	(-9.05 , 4.59)	(-13.27 , 2.37)	(-10.66 , 6.37)	(-7.19 , 10.60)
Relative Difference	-1.50%	-3.64%	-1.44%	1.15%
Rates of Readmissions per 1,000 Index Admissions (regression-adjusted)				
Baseline Enhanced MTM Rate	149.14	149.60	148.94	148.81
Intervention Period Enhanced MTM Rate	177.89	175.69	177.76	180.81
Baseline Comparison MTM Rate	144.68	145.15	144.37	144.42
Intervention Period Comparison MTM Rate	175.66	176.69	175.34	174.71

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is an index admission. Number of Enhanced MTM observations: 120,851 (48,786 beneficiaries). Number of comparison observations: 413,074 (177,175 beneficiaries).

Appendix Table B.3.75: Rate of Hospital Readmissions, Cumulative and by Model Year, BCBS FL

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000 Index Admissions Estimate				
Difference-in-Differences	**- 10.24****	-8.81	**- 12.00****	-9.93
P-value	0.034	0.121	0.047	0.118
95% Confidence Interval	(-19.72 , -0.76)	(-19.95 , 2.32)	(-23.84 , -0.16)	(-22.38 , 2.53)
Relative Difference	-8.59%	-7.39%	-10.08%	-8.33%
Rates of Readmissions per 1,000 Index Admissions (regression-adjusted)				
Baseline Enhanced MTM Rate	119.15	119.20	119.10	119.14
Intervention Period Enhanced MTM Rate	152.99	148.45	154.22	156.58
Baseline Comparison MTM Rate	100.82	100.94	100.86	100.64
Intervention Period Comparison MTM Rate	144.90	139.00	147.99	148.01

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is an index admission. Number of Enhanced MTM observations: 57,335 (25,499 beneficiaries). Number of comparison observations: 88,730 (41,262 beneficiaries).

Skilled Nursing Facility (SNF) Services

Appendix Table B.3.76: Skilled Nursing Facilities (SNFs) Admissions and Length of Stay, Cumulative and by Model Year, Modelwide

	SNF Admissions				SNF Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	-0.06	0.04	-0.09	**-0.14****	**-13.02*****	-2.86	**-11.61*****	**-26.98*****
P-value	0.240	0.479	0.159	0.019	<0.001	0.303	0.001	<0.001
95% Confidence Interval	(-0.15 , 0.04)	(-0.07 , 0.16)	(-0.21 , 0.03)	(-0.26 , -0.02)	(-18.14 , -7.90)	(-8.31 , 2.59)	(-18.74 , -4.48)	(-33.29 , -20.67)
Relative Difference	-1.00%	0.75%	-1.60%	-2.54%	-3.99%	-0.87%	-3.57%	-8.32%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	5.55	5.56	5.55	5.56	326.44	329.25	325.19	324.28
Intervention Period Enhanced MTM Mean	6.75	7.03	6.70	6.45	322.14	363.43	323.40	270.07
Baseline Comparison MTM Mean	5.27	5.29	5.25	5.27	275.04	277.38	273.88	273.36
Intervention Period Comparison MTM Mean	6.52	6.72	6.50	6.31	283.76	314.43	283.70	246.12

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 59,785,685 (1,519,200 beneficiaries). Number of comparison observations: 117,140,427 (3,245,111 beneficiaries).

Appendix Table B.3.77: Skilled Nursing Facilities (SNFs) Admissions and Length of Stay, Cumulative and by Model Year, SilverScript/CVS

	SNF Admissions				SNF Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**-0.10***	-0.06	-0.10	**-0.13***	**-14.95***	-1.87	**-13.15***	**-31.54***
P-value	0.099	0.392	0.201	0.082	<0.001	0.608	0.004	<0.001
95% Confidence Interval	(-0.21 , 0.02)	(-0.20 , 0.08)	(-0.25 , 0.05)	(-0.29 , 0.02)	(-22.01 , -7.90)	(-8.99 , 5.26)	(-22.1 , -4.20)	(-40.59 , -22.48)
Relative Difference	-1.67%	-1.05%	-1.69%	-2.34%	-3.94%	-0.48%	-3.48%	-8.49%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	5.73	5.76	5.72	5.72	379.44	387.67	378.29	371.45
Intervention Period Enhanced MTM Mean	6.88	7.14	6.89	6.57	362.52	415.47	367.93	297.45
Baseline Comparison MTM Mean	5.56	5.62	5.53	5.52	319.89	327.17	319.06	312.63
Intervention Period Comparison MTM Mean	6.80	7.06	6.80	6.51	317.92	356.84	321.85	270.17

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.78: Skilled Nursing Facilities (SNFs) Admissions and Length of Stay, Cumulative and by Model Year, Humana

	SNF Admissions				SNF Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**-0.42***	-0.14	**-0.58***	**-0.77***	**-28.15***	**-15.88***	**-28.54***	**-51.43***
P-value	<0.001	0.226	<0.001	<0.001	<0.001	0.003	<0.001	<0.001
95% Confidence Interval	(-0.60 , -0.23)	(-0.36 , 0.09)	(-0.81 , -0.34)	(-1.01 , -0.53)	(-37.87 , -18.44)	(-26.23 , -5.53)	(-41.71 , -15.37)	(-64.47 , -38.38)
Relative Difference	-6.90%	-2.30%	-9.55%	-12.79%	-8.11%	-4.54%	-8.27%	-14.97%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	6.03	6.03	6.03	6.04	347.10	350.03	345.15	343.63
Intervention Period Enhanced MTM Mean	6.83	7.47	6.40	6.07	323.07	375.92	301.42	245.46
Baseline Comparison MTM Mean	5.43	5.43	5.41	5.44	291.45	293.89	290.19	288.16
Intervention Period Comparison MTM Mean	6.64	7.01	6.35	6.24	295.58	335.66	275.00	241.42

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.79: Skilled Nursing Facilities (SNFs) Admissions and Length of Stay, Cumulative and by Model Year, BCBS NPA

	SNF Admissions				SNF Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**0.91***	**0.96***	**0.93***	**0.83***	**20.79***	**29.24****	19.11	12.94
P-value	<0.001	<0.001	0.001	0.002	0.073	0.023	0.254	0.340
95% Confidence Interval	(0.49 , 1.33)	(0.46 , 1.46)	(0.40 , 1.46)	(0.31 , 1.34)	(-1.93 , 43.51)	(4.07 , 54.41)	(-13.71 , 51.92)	(-13.64 , 39.51)
Relative Difference	17.21%	18.16%	17.64%	15.66%	7.56%	10.58%	6.96%	4.72%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	5.29	5.29	5.29	5.29	275.18	276.49	274.60	274.30
Intervention Period Enhanced MTM Mean	7.24	7.25	7.34	7.13	319.53	347.13	328.61	278.17
Baseline Comparison MTM Mean	5.55	5.56	5.53	5.55	234.76	235.67	234.03	234.51
Intervention Period Comparison MTM Mean	6.59	6.56	6.65	6.56	258.33	277.07	268.94	225.45

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.80: Skilled Nursing Facilities (SNFs) Admissions and Length of Stay, Cumulative and by Model Year, UnitedHealth

	SNF Admissions				SNF Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**-0.24****	-0.16	**-0.27***	**-0.29****	**-20.08***	-7.24	**-21.31***	**-30.40***
P-value	0.031	0.299	0.094	0.023	<0.001	0.196	0.002	<0.001
95% Confidence Interval	(-0.46 , -0.02)	(-0.46 , 0.14)	(-0.58 , 0.05)	(-0.54 , -0.04)	(-29.44 , -10.73)	(-18.21 , 3.73)	(-34.97 , -7.66)	(-41.56 , -19.24)
Relative Difference	-5.07%	-3.43%	-5.82%	-5.87%	-9.06%	-3.54%	-10.48%	-12.12%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	4.73	4.61	4.62	4.91	221.74	204.47	203.37	250.73
Intervention Period Enhanced MTM Mean	5.74	5.86	5.64	5.70	220.19	233.78	206.05	218.99
Baseline Comparison MTM Mean	4.11	3.94	3.94	4.40	181.07	165.12	164.28	207.73
Intervention Period Comparison MTM Mean	5.36	5.34	5.24	5.48	199.61	201.67	188.27	206.38

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.81: Skilled Nursing Facilities (SNFs) Admissions and Length of Stay, Cumulative and by Model Year, WellCare

	SNF Admissions				SNF Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	-0.02	-0.06	-0.08	0.09	-4.03	-5.97	3.13	-9.75
P-value	0.829	0.676	0.582	0.598	0.556	0.380	0.723	0.293
95% Confidence Interval	(-0.25 , 0.20)	(-0.33 , 0.21)	(-0.38 , 0.22)	(-0.23 , 0.40)	(-17.43 , 9.38)	(-19.28 , 7.35)	(-14.13 , 20.38)	(-27.94 , 8.43)
Relative Difference	-0.45%	-1.07%	-1.53%	1.53%	-1.27%	-1.89%	0.99%	-3.08%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	5.49	5.44	5.50	5.55	316.13	316.16	315.28	317.08
Intervention Period Enhanced MTM Mean	7.08	7.02	7.12	7.10	340.39	356.04	350.63	308.79
Baseline Comparison MTM Mean	5.27	5.25	5.25	5.33	265.72	265.34	263.99	268.18
Intervention Period Comparison MTM Mean	6.88	6.89	6.95	6.79	294.00	311.19	296.21	269.64

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.82: Skilled Nursing Facilities (SNFs) Admissions and Length of Stay, Cumulative and by Model Year, BCBS FL

	SNF Admissions				SNF Length of Stay			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	0.01	0.03	-0.06	0.07	**-18.15****	-11.48	**-17.93***	**-26.04*****
P-value	0.954	0.909	0.842	0.799	0.010	0.159	0.070	0.008
95% Confidence Interval	(-0.38 , 0.40)	(-0.45 , 0.50)	(-0.63 , 0.51)	(-0.45 , 0.58)	(-31.99 , -4.31)	(-27.43 , 4.48)	(-37.35 , 1.49)	(-45.2 , -6.88)
Relative Difference	0.29%	0.69%	-1.44%	1.67%	-14.47%	-9.11%	-14.31%	-20.84%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	4.00	4.01	4.00	3.99	125.44	125.97	125.32	124.95
Intervention Period Enhanced MTM Mean	5.66	5.51	5.69	5.80	167.45	171.52	168.08	162.08
Baseline Comparison MTM Mean	3.87	3.88	3.87	3.86	118.61	119.14	118.46	118.16
Intervention Period Comparison MTM Mean	5.52	5.36	5.62	5.60	178.76	176.17	179.15	181.33

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

Outpatient Services

Appendix Table B.3.83: Emergency Department (ED) Visits and Outpatient Non-ED Visits, Cumulative and by Model Year, Modelwide

	Emergency Department (ED) Visits				Outpatient Non-ED Visits			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**1.28***	**0.62***	**1.52***	**1.85***	**9.11***	**2.81***	**12.73***	**13.07***
P-value	<0.001	0.004	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
95% Confidence Interval	(0.93 , 1.64)	(0.20 , 1.03)	(1.08 , 1.96)	(1.40 , 2.31)	(7.40 , 10.81)	(1.15 , 4.48)	(10.54 , 14.92)	(10.77 , 15.36)
Relative Difference	2.54%	1.22%	3.04%	3.64%	2.23%	0.70%	3.13%	3.17%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	50.59	50.62	50.17	50.98	407.53	404.40	406.36	412.58
Intervention Period Enhanced MTM Mean	49.72	52.17	48.45	48.04	441.83	422.53	446.69	460.49
Baseline Comparison MTM Mean	53.58	53.82	53.04	53.84	407.92	406.71	405.77	411.67
Intervention Period Comparison MTM Mean	51.43	54.74	49.80	49.05	433.12	422.03	433.36	446.52

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 59,785,685 (1,519,200 beneficiaries). Number of comparison observations: 117,140,427 (3,245,111 beneficiaries).

Appendix Table B.3.84: Emergency Department (ED) Visits and Outpatient Non-ED Visits, Cumulative and by Model Year, SilverScript/CVS

	Emergency Department (ED) Visits				Outpatient Non-ED Visits			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**1.36*****	**1.05*****	**1.40*****	**1.67*****	**3.65*****	**3.67*****	**3.52*****	**3.75*****
P-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(0.92 , 1.81)	(0.57 , 1.53)	(0.86 , 1.95)	(1.08 , 2.25)	(1.98 , 5.31)	(2.02 , 5.32)	(1.45 , 5.59)	(1.39 , 6.11)
Relative Difference	2.52%	1.90%	2.61%	3.14%	0.88%	0.89%	0.85%	0.91%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	54.06	55.18	53.86	53.01	414.00	414.20	414.01	413.78
Intervention Period Enhanced MTM Mean	53.77	56.65	53.37	50.96	438.74	432.23	438.60	446.17
Baseline Comparison MTM Mean	56.84	58.22	56.56	55.59	400.52	401.54	399.29	400.70
Intervention Period Comparison MTM Mean	55.18	58.64	54.66	51.87	421.61	415.90	420.36	429.34

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.85: Emergency Department (ED) Visits and Outpatient Non-ED Visits, Cumulative and by Model Year, Humana

	Emergency Department (ED) Visits				Outpatient Non-ED Visits			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**2.07*****	0.35	**3.79*****	**3.47*****	**17.40*****	**-5.35*****	**39.30*****	**36.57*****
P-value	<0.001	0.566	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(1.13 , 3.02)	(-0.84 , 1.53)	(2.62 , 4.95)	(2.26 , 4.69)	(14.81 , 19.99)	(-7.76 , -2.93)	(35.62 , 42.98)	(32.52 , 40.61)
Relative Difference	3.45%	0.57%	6.31%	5.79%	4.66%	-1.45%	10.47%	9.58%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	60.14	60.25	60.04	60.03	373.48	368.22	375.31	381.55
Intervention Period Enhanced MTM Mean	56.95	60.90	54.49	52.09	417.93	380.23	447.40	457.42
Baseline Comparison MTM Mean	65.37	65.75	65.04	65.00	384.44	382.38	383.38	389.61
Intervention Period Comparison MTM Mean	60.10	66.05	55.70	53.59	411.49	399.74	416.16	428.91

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.86: Emergency Department (ED) Visits and Outpatient Non-ED Visits, Cumulative and by Model Year, BCBS NPA

	Emergency Department (ED) Visits				Outpatient Non-ED Visits			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**-0.93***	-0.62	**-1.44****	-0.72	**45.08****	**38.35****	**44.30****	**53.61****
P-value	0.059	0.236	0.013	0.307	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(-1.89 , 0.04)	(-1.65 , 0.41)	(-2.57 , -0.31)	(-2.1 , 0.66)	(35.27 , 54.89)	(28.69 , 48.01)	(32.67 , 55.94)	(41.11 , 66.11)
Relative Difference	-3.10%	-2.09%	-4.82%	-2.41%	8.14%	6.94%	7.99%	9.67%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	29.82	29.77	29.84	29.86	553.61	552.40	554.17	554.38
Intervention Period Enhanced MTM Mean	33.94	33.44	33.71	34.76	604.67	588.15	606.67	621.42
Baseline Comparison MTM Mean	32.52	32.48	32.50	32.61	582.24	582.43	582.33	581.95
Intervention Period Comparison MTM Mean	37.57	36.77	37.81	38.23	588.23	579.83	590.52	595.38

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.87: Emergency Department (ED) Visits and Outpatient Non-ED Visits, Cumulative and by Model Year, UnitedHealth

	Emergency Department (ED) Visits				Outpatient Non-ED Visits			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**1.50****	**0.86***	**1.29****	**2.20****	**-9.61****	**-12.85****	**-12.19****	**-4.83****
P-value	<0.001	0.072	0.015	<0.001	<0.001	<0.001	<0.001	0.029
95% Confidence Interval	(0.71 , 2.28)	(-0.08 , 1.80)	(0.26 , 2.33)	(1.25 , 3.16)	(-13.19 , -6.03)	(-16.63 , -9.08)	(-17.51 , -6.87)	(-9.15 , -0.51)
Relative Difference	3.53%	2.26%	3.39%	4.47%	-2.78%	-4.00%	-3.79%	-1.25%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	42.34	38.05	38.04	49.33	345.57	321.14	321.69	385.01
Intervention Period Enhanced MTM Mean	42.21	39.49	37.12	48.43	362.13	331.28	337.08	408.06
Baseline Comparison MTM Mean	44.95	40.72	40.66	51.89	346.78	325.30	325.47	381.68
Intervention Period Comparison MTM Mean	43.32	41.30	38.44	48.78	372.95	348.30	353.05	409.56

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.88: Emergency Department (ED) Visits and Outpatient Non-ED Visits, Cumulative and by Model Year, WellCare

	Emergency Department (ED) Visits				Outpatient Non-ED Visits			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	**1.28***	**1.64***	**1.45**	0.63	-0.44	1.59	-1.80	-1.46
P-value	0.008	0.001	0.014	0.348	0.799	0.340	0.410	0.568
95% Confidence Interval	(0.34 , 2.22)	(0.65 , 2.63)	(0.30 , 2.61)	(-0.68 , 1.94)	(-3.82 , 2.94)	(-1.67 , 4.85)	(-6.09 , 2.49)	(-6.46 , 3.55)
Relative Difference	2.19%	2.81%	2.49%	1.07%	-0.10%	0.38%	-0.43%	-0.34%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	58.46	58.36	58.32	58.76	420.22	418.26	420.54	422.35
Intervention Period Enhanced MTM Mean	58.12	60.28	57.88	55.66	445.31	436.08	445.21	457.16
Baseline Comparison MTM Mean	57.68	57.85	57.38	57.81	398.80	398.10	398.23	400.34
Intervention Period Comparison MTM Mean	56.06	58.13	55.49	54.09	424.33	414.34	424.70	436.60

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.89: Emergency Department (ED) Visits and Outpatient Non-ED Visits, Cumulative and by Model Year, BCBS FL

	Emergency Department (ED) Visits				Outpatient Non-ED Visits			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate								
Difference-in-Differences	0.34	0.30	0.28	0.45	**-31.49***	**-25.80***	**-30.60***	**-38.97***
P-value	0.585	0.674	0.721	0.569	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(-0.88 , 1.56)	(-1.09 , 1.69)	(-1.27 , 1.84)	(-1.11 , 2.01)	(-39.14 , -23.83)	(-33.45 , -18.15)	(-39.43 , -21.78)	(-48.98 , -28.95)
Relative Difference	1.26%	1.10%	1.04%	1.67%	-12.01%	-9.87%	-11.66%	-14.83%
Means (1,000-beneficiaries-per-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	27.10	27.05	27.14	27.13	262.17	261.31	262.53	262.77
Intervention Period Enhanced MTM Mean	31.51	30.68	31.78	32.18	281.74	272.19	281.43	293.04
Baseline Comparison MTM Mean	28.03	28.05	28.02	28.01	289.55	289.49	289.46	289.71
Intervention Period Comparison MTM Mean	32.09	31.38	32.38	32.61	340.61	326.17	338.96	358.96

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

Evaluation and Management Visits

Appendix Table B.3.90: Evaluation and Management Visits, Cumulative and by Model Year, Modelwide

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate				
Difference-in-Differences	**5.97*****	**1.87****	**9.56*****	**7.27*****
P-value	<0.001	0.013	<0.001	<0.001
95% Confidence Interval	(4.44 , 7.50)	(0.40 , 3.33)	(7.59 , 11.53)	(5.19 , 9.35)
Relative Difference	0.85%	0.27%	1.36%	1.03%
Means (1,000-beneficiaries-per-month level, regression-adjusted)				
Baseline Enhanced MTM Mean	700.33	694.00	702.01	706.35
Intervention Period Enhanced MTM Mean	723.14	706.06	729.49	737.52
Baseline Comparison MTM Mean	713.08	711.53	713.00	715.06
Intervention Period Comparison MTM Mean	729.92	721.71	730.91	738.96

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 59,785,685 (1,519,200 beneficiaries). Number of comparison observations: 117,140,427 (3,245,111 beneficiaries).

Appendix Table B.3.91: Evaluation and Management Visits, Cumulative and by Model Year, SilverScript/CVS

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate				
Difference-in-Differences	**8.31*****	**3.36*****	**9.66*****	**12.40*****
P-value	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(6.68 , 9.94)	(1.74 , 4.97)	(7.64 , 11.68)	(10.10 , 14.70)
Relative Difference	1.18%	0.48%	1.37%	1.74%
Means (1,000-beneficiaries-per-month level, regression-adjusted)				
Baseline Enhanced MTM Mean	703.02	693.88	703.55	712.68
Intervention Period Enhanced MTM Mean	725.18	706.72	726.77	744.12
Baseline Comparison MTM Mean	706.85	703.76	705.26	712.03
Intervention Period Comparison MTM Mean	720.70	713.24	718.82	731.08

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.92: Evaluation and Management Visits, Cumulative and by Model Year, Humana

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate				
Difference-in-Differences	**4.16***	**-3.66***	**12.99***	**9.28***
P-value	0.004	0.007	<0.001	<0.001
95% Confidence Interval	(1.32 , 7.00)	(-6.31 , -1.01)	(8.97 , 17)	(4.94 , 13.62)
Relative Difference	0.62%	-0.56%	1.94%	1.37%
Means (1,000-beneficiaries-per-month level, regression-adjusted)				
Baseline Enhanced MTM Mean	666.22	657.31	669.91	679.26
Intervention Period Enhanced MTM Mean	687.98	662.53	706.61	716.08
Baseline Comparison MTM Mean	690.65	686.19	690.08	699.89
Intervention Period Comparison MTM Mean	708.25	695.08	713.80	727.43

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.93: Evaluation and Management Visits, Cumulative and by Model Year, BCBS NPA

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate				
Difference-in-Differences	**-24.58***	**-12.92***	**-25.89***	**-36.51***
P-value	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(-29.99 , -19.16)	(-18.23 , -7.60)	(-32.50 , -19.27)	(-44.08 , -28.94)
Relative Difference	-4.04%	-2.13%	-4.25%	-5.98%
Means (1,000-beneficiaries-per-month level, regression-adjusted)				
Baseline Enhanced MTM Mean	608.86	606.88	609.82	610.10
Intervention Period Enhanced MTM Mean	634.87	633.03	635.97	635.78
Baseline Comparison MTM Mean	642.55	642.03	642.44	643.25
Intervention Period Comparison MTM Mean	693.13	681.11	694.47	705.44

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.94: Evaluation and Management Visits, Cumulative and by Model Year, UnitedHealth

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate				
Difference-in-Differences	**28.23*****	**21.53*****	**36.79*****	**27.63*****
P-value	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(22.75 , 33.71)	(16.20 , 26.86)	(28.83 , 44.74)	(21.68 , 33.58)
Relative Difference	3.57%	2.67%	4.54%	3.62%
Means (1,000-beneficiaries-per-month level, regression-adjusted)				
Baseline Enhanced MTM Mean	791.16	806.13	809.69	764.03
Intervention Period Enhanced MTM Mean	806.53	815.26	828.18	782.51
Baseline Comparison MTM Mean	811.42	830.79	832.60	778.46
Intervention Period Comparison MTM Mean	798.56	818.40	814.30	769.30

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.95: Evaluation and Management Visits, Cumulative and by Model Year, WellCare

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate				
Difference-in-Differences	**-5.14*****	**-2.75***	**-4.79****	**-8.59*****
P-value	0.002	0.091	0.021	<0.001
95% Confidence Interval	(-8.40 , -1.88)	(-5.94 , 0.44)	(-8.87 , -0.71)	(-13.35 , -3.83)
Relative Difference	-0.73%	-0.39%	-0.67%	-1.20%
Means (1,000-beneficiaries-per-month level, regression-adjusted)				
Baseline Enhanced MTM Mean	709.18	703.64	711.72	713.32
Intervention Period Enhanced MTM Mean	720.52	713.77	722.67	726.63
Baseline Comparison MTM Mean	706.66	705.31	707.19	707.76
Intervention Period Comparison MTM Mean	723.13	718.18	722.92	729.66

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.96: Evaluation and Management Visits, Cumulative and by Model Year, BCBS FL

	Cumulative	Model Year 1	Model Year 2	Model Year 3
Per 1,000-Beneficiaries-per-Month Estimate				
Difference-in-Differences	**40.47*****	**27.85*****	**48.03*****	**46.87*****
P-value	<0.001	<0.001	<0.001	<0.001
95% Confidence Interval	(29.26 , 51.68)	(15.81 , 39.88)	(35.37 , 60.68)	(33.25 , 60.49)
Relative Difference	4.56%	3.14%	5.41%	5.27%
Means (1,000-beneficiaries-per-month level, regression-adjusted)				
Baseline Enhanced MTM Mean	887.95	887.05	888.39	888.52
Intervention Period Enhanced MTM Mean	915.89	899.77	917.70	932.45
Baseline Comparison MTM Mean	869.78	869.92	869.99	869.40
Intervention Period Comparison MTM Mean	857.24	854.79	851.27	866.46

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

B.3.5 Inpatient Expenditures and Admissions Related to Ambulatory Care-Sensitive Conditions (ACSCs)

This subsection presents additional information and findings of the Model impacts on inpatient expenditures and admissions related to the ACSC Chronic Composite Measure (supplementing Section 2.7) of the main report. Findings are first presented for the Model as a whole, and then by individual sponsor, both cumulative and for each Model Year.

Appendix Table B.3.97: Inpatient Expenditures and Admissions for ACSC Chronic Composite Measure, by Model Year, Modelwide

	Inpatient Expenditures				Inpatient Admissions			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
	Per-Beneficiary-per-Month Estimate				Per 1,000-Beneficiaries-per-Month Estimate			
Difference-in-Differences	**- $0.91***	- $0.33	**- $1.05***	**- $1.48***	**-0.13***	-0.04	**-0.17***	**-0.19***
P-value	0.001	0.373	0.004	<0.001	<0.001	0.264	<0.001	<0.001
95% Confidence Interval	(-1.46 , -0.37)	(-1.06 , 0.4)	(-1.77 , -0.34)	(-2.18 , -0.78)	(-0.18 , -0.07)	(-0.11 , 0.03)	(-0.25 , -0.1)	(-0.27 , -0.12)
Relative Difference	-4.69%	-1.70%	-5.45%	-7.59%	-5.06%	-1.56%	-6.66%	-7.37%
Means (beneficiary-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	$19.41	$19.44	$19.27	$19.51	2.57	2.57	2.55	2.58
Intervention Period Enhanced MTM Mean	$25.79	$28.71	$24.58	$23.45	3.16	3.50	2.99	2.92
Baseline Comparison MTM Mean	$18.99	$18.97	$18.77	$19.25	2.50	2.50	2.47	2.52
Intervention Period Comparison MTM Mean	$26.28	$28.57	$25.12	$24.68	3.22	3.47	3.08	3.06

Notes: ACSC: ambulatory care-sensitive condition. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 59,785,685 (1,519,200 beneficiaries). Number of comparison observations: 117,140,427 (3,245,111 beneficiaries).

Appendix Table B.3.98: Inpatient Expenditures and Admissions for ACSC Chronic Composite Measure, by Model Year, SilverScript/CVS

	Inpatient Expenditures				Inpatient Admissions			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
	Per-Beneficiary-per-Month Estimate				Per 1,000-Beneficiaries-per-Month Estimate			
Difference-in-Differences	**- $0.73***	$0.03	**- $1.03****	**- $1.27****	**-0.12****	-0.02	**-0.15****	**-0.19****
P-value	0.055	0.947	0.045	0.012	0.001	0.594	0.002	<0.001
95% Confidence Interval	(-1.48 , 0.01)	(-0.91 , 0.98)	(-2.04 , -0.02)	(-2.25 , -0.28)	(-0.20 , -0.05)	(-0.11 , 0.07)	(-0.25 , -0.06)	(-0.29 , -0.09)
Relative Difference	-3.65%	0.15%	-5.17%	-6.45%	-4.53%	-0.74%	-5.69%	-7.28%
Means (beneficiary-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	$20.01	$20.38	$19.92	$19.69	2.65	2.69	2.64	2.61
Intervention Period Enhanced MTM Mean	$27.18	$29.65	$26.64	$24.98	3.32	3.61	3.24	3.08
Baseline Comparison MTM Mean	$20.08	$20.45	$19.93	$19.82	2.64	2.68	2.62	2.60
Intervention Period Comparison MTM Mean	$27.98	$29.69	$27.69	$26.37	3.43	3.63	3.37	3.27

Notes: ACSC: ambulatory care-sensitive condition. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 25,279,845 (617,342 beneficiaries). Number of comparison observations: 58,915,450 (1,600,794 beneficiaries).

Appendix Table B.3.99: Inpatient Expenditures and Admissions for ACSC Chronic Composite Measure, by Model Year, Humana

	Inpatient Expenditures				Inpatient Admissions			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
	Per-Beneficiary-per-Month Estimate				Per 1,000-Beneficiaries-per-Month Estimate			
Difference-in-Differences	- $0.92	$0.58	- $1.50	**- $3.15****	**-0.11***	0.09	**-0.26****	**-0.34****
P-value	0.194	0.517	0.103	<0.001	0.096	0.260	0.003	<0.001
95% Confidence Interval	(-2.30 , 0.47)	(-1.18 , 2.35)	(-3.3 , 0.30)	(-4.90 , -1.4)	(-0.24 , 0.02)	(-0.07 , 0.25)	(-0.43 , -0.09)	(-0.51 , -0.17)
Relative Difference	-3.63%	2.28%	-5.93%	-12.53%	-3.36%	2.74%	-7.95%	-10.45%
Means (beneficiary-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	$25.34	$25.48	$25.29	$25.14	3.27	3.29	3.27	3.25
Intervention Period Enhanced MTM Mean	$31.59	$36.80	$28.22	$25.33	3.75	4.37	3.29	3.09
Baseline Comparison MTM Mean	$23.81	$23.87	$23.74	$23.79	3.10	3.10	3.09	3.10
Intervention Period Comparison MTM Mean	$30.97	$34.61	$28.17	$27.13	3.69	4.09	3.37	3.27

Notes: ACSC: ambulatory care-sensitive condition. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 12,464,573 (357,963 beneficiaries). Number of comparison observations: 29,064,753 (832,589 beneficiaries).

Appendix Table B.3.100: Inpatient Expenditures and Admissions for ACSC Chronic Composite Measure, by Model Year, BCBS NPA

	Inpatient Expenditures				Inpatient Admissions			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
	Per-Beneficiary-per-Month Estimate				Per 1,000-Beneficiaries-per-Month Estimate			
Difference-in-Differences	- $1.80***	- $1.66*	- $1.47**	- $2.32***	-0.20***	-0.18**	-0.17*	-0.26**
P-value	0.004	0.073	0.048	0.006	0.003	0.042	0.060	0.013
95% Confidence Interval	(-3.02 , -0.59)	(-3.48 , 0.16)	(-2.92 , -0.01)	(-3.99 , -0.66)	(-0.34 , -0.07)	(-0.35 , -0.01)	(-0.35 , 0.01)	(-0.47 , -0.06)
Relative Difference	-20.67%	-19.14%	-16.87%	-26.55%	-15.59%	-14.10%	-13.24%	-20.19%
Means (beneficiary-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	$8.71	$8.68	$8.72	$8.74	1.28	1.28	1.28	1.29
Intervention Period Enhanced MTM Mean	$14.54	$15.13	$14.19	$14.25	2.02	2.07	1.97	2.02
Baseline Comparison MTM Mean	$8.72	$8.70	$8.70	$8.76	1.23	1.22	1.22	1.23
Intervention Period Comparison MTM Mean	$16.35	$16.81	$15.65	$16.59	2.17	2.20	2.08	2.22

Notes: ACSC: ambulatory care-sensitive condition. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,729,905 (174,645 beneficiaries). Number of comparison observations: 11,900,082 (290,759 beneficiaries).

Appendix Table B.3.101: Inpatient Expenditures and Admissions for ACSC Chronic Composite Measure, by Model Year, UnitedHealth

	Inpatient Expenditures				Inpatient Admissions			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
	Per-Beneficiary-per-Month Estimate				Per 1,000-Beneficiaries-per-Month Estimate			
Difference-in-Differences	- $0.82	- $1.36	- $0.88	- $0.30	-0.07	-0.11	-0.10	0.00
P-value	0.241	0.178	0.394	0.751	0.366	0.313	0.376	0.956
95% Confidence Interval	(-2.19 , 0.55)	(-3.35 , 0.62)	(-2.92 , 1.15)	(-2.12 , 1.53)	(-0.21 , 0.08)	(-0.32 , 0.10)	(-0.31 , 0.12)	(-0.17 , 0.16)
Relative Difference	-4.78%	-8.61%	-5.53%	-1.56%	-3.08%	-5.18%	-4.69%	0.00%
Means (beneficiary-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	$17.16	$15.80	$15.90	$19.29	2.27	2.13	2.13	2.51
Intervention Period Enhanced MTM Mean	$23.20	$24.41	$21.23	$23.64	2.83	3.00	2.58	2.87
Baseline Comparison MTM Mean	$17.08	$15.41	$15.47	$19.75	2.26	2.09	2.10	2.53
Intervention Period Comparison MTM Mean	$23.94	$25.38	$21.69	$24.39	2.89	3.08	2.64	2.90

Notes: ACSC: ambulatory care-sensitive condition. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 7,112,516 (196,552 beneficiaries). Number of comparison observations: 16,615,040 (529,496 beneficiaries).

Appendix Table B.3.102: Inpatient Expenditures and Admissions for ACSC Chronic Composite Measure, by Model Year, WellCare

	Inpatient Expenditures				Inpatient Admissions			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
	Per-Beneficiary-per-Month Estimate				Per 1,000-Beneficiaries-per-Month Estimate			
Difference-in-Differences	$0.30	- $0.25	$0.71	$0.54	-0.04	-0.07	-0.08	0.06
P-value	0.707	0.797	0.524	0.635	0.658	0.475	0.430	0.612
95% Confidence Interval	(-1.27 , 1.87)	(-2.19 , 1.68)	(-1.47 , 2.89)	(-1.68 , 2.76)	(-0.19 , 0.12)	(-0.25 , 0.12)	(-0.28 , 0.12)	(-0.17 , 0.28)
Relative Difference	1.40%	-1.17%	3.31%	2.52%	-1.42%	-2.49%	-2.83%	2.12%
Means (beneficiary-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	$21.40	$21.36	$21.44	$21.42	2.82	2.82	2.82	2.84
Intervention Period Enhanced MTM Mean	$30.96	$31.37	$31.28	$30.07	3.72	3.80	3.65	3.68
Baseline Comparison MTM Mean	$20.71	$20.70	$20.68	$20.76	2.72	2.72	2.72	2.73
Intervention Period Comparison MTM Mean	$29.97	$30.97	$29.82	$28.87	3.65	3.77	3.63	3.52

Notes: ACSC: ambulatory care-sensitive condition. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 4,635,305 (114,860 beneficiaries). Number of comparison observations: 16,360,398 (469,056 beneficiaries).

Appendix Table B.3.103: Inpatient Expenditures and Admissions for ACSC Chronic Composite Measure, by Model Year, BCBS FL

	Inpatient Expenditures				Inpatient Admissions			
	Cumulative	Model Year 1	Model Year 2	Model Year 3	Cumulative	Model Year 1	Model Year 2	Model Year 3
	Per-Beneficiary-per-Month Estimate				Per 1,000-Beneficiaries-per-Month Estimate			
Difference-in-Differences	- $0.81	- $2.50	$0.87	- $0.66	**-0.23***	-0.29	-0.12	-0.28
P-value	0.463	0.176	0.506	0.626	0.081	0.145	0.461	0.214
95% Confidence Interval	(-2.96 , 1.35)	(-6.11 , 1.12)	(-1.69 , 3.43)	(-3.33 , 2.01)	(-0.49 , 0.03)	(-0.67 , 0.10)	(-0.45 , 0.21)	(-0.72 , 0.16)
Relative Difference	-6.99%	-21.66%	7.49%	-5.69%	-14.29%	-18.03%	-7.45%	-17.41%
Means (beneficiary-month level, regression-adjusted)								
Baseline Enhanced MTM Mean	$11.58	$11.54	$11.62	$11.60	1.61	1.61	1.61	1.61
Intervention Period Enhanced MTM Mean	$18.60	$18.96	$18.35	$18.44	2.35	2.36	2.27	2.41
Baseline Comparison MTM Mean	$11.30	$11.31	$11.30	$11.28	1.49	1.49	1.49	1.49
Intervention Period Comparison MTM Mean	$19.12	$21.23	$17.16	$18.79	2.46	2.53	2.27	2.57

Notes: ACSC: ambulatory care-sensitive condition. * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. The unit of observation is a beneficiary-month. Number of Enhanced MTM observations: 2,563,541 (57,838 beneficiaries). Number of comparison observations: 4,153,265 (102,092 beneficiaries).

B.4 Beneficiary Enrollment in Enhanced MTM Plan Benefit Packages (PBPs) – Supplemental Findings for Section 1

This appendix section presents additional information regarding the findings presented in the Introduction (Section 1) on changes in beneficiary enrollment in Enhanced MTM PBPs over Model Years 1 (2017) through 3 (2019). Specifically, it provides information on sponsors' individual PDP enrollment, and changes in PBP premium, benchmark status, and de minimis program participation throughout the first three Model Years.

Losing or gaining benchmark status has considerable effects on decreasing or increasing (respectively) dual-eligible and low-income subsidy (LIS) enrollment, and therefore examining these changes informs understanding of general PBP enrollment trends. 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. "Benchmark" PBPs are PBPs with premiums below the regional benchmark amount that received this auto-enrollment. A PBP may effectively retain benchmark status if (i) its monthly premium is within a "de minimis" amount (set at $2 for 2017-2019) over the regional benchmark, and (ii) it volunteers to waive the de minimis amount for dual-eligible beneficiaries and LIS recipients. For PBPs that elect to waive the de minimis amount, the law prohibits CMS from reassigning LIS beneficiaries from them. However, these PBPs do not qualify for automatic or facilitated enrollment of newly subsidy-eligible beneficiaries by CMS.

Section 1 noted that total Enhanced MTM PBP enrollment remained fairly constant for the Model as a whole, but there was some cross-sponsor variation. For BCBS NPA, WellCare, and BCBS FL, there were minimal decreases in Enhanced MTM PBP enrollment each Model Year. All WellCare PBPs maintained either benchmark status or continued to waive the de minimis amounts for all three Model Years. The single BCBS FL PBP maintained non-benchmark status and did not waive the de minimis amount in any of the three Model Years. The single BCBS NPA PBP ended its waiver of the de minimis amount beginning in Model Year 2, likely driving the small decrease in enrollment that year.

Humana, SilverScript/CVS, and UnitedHealth all experienced fluctuations in enrollment in the first three Model Years. Humana's enrollment decreased substantially (44 percent) from Model Year 1 to Model Year 3, driven by a loss in benchmark status for Humana's Florida PBP (S5884-105) beginning in Model Year 2. Conversely, SilverScript/CVS's enrollment increased substantially (24 percent) across Model Years. Since SilverScript/CVS PBPs maintained benchmark status during all three Model Years, its Florida PBP (S5601-022) gained the dual-eligible and LIS beneficiary enrollment in Model Year 2 that Humana's Florida PBP lost through auto-enrollment. UnitedHealth's enrollment decreased from Model Year 1 to Model Year 2 due

to significant increases in basic and LIS premiums in 2018. UnitedHealth's enrollment then increased substantially from Model Year 2 to Model Year 3, likely due to three of the five UnitedHealth PBPs gaining benchmark status (S5921-352, S5921-366, and S5921-370), and a fourth PBP waiving the de minimis amount (S5921-380). In addition, four non-Enhanced MTM UnitedHealth PBPs consolidated into four Enhanced MTM PBPs (S5921-352, S5921-366, S5921-370, and S5921-380) beginning in 2019.

Appendix Table B.4.1 summarizes participating PDPs' regions, benefit types, and enrollments from Model Year 1 (2017) to Model Year 3 (2019). Appendix Table B.4.2 summarizes participating PDPs' premiums, benchmark status, and whether they waived de minimis amounts across the same time period.

Appendix Table B.4.1: Participating PBPs' Region, Benefit Type, and Enrollment from Model Year 1 (2017) to Model Year 3 (2019)

Sponsor and PBP	PDP Region	PDP Benefit Type (2017-2019)	Enrollment		
			2017	2018	2019
SilverScript/CVS					
S5601-014	Virginia	BA	108,032	114,961	111,807
S5601-022	Florida	BA	288,409	471,084	480,026
S5601-042	Louisiana	BA	98,204	102,159	97,200
S5601-050	Northern Plains	BA	237,645	255,220	243,028
S5601-056	Arizona	BA	62,653	60,419	55,854
All SilverScript/CVS PBPs			794,257	1,003,077	987,071
Humana					
S5884-105	Florida	AES	246,089	69,745	52,235
S5884-108	Louisiana	AES	26,974	27,984	27,490
S5884-132	Virginia	AES	44,729	53,446	49,697
S5884-145	Northern Plains	AES	115,130	111,794	100,285
S5884-146	Arizona	AES	24,837	24,750	26,062
All Humana PBPs			457,506	287,568	255,658
BCBS NPA					
S5743-001	Northern Plains	BA	241,499	239,964	219,299
UnitedHealth					
S5921-352	Virginia	AES	18,882	14,765	37,953
S5921-356	Florida	AES	113,877	87,533	73,066
S5921-366	Louisiana	AES	9,605	7,513	22,025
S5921-370	Northern Plains	AES	24,670	17,497	55,747
S5921-380	Arizona	AES	9,063	7,067	17,568
All UnitedHealth PBPs			175,940	134,280	206,205
WellCare					
S4802-012	Louisiana	BA	29,235	25,140	22,082
S4802-069	Virginia	BA	37,450	37,533	33,840
S4802-083	Florida	BA (2017) AES (2018-2019)	28,650	28,857	26,096
S4802-089	Northern Plains	BA	36,986	37,356	31,101
S4802-092	Arizona	BA	22,906	21,436	19,543
All WellCare PBPs			155,092	150,201	132,561
BCBS FL					
S5904-001	Florida	BA	64,631	60,858	55,976

Sources: 2017 Health Plan Management System (HPMS) Plan Information File, December 2017 file, 2018 HPMS Plan Information File, December 2018 file, 2019 HPMS Plan Information File, and December 2019 file, accessed in December 2019. 2017 HPMS PDP Plan Service Area File, December 2017 file, 2018 HPMS PDP Plan Service Area File, December 2018 file, 2019 HPMS PDP Plan Service Area File, and December 2019 file, accessed in December 2019. PDP enrollment data in the Common Medicare Environment (CME), accessed in March 2020. PDP enrollment only includes beneficiaries in Enhanced MTM-participating contract-PBPs.

Notes: BA: Basic Alternative; AES: Actuarially Equivalent Standard. The Northern Plains PDP region includes Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, and Wyoming.

Appendix Table B.4.2: Participating Part D Plans' Premium, Benchmark Status, and De Minimis Waiver Status from Model Year 1 (2017) to Model Year 3 (2019)

Sponsor and PBP	Monthly Basic Premium (dollars)			Monthly LIS Premium (dollars)			Benchmark Status or De Minimis Waiver Status		
	2017	2018	2019	2017	2018	2019	2017	2018	2019
SilverScript/CVS									
S5601-014	30.80	26.00	29.20	0	0	0	B	B	B
S5601-022	28.90	26.40	28.00	0	0	0	B	B	B
S5601-042	24.20	23.10	31.50	0	0	0	B	B	B
S5601-050	31.30	28.80	32.30	0	0	0	B	B	B
S5601-056	29.70	28.50	31.20	0	0	0	B	B	B
Humana									
S5884-105	26.10	33.60	38.30	0	4.53	8.05	B	--	--
S5884-108	27.90	30.50	28.20	0	0	0	B	B	B
S5884-132	28.10	29.70	28.20	0	0	0	B	B	B
S5884-145	26.70	31.90	31.80	0	0	0	B	B	B
S5884-146	28.70	31.50	30.00	0	0	0	B	B	B
BCBS NPA									
S5743-001	35.10	37.40	37.90	1.08	3.41	2.12	D	--	--
UnitedHealth									
S5921-352	46.00	53.30	27.30	13.48	23.25	0	--	--	B
S5921-356	32.90	42.00	45.20	3.77	12.93	14.95	--	--	--
S5921-366	42.40	49.60	28.70	9.60	18.68	0	--	--	B
S5921-370	47.40	54.60	33.80	13.38	20.61	0	--	--	B
S5921-380	50.00	62.50	32.90	14.89	29.62	0.28	--	--	D
WellCare									
S4802-012	30.10	31.70	30.60	0	0.78	0	B	D	B
S4802-069	27.20	28.60	29.70	0	0	0	B	B	B
S4802-083	30.40	29.50	31.30	1.27	0.43	1.05	D	D	D
S4802-089	28.60	31.30	33.80	0	0	0	B	B	B
S4802-092	22.70	26.90	26.70	0	0	0	B	B	B
BCBS FL									
S5904-001	79.40	76.30	66.20	50.27	47.23	35.95	--	--	--

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 2017-2019 Low Income Premium Subsidy (LIPS) Amounts from the CMS website for MY 2017: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/RegionalRatesBenchmarks2017.pdf, MY 2018: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/RegionalRatesBenchmarks2018.pdf , and MY 2019: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/RegionalRatesBenchmarks2019.pdf

Notes: B: benchmark status; D: de minimis waiver; LIS: low-income subsidy.
In the PDP Region of Florida, the benchmark levels were set at $29.13 in 2017, $29.07 in 2018, and $30.25 in 2019. In the Northern Plains region (Iowa, Minnesota, Montana, Nebraska, North Dakota, South Dakota, and Wyoming) the levels were set at $34.02 in 2017, $33.99 in 2018, and $35.78 in 2019. In Louisiana the levels were set at $32.80 in 2017, $30.92 in 2018, and $33.06 in 2019. In Virginia the levels were set at $32.52 in 2017, $30.05 in 2018, and $30.61 in 2019. Finally, in Arizona the levels were set at $35.11 in 2017, $32.88 in 2018, and $32.61 in 2019. PBPs whose premiums are above the regional benchmark and/or do not waive its de minimis amount in specific Model Years are designated by a "--" in each corresponding column.

B.5   Enhanced MTM Eligibility and Service Receipt – Methodology and Supplementary Findings for Section 3

This section presents additional information about beneficiary eligibility and service receipt for Enhanced MTM, presented in Section 3 ("How Did Enhanced MTM Interventions Evolve Over Model Years 1 to 3?"). Section B.5.1 outlines the data and methods used to generate the descriptive statistics presented in Section 3 of the report and Appendix Sections B.5.2 and B.5.3. Section B.5.2 presents supplemental findings on beneficiary eligibility for Enhanced MTM. Section B.5.3 provides supplemental findings on Enhanced MTM service receipt.

B.5.1 Enhanced MTM Eligibility and Service Receipt: Methods

Beneficiaries are considered eligible for Enhanced MTM if they have at least one record in MARx data (eligible for an intervention) and at least one month of enrollment in the Enhanced MTM plan according to CME in the relevant Model Year (2017, 2018, or 2019).[9]

General methods for calculating eligibility and service receipt statistics are as follows:

- For eligibility statistics based on MARx and plan enrollment (Section 3.3.1: proportion of plan enrollees eligible for Enhanced MTM), the denominator is defined by beneficiaries who were continuously enrolled in Model participating PDPs in the Model Year. The numerator includes beneficiaries with one or more months of Enhanced MTM eligibility in the Model Year in MARx.

- For eligibility statistics based on intervention-specific eligibility data (Section 3.3.2: proportion of beneficiaries eligible for specific interventions), the denominator includes individuals with one or more months of Enhanced MTM eligibility in MARx and the sponsor-provided intervention-specific eligibility file in the Model Year. The numerator includes individuals eligible for a specific intervention in the sponsor-provided intervention-specific eligibility file.

- Due to the design flexibility of the Enhanced MTM program, participating sponsors can report service receipt in the Encounter Data using a wide array of Systematized Nomenclature of Medicine – Clinical Terms (SNOMED CT) codes. Moreover, a sponsor is able to add, drop, or alter interventions and services as it deems necessary.

---

[9] The exception is BCBS NPA, where beneficiary eligibility is defined by the presence of a record in Enhanced MTM Encounter Data and at least one month of enrollment in the BCBS NPA Enhanced MTM plan in the target year (2017, 2018, or 2019). For further information, please refer to "Evaluation of the Part D Enhanced Medication Therapy Management (MTM) Model: Second Evaluation Report" (November 2020), https://innovation.cms.gov/data-and-reports/2020/mtm-secondevalrpt.

To account for these year-to-year fluctuations, an annual review of SNOMED CT codes is conducted and SNOMED CT codes associated with significant services are categorized into 12 intervention categories (see Appendix Table B.5.5). Service receipt counts and proportions of beneficiaries who receive services (Section 3.4) are based on this classification system. Only beneficiaries who are considered eligible for services per the methods described above are counted in service receipt calculations.

- Additionally, four sponsors (BCBS NPA, UnitedHealth, WellCare, and BCBS FL) used "decline codes" in the Encounter Data to indicate that a beneficiary had declined a specific significant service, opted out of Enhanced MTM services entirely (i.e., declined to be contacted for any future services), or was not responsive to service outreach attempts. Any significant service codes in the Encounter Data that were accompanied by a code that captured decline of service, opt out, or no response to service on the same day were excluded from counts of significant services received.

The eligibility and service statistics presented in the evaluation reports are subject to updates in sponsor-submitted data. Sponsors submit updated MARx data on a monthly basis, updated Enhanced MTM Encounter Data on a quarterly basis, and the intervention-specific eligibility data on an annual basis. The statistics presented in Section 3 and this appendix were produced using the most current data available at the time (see Appendix Table B.1.1). The statistics generated for Model Years 1 and 2 may differ from previous Evaluation Reports due to sponsors making retroactive updates in data submissions subsequent to the previous evaluation reports. To ensure adequate time to analyze data for this report, the evaluation team used updated intervention-specific eligibility files received as of September 8, 2020. Additionally, ongoing discussions with sponsors revealed data issues that were not addressed by sponsors in time for this report. These issues concern BCBS FL's MARx and intervention-specific eligibility data and Humana's 2019 Enhanced MTM Encounter Data. Roughly 25 percent of BCBS FL beneficiaries, who appear as eligible to receive Enhanced MTM services in MARx data, do not appear as eligible in BCBS FL's intervention-specific eligibility data. The team also observed a substantial proportion of beneficiaries reported as receiving significant services in BCBS FL's Encounter Data who were missing from MARx data (28 percent in Model Year 2 and 17 percent in Model Year 3). As such, there may be undercounting of overall and intervention-level eligibility, and undercounting of service receipt for BCBS FL. The evaluation team will update these statistics when BCBS FL is able to clarify the extent and nature of these errors and/or submit corrected data. For Humana, the SNOMED CT code representing a case/disease management significant service did not appear in Enhanced MTM Encounter Data as expected. As a result, Humana's general service receipt statistics may under-represent the services actually delivered. These two

sponsors are working to resolve these issues; however, at the time of this report draft, updated data were not yet available.

B.5.2 Beneficiary Eligibility: Supplemental Information and Findings

This appendix section focuses on participating plan enrollees who were eligible for Enhanced MTM interventions and presents eligibility trends in the first three years of the Model. The first subsection below describes newly eligible beneficiaries as well as the cohorts of beneficiaries who are eligible for Enhanced MTM in multiple Model Years, and the second subsection below presents additional statistics on targeting within the subcategories of medication utilization.

New and Multi-Year Eligibility

As a supplement to Section 3.1.1 on overall eligibility, this section describes inflows and outflows of beneficiaries eligible for Enhanced MTM. Nearly 1.9 million beneficiaries had at least one month of eligibility for Enhanced MTM services over the first three years of the Model (Appendix Table B.5.1). Beneficiaries who were newly eligible for Enhanced MTM in Model Years 2 and 3 result from (i) growth of participating plan enrollment, and (ii) newly targeted beneficiaries with continuing enrollment in a plan. Targeting-based changes could result from a change in beneficiaries' health and medication status, thus triggering Enhanced MTM targeting criteria, or sponsors making (typically minor) refinements to the targeting criteria that, in most cases, broaden the reach of an intervention.

Appendix Table B.5.1: Of the 1.9 Million Beneficiaries Ever Eligible for Enhanced MTM, Most Became Eligible Starting in Model Year 1 (2017)

Sponsor	Beneficiaries Ever Eligible in Model Years 1-3 (2017-2019)[a]	Beneficiaries Eligible in Model Year 1 (2017) (% Among All Eligible Beneficiaries)	Beneficiaries Newly Eligible in Model Year 2 (2018) (% Among All Eligible Beneficiaries)	Beneficiaries Newly Eligible in Model Year 3 (2019) (% Among All Eligible Beneficiaries)
All Participating Sponsors	*1,887,742*	1,237,604 *(65.6%)*	*357,704 (18.9%)*	*292,434 (15.5%)*
SilverScript/CVS	1,176,873	726,911 (61.8%)	291,992 (24.8%)	157,970 (13.4%)
Humana	315,048	221,663 (70.4%)	62,913 (20.0%)	30,472 (9.7%)
BCBS NPA	113,027	51,003 (45.1%)	24,332 (21.5%)	37,692 (33.3%)
UnitedHealth	174,031	95,518 (54.9%)	20,485 (11.8%)	58,028 (33.3%)
WellCare	155,538	110,415 (71.0%)	26,404 (17.0%)	18,719 (12.0%)
BCBS FL	48,035	35,022 (72.9%)	5,563 (11.6%)	7,450 (15.5%)

Source: Enhanced MTM eligibility data in MARx.
[a] Sponsor counts do not sum to the Modelwide total due to beneficiaries switching between Enhanced MTM-participating plans.

Among beneficiaries who were continuously enrolled in a sponsor's Enhanced MTM-participating plans, once beneficiaries became eligible for Enhanced MTM interventions, most remained eligible across Model Years (Appendix Table B.5.2). Modelwide, 89.7 percent and 86.1 percent of beneficiaries who became eligible for interventions in Model Year 1 (2017) were also eligible to receive interventions in Model Year 2 (2018) and Model Year 3 (2019), respectively. Summary statistics in this table are based on MARx eligibility data that include information on which beneficiaries are eligible for the Model, when they become eligible, and when they leave the Model. Beneficiaries who are continuously enrolled in a sponsor's Enhanced MTM-participating plans leave the Model if they no longer meet intervention-specific targeting criteria (collectively reported as "No Longer Eligible" in MARx) or if they opted out of the Model.[10] For all sponsors, the rate of consistently eligible beneficiaries was above 50 percent, with variation across sponsors due to differences in intervention design and changes over time in intervention offerings.

---

[10] Beneficiaries may leave the Model voluntarily by opting out (reported as "Opt Out" in MARx), though MARx data files do not include information about whether beneficiaries decline individual Enhanced MTM services. 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.

Appendix Table B.5.2: **Most of the Beneficiaries Eligible for Enhanced MTM in Model Year 1 Have Been Consistently Eligible in Model Years 2 and 3**

Sponsor	Proportion of Eligible Beneficiaries with Continuous Eligibility since Model Year 1	
	Model Year 2 (2018)	Model Year 3 (2019)
All Participating Sponsors	*89.7%*	*86.1%*
SilverScript/CVS	93.0%	89.9%
Humana	97.0%	96.0%
BCBS NPA	56.6%	50.0%
UnitedHealth	78.4%	66.0%
WellCare	94.0%	90.5%
BCBS FL	55.2%	55.1%

Source: Enhanced MTM eligibility data in MARx
Notes: Continued eligibility is defined as having at least one month of recorded eligibility in multiple Model Years. Rates use Model Year 1 eligible beneficiaries as the denominator.

Medication Utilization Targeting

As a companion to Table 3.2 in Section 3, Appendix Table B.5.3 provides detail on the subcategories within the largest Modelwide targeting category, Medication Use. Among the beneficiaries targeted based on medication use, almost all (roughly 99 percent) were targeted due to drug therapy problems (DTPs), and over half were targeted based on newly prescribed medications. Increases over time in the number of beneficiaries eligible based on DTPs and new medications (Model Years 2 and 3), and number of medications (Model Year 3), were largely attributable to added interventions.

Fluctuations in beneficiary eligibility in the opioid category were due to changes in opioid interventions as well as broader changes in prescribing practices to limit opioid prescriptions. The short-term opioid intervention launched by BCBS NPA in Model Year 2 drove changes in eligibility based on opioid use. WellCare reported that changes in prescribing practices likely resulted in declining eligibility for its Opioid Utilization intervention despite no significant targeting criteria changes. Appendix Table B.5.4 denotes the applicable medication utilization sub-categories for each sponsor intervention that has a primary targeting focus of medication utilization.

Appendix Table B.5.3: Among Beneficiaries Targeted Based on Medication Utilization, the Vast Majority Were Targeted Due to DTPs

Med Use Sub-category	Model Year 1 (2017)		Model Year 2 (2018)		Model Year 3 (2019)	
	Interventions Using Sub-category	Beneficiaries Ever Eligible for Category *(Proportion Eligible for Category)[a]*	Interventions Using Sub-category	Beneficiaries Ever Eligible for Category *(Proportion Eligible for Category)*	Interventions Using Sub-category	Beneficiaries Ever Eligible for Category *(Proportion Eligible for Category)*
All Sub-categories	**10**	***974,550***	**14**	***1,032,974***	**13**	***1,084,196***
DTP	7	962,190 *(98.7%)*	11	1,027,578 *(99.5%)*	10	1,081,499 *(99.8%)*
New Med	3	511,136 *(52.4%)*	4	636,899 *(61.7%)*	4	662,426 *(61.1%)*
Number of Meds	1	94,784 *(9.7%)*	2	75,521 *(7.3%)*	2	112,941 *(10.4%)*
Opioid	1	28,743 *(2.9%)*	2	33,508 *(3.2%)*	1	16,790 *(1.5%)*

Sources: PDP enrollment data in the CME; Enhanced MTM eligibility data in MARx; Enhanced MTM Encounter Data; intervention-specific eligibility files provided to Acumen by sponsors.

Notes: DTP: targeting based on medication adherence issues, adverse drug reactions/interactions, gaps in care, dosage issues, and/or unnecessary or inappropriate drug therapy; New Med: targeting based on newly prescribed medications; Number of Meds: targeting based on a certain number of medications; Opioid: targeting based on opioid use or misuse.

[a] Beneficiaries may be counted for multiple sub-categories since some Med Use interventions address multiple sub-categories.

Appendix Table B.5.4: Sub-Categories of Enhanced MTM Medication Utilization Interventions and Availability by Model Year

Sponsor and Enhanced MTM Intervention	Model Year 1 (2017)	Model Year 2 (2018)	Model Year 3 (2019)	Medication Utilization Sub-Category
SilverScript/CVS				
Pharmacy Advisor Counseling	✓	✓	✓	• DTP • New Med
Humana				
Risk-based (for DTPs)	✓	✓	✓	• DTP
BCBS NPA				
High Risk (for multi-drug interactions)	✓	✓	✓	• DTP
Opioid		✓		• DTP • Opioid
Community Pharmacy Smart Recommendations		✓	✓	• DTP • New Med
UnitedHealth				
Risk-based (for DTPs)	✓	✓	✓	• DTP • Number of Meds
Medication Adherence Monitoring		✓	✓	• DTP
WellCare				
Medication Adherence	✓	✓	✓	• DTP
Opioid Utilization	✓	✓	✓	• Opioid
Select Drug Therapy Problems	✓	✓	✓	• DTP
BCBS FL				
Anticoagulant	✓	✓	✓	• New Med
Specialty Drug	✓	✓	✓	• New Med
Medication Adherence	✓	✓	✓	• DTP
Statin Use in Persons with Diabetes		✓	✓	• DTP • Number of Meds

Notes: DTP: targeting based on medication adherence issues, adverse drug reactions/interactions, gaps in care, dosage issues, and/or unnecessary or inappropriate drug therapy; New Med: targeting based on newly prescribed medications; Number of Meds: targeting based on a certain number of medications; Opioid: targeting based on opioid use or misuse.

B.5.3 Enhanced MTM Service Receipt: Supplemental Information and Findings

This section presents additional information about receipt of Enhanced MTM significant services. As noted in Section 3 of the report, significant services are tailored services intended to address specific beneficiary needs. Sponsors used 12 significant service categories for Enhanced MTM. Within the group of significant services, some services involved interactive discussions with beneficiaries (referred to as "high-intensity" services) and others focused on prescribers or non-interactive education and reminders tailored to beneficiaries ("low-intensity"). The first subsection describes and counts Enhanced MTM significant services. The second subsection shows the distribution of interventions by high and low intensity as well as the proportion of

beneficiaries receiving high- and low-intensity services. Finally, the third subsection provides a breakdown of TMR receipt into beneficiary-facing and prescriber-facing TMRs.

Significant Service Definition and Counts

As a supplement to Section 3.4 of the report, Appendix Table B.5.5 provides the definition for each significant service and corresponding level of intensity. Sponsors' interventions generally offered high-intensity services more than once within a given Model Year, but offered low-intensity services only once.

Appendix Table B.5.5: The 12 Types of Significant Services Were Either High- or Low-Intensity

Significant Service Category	Description	Level of Intensity
Medication Reconciliation Categories		
Medication reconciliation	An interactive service, separately from a CMR, to ensure the sponsor's record of beneficiary medications is current	High
Transitions of care (medication reconciliation)	A similar service to a regular medication reconciliation but with a focus on capturing medication changes that occurred as a result of a hospitalization	High
Comprehensive Medication Review (CMR) Categories		
CMR	An interactive service to comprehensively and systematically review a beneficiary's medication regimen and identify and develop a plan to address medication-related problems	High
Transitions of care (CMR)	A similar service to regular CMR but with a focus on identifying and addressing medication-related problems that occur after a beneficiary is discharged from the hospital	High
Targeted Medication Review (TMR) Categories		
TMR (beneficiary)	A focused, beneficiary-facing service to address specific, pre-identified medication issues	High
TMR (prescriber)	A focused prescriber-facing service to address specific, pre-identified medication issues	Low
Transitions of care (prescriber-facing)	A focused prescriber-facing service to address a specific medication issue or issues that arise after a beneficiary is discharged from the hospital	Low
Medication Adherence Categories		
Medication adherence (pharmacist)	An interactive service to investigate and address beneficiary non-adherence or risk for non-adherence to medications	High
Medication adherence (automated)	A service that involves automated contact, such as refill reminders, through interactive voice response (IVR)	Low
Other Service Categories		
Cost-sharing and social support	Services to address cost or social issues that affect a beneficiary's ability to obtain and/or adhere to medications	High
Case/disease management	An interactive service to support beneficiaries in controlling their disease state(s) and/or coordinate care across multiple healthcare entities	High

Significant Service Category	Description	Level of Intensity
Immunization assessment, reminder, and administration	Services that involve assessing the need for, providing reminders or information about, and/or administering vaccines	Low

As a complement to statistics on beneficiary receipt of significant services in Figures 3.4 and 3.5 of the report, Appendix Table B.5.6 shows counts of significant services by sponsor and over time. Modelwide, the number of significant services provided to beneficiaries increased over time. Modelwide and across most sponsors, the average number of significant services delivered among beneficiaries receiving significant services in a given Model Year was between two and three. This is consistent with beneficiaries qualifying for multiple interventions and sponsors offering recurrent services throughout the year. The exception is BCBS FL, which delivered more services per beneficiary among beneficiaries who received services in Model Year 2 (average of 7.8) and Model Year 3 (average of 6.4) relative to other sponsors. The higher rates of services per beneficiary for BCBS FL in Model Years 2 and 3 relative to other sponsors are likely due to the large number of interventions offered by BCBS FL and an increase in the number of significant services provided to address beneficiary cost barriers to medication use. Following difficulties implementing its two co-pay waiver services in Model Year 1, BCBS FL improved its processes for identifying beneficiaries who qualified for these services beginning in Model Year 2, resulting in higher numbers and proportions of beneficiaries receiving these services in Model Years 2 and 3.

Appendix Table B.5.6: The Count of Enhanced MTM Significant Services Delivered Increased across All Model Years

	Model Year 1 (2017)		Model Year 2 (2018)		Model Year 3 (2019)	
	Count of Significant Services	Average Number of Significant Services Delivered per Beneficiary	Count of Significant Services	Average Number of Significant Services Delivered per Beneficiary	Count of Significant Services	Average Number of Significant Services Delivered per Beneficiary
All Sponsors	*1,068,846*	*2.5*	*1,343,465*	*2.6*	*1,423,113*	*2.6*
SilverScript/CVS	561,034	2.6	744,448	2.5	727,905	2.4
Humana	104,382	2.1	127,300	2.5	91,090	2.0
BCBS NPA	42,739	2.8	73,509	2.1	135,022	2.7
UnitedHealth	204,582	2.4	168,762	2.5	242,583	2.4
WellCare	118,273	2.5	131,333	2.7	121,418	3.0
BCBS FL	37,836	3.1	98,113	7.8	105,095	6.4

Sources: Enhanced MTM eligibility data in MARx; Enhanced MTM Encounter Data through December 2019; intervention-specific eligibility files provided to Acumen by sponsors.

High- and Low-Intensity Interventions

As a supplement to the service receipt information provided in Section 3.4.1 of the report, Appendix Table B.5.7 shows that the number of interventions offering high-intensity services increased steadily across Model Years and was consistently higher than the number of interventions offering low-intensity services. Appendix Table B.5.8 shows that for most sponsors, the percentage of eligible beneficiaries receiving high-intensity services was larger than the percentage receiving low-intensity services, except for UnitedHealth. UnitedHealth provided low-intensity services to a larger proportion of beneficiaries in each Model Year. The Modelwide proportion of eligible beneficiaries receiving high-intensity services plateaued after Model Year 2 despite increases in the number of high-intensity interventions, potentially due to overlap in the beneficiary populations targeted by different interventions within each sponsor. Modelwide and for two sponsors (SilverScript/CVS and BCBS FL), the proportion of eligible beneficiaries receiving low-intensity services increased over time, while the number of low-intensity interventions remained stable after Model Year 2.

Appendix Table B.5.7: There Were More Interventions Offering High-Intensity Services than Interventions Offering Low-Intensity Services

Sponsor	Number of Interventions Offering High-Intensity Services			Number of Interventions Offering Low-Intensity Services		
	Model Year 1 (2017)	Model Year 2 (2018)	Model Year 3 (2019)	Model Year 1 (2017)	Model Year 2 (2018)	Model Year 3 (2019)
All Sponsors	*16*	*20*	*24*	*9*	*15*	*14*
SilverScript/CVS	3	4	4	3	4	4
Humana	2	2	2	1	1	1
BCBS NPA	1	3	5	0	3	2
UnitedHealth	2	2	2	1	2	2
WellCare	2	2	3	3	3	3
BCBS FL	6	7	8	1	2	2

Appendix Table B.5.8: The Proportion of Eligible Beneficiaries Who Received High-Intensity Services Was Larger than the Proportion Who Received Low-Intensity Services in All Model Years

| Sponsor	Proportion Receiving High-Intensity Services (%)			Proportion Receiving Low-Intensity Services (%)		
	Model Year 1 (2017)	Model Year 2 (2018)	Model Year 3 (2019)	Model Year 1 (2017)	Model Year 2 (2018)	Model Year 3 (2019)
All Sponsors	*23.9*	*28.1*	*27.5*	*15.9*	*19.3*	*21.7*
SilverScript/CVS	21.1	25.5	23.9	16.1	17.7	19.8
Humana	21.6	28.2	25.8	2.6	3.5	2.5
BCBS NPA	30.1	40.8	44.7	NA	41.6	39.6
UnitedHealth	43.1	43.8	41.1	49.4	58.5	55.9
WellCare	23.9	27.1	27.8	22.2	21.2	17.5
BCBS FL	31.7	47.7	46.7	5.1	16.0	24.4

Sources: Enhanced MTM eligibility data in MARx; Enhanced MTM Encounter Data through December 2019; intervention-specific eligibility files provided to Acumen by sponsors.

Note: NA means that the sponsor did not have any low-intensity services during the Model Year.

TMR Receipt Detail

Appendix Figure B.5.1, a companion figure to Table 3.8 in Section 3 of the report, illustrates that, for the majority of sponsors, the proportion of eligible beneficiaries receiving prescriber-facing TMRs was higher than the proportion of eligible beneficiaries receiving beneficiary-facing TMRs. Differences in the proportion of beneficiaries who received prescriber- and beneficiary-facing TMRs were due to differences in intervention design. The vast majority of TMRs offered as part of BCBS FL's interventions were prescriber facing, thus eliminating any need to involve the beneficiary in the service, and WellCare did not offer any beneficiary-facing TMRs.

Appendix Figure B.5.1: The Proportion of Eligible Beneficiaries Receiving Prescriber- and Beneficiary-Facing TMRs Varied by Sponsor Due to Intervention Design
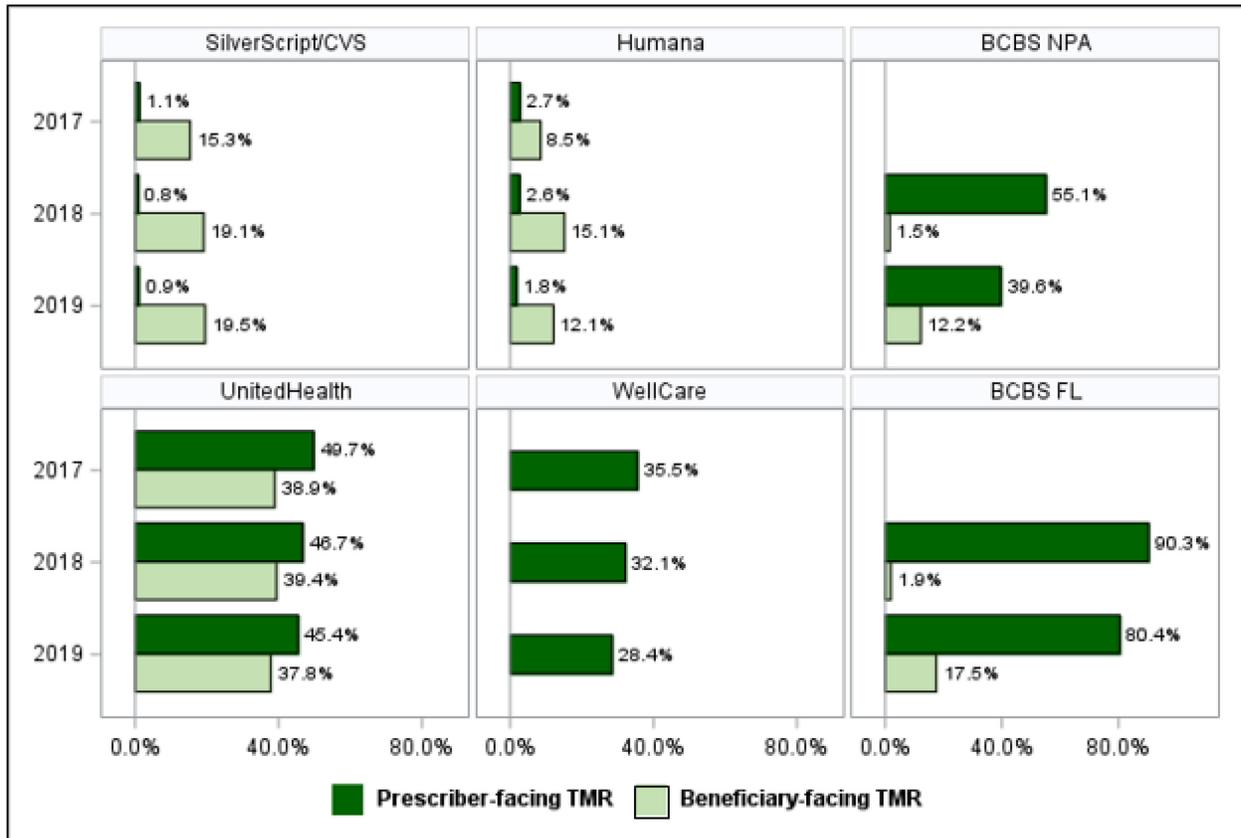
Note: TMR: Targeted Medication Review. Bars do not appear in Model Year 1 for BCBS FL and BCBS NPA because neither sponsor offered any TMR service in Model Year 1.

B.6 Qualitative Methods

This section provides an overview of the qualitative data collection methods used to gather information for this Third Evaluation Report from the six participating Part D sponsors and their vendors. The qualitative information included in this report is based on analysis conducted between November 2016 and December 2019. Section B.6.1 describes the approach used for qualitative data collection through sponsor interviews and document review. Section B.6.2 summarizes the analysis methods used to analyze the qualitative data.

B.6.1 Sponsor and Vendor Interviews and Review of Secondary Information

Qualitative researchers on the evaluation team 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 1-3 applications (including any mid-year application changes), supplemental application materials, and materials from CMS presentations and Internal Learning Systems records submitted by sponsors to CMS. They also reviewed additional information provided by sponsors or sponsors' vendors (e.g., PowerPoint presentations describing Enhanced MTM interventions, beneficiary recruitment and educational material examples, Enhanced MTM intervention policy documents, and targeting specifications). All interviews were conducted using sponsor-tailored interview protocols that were designed to capture information consistently across sponsors. In-person interviews with staff responsible for overseeing or implementing Enhanced MTM 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.[11] 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 sponsors' 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 covered high-level differences between the sponsors' traditional Part D and

---

[11] In lieu of a telephone interview with UnitedHealth in November 2018 and August 2019, UnitedHealth provided an update by email communications.

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 2018 and 2019 focused on Model Year 2 and 3 implementation, respectively, covering topics related to intervention updates; changes to the sponsors' approaches for using (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.6.2 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, 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 Third Evaluation Report.

B.7 Beneficiary Perspectives on the Enhanced MTM Model – Findings and Methodology

Implementation of the Model is expected to positively affect beneficiaries' experiences and drug-taking behaviors (e.g., increased confidence in taking medications as prescribed) as sponsors engage them in Enhanced MTM services intended to optimize medication use. Beneficiaries reporting positive care experiences and drug-taking behaviors may be more likely to adhere to their medications and more engaged in their care, in turn impacting downstream Model outcomes and overall costs to Medicare. Moreover, assessing beneficiaries' healthcare experiences—a source of information on quality of care—supports CMS's over-arching goal to maintain or improve the quality of care provided to beneficiaries.

Beneficiary perspectives can only be assessed through beneficiary self-report since there are no available data sources that provide this unique perspective. Because no existing survey datasets can provide the information necessary to evaluate beneficiaries' experiences with Enhanced MTM and behavioral outcomes of interest, a tailored questionnaire was developed for this data collection. The evaluation team designed and fielded a repeated cross-sectional survey to measure beneficiaries' experiences with care and medication management services, patient activation,[12] and self-efficacy for medication adherence.[13] These survey domains were selected because of their relevance to the Model's theory of action.

The survey was conducted at the beginning of Model Year 1 (2017; "Baseline Survey"),[14] and again in Spring-Summer of Model Year 3 (2019; "Model Year 3 Survey"), relying on new samples of beneficiaries at successive time points. Unlike the Baseline Survey, which relied on sampling frames of beneficiaries who would likely be targeted to receive Enhanced MTM services at the start of the Model by using approximated targeting criteria, the sampling frames for the Model Year 3 Survey included beneficiaries who actually met sponsor-defined eligibility criteria to receive Enhanced MTM services as part of sponsors' interventions.[15] Therefore, differences in the demographic compositions of the respondent

---

[12] Patient activation refers to beneficiaries' ability, confidence, and readiness to manage their own health and health care.

[13] Self-efficacy for medication adherence refers to beneficiaries' beliefs regarding their capacity to follow a prescribed medication regimen, even in challenging situations.

[14] A summary of findings from the Baseline Survey and detailed survey methodology are available in *Evaluation of the Part D Enhanced Medication Therapy Management (MTM) Model: First Evaluation Report,* available at https://downloads.cms.gov/files/mtm-firstevalrpt.pdf.

[15] Beneficiaries sampled for the Model Year 3 Survey included those eligible for sponsors' Model Year 2 interventions that targeted beneficiaries based on: (i) high Medicare Parts A, B, and D costs (with the exception of BCBS FL's Continuity of Care intervention as beneficiaries were not targeted based on risk); (ii) presence of one or more chronic conditions; (iii) recent hospital discharge; or (iv) medication utilization (with the exception of one intervention offering a brief adherence service [BCBS FL's Medication Adherence intervention], one intervention offering an automated service [UnitedHealth's Medication Adherence intervention], and one intervention offering a prescriber-facing-only service [BCBS FL's Statin Use in Persons with Diabetes intervention]).

populations at baseline and Model Year 3 measurements may be a result of the different sampling approaches used at the two time points, and not reflect outcomes of Enhanced MTM implementation. To make valid comparisons over time with different samples used for each survey, a set of weights were developed and applied for the Model Year 3 Survey. Survey outcomes were also adjusted for any respondent characteristics for which a significant difference between the baseline and Model Year 3 samples existed.

Comparisons between the Baseline and Model Year 3 Survey show that beneficiary perceptions of care coordination significantly improved since baseline, aligning with expectations relative to the Model's theory of action and Model goals to improve care coordination. Conversely, there were no improvements in patient activation or beneficiaries' self-efficacy for medication adherence over time, and both remain as areas with margins for improvement. These findings are described in more detail in Sections B.7.1 through B.7.4 below. Details about the survey methodology (including sampling and survey operations, sample performance, and survey weighting and adjustment procedures) are presented in Sections B.7.5 through B.7.8.

B.7.1 Respondent Characteristics

Appendix Table B.7.1 shows that the Model Year 3 Survey respondents differed from the Baseline Survey respondents in key characteristics of interest. The differences, however, were generally small and may be a result of the different sampling approaches for the Baseline and Model Year 3 Surveys or reflect changes in the population composition of Enhanced MTM-eligible beneficiaries over time.

Appendix Table B.7.1: Baseline and Model Year 3 Survey Respondents Had Slightly Different Characteristics, All Sponsors

	Baseline Survey, 2017 (n=4,574)	Weighted Model Year 3 Survey, 2019 (n=5,007)
Demographic Characteristics[a]		
% female	58.8	61.5***
% non-Hispanic White	86.2	86.9
% less than high school graduate or GED	15.5	12.5***
% living in a rural area	36.3	30.3***
% under 65 years of age	15.0	13.1***
% 85 years of age or older	11.8	10.5**
Self-reported Healthcare Utilization and Health Status[b]		
% reporting 5 or more visits to a doctor's office or clinic, past 6 months	28.4	24.6***
% reporting 6 or more medicines, past 6 months	55.9	50.4***
% reporting "fair-poor" overall health	34.3	29.4***
% reporting "fair-poor" mental health	17.2	15.0***

Sources: Enrollment data in the CME, accessed in January 2019 (Model Year 3); survey information from the Baseline Survey or the Model Year 3 Survey.
Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages reported.

[a] Characteristics are identified through Medicare enrollment data, with the exception of education which was identified through beneficiary survey data.
[b] Characteristics are identified through beneficiary survey data.

Appendix Table B.7.2 presents characteristics of the Baseline Survey and Model Year 3 Survey respondents for each sponsor. Similar to the Modelwide statistics, at the sponsor level, there were statistically significant differences in the characteristics of Model Year 3 Survey respondents relative to Baseline Survey respondents. Since differences in respondent characteristics between the Baseline Survey sample and the Model Year 3 Survey sample may affect comparison of key survey outcome measures, all over-time comparisons of survey outcomes control for significant differences between baseline and Model Year 3 samples for each sponsor and Modelwide. The adjustment ensures that reported differences in survey outcomes over time are not caused by differences in the population composition of each sample.

Appendix Table B.7.2: Baseline and Model Year 3 Survey Respondents Had Slightly Different Characteristics, by Sponsor

Characteristics	SilverScript/CVS Baseline Survey, 2017	SilverScript/CVS Model Year 3 Survey, 2019[a]	Humana Baseline Survey, 2017	Humana Model Year 3 Survey, 2019[a]	BCBS NPA Baseline Survey, 2017	BCBS NPA Model Year 3 Survey, 2019[a]	UnitedHealth Baseline Survey, 2017	UnitedHealth Model Year 3 Survey, 2019[a]	WellCare Baseline Survey, 2017	WellCare Model Year 3 Survey, 2019[a]	BCBS FL Baseline Survey, 2017	BCBS FL Model Year 3 Survey, 2019[a]
Survey Completes	703	851	561	697	1,121	980	717	767	639	843	833	869
Demographic Characteristics[b]												
% female	59.5	61.4	61.7	62.0	61.2	62.9	58.9	64.6***	58.5	59.1	53.2	51.0
% non-Hispanic White	76.8	81.2**	70.8	83.4***	98.1	97.0*	85.6	88.0*	79.8	79.8	94.0	93.9
% less than high school graduate or GED	20.2	18.7	26.0	19.2***	9.3	7.0**	10.4	7.7**	29.3	19.7***	6.6	5.2
% lives in a rural area	37.7	30.3***	39.6	40.0	62.5	60.6	22.2	16.7***	39.0	39.0	7.4	10.2**
% under 65 years of age	30.0	21.6***	23.2	26.6	2.9	4.3*	8.2	6.5	36.5	16.9***	2.4	2.3
% 85 years of age or older	7.5	10.2**	8.4	8.9	19.9	19.7	8.9	6.4**	8.1	9.0	11.9	15.3**
Self-Reported Healthcare Utilization and Health Status[c]												
% reporting 5+ visits to a doctor's office or clinic, past 6 months	28.2	25.1	28.4	24.5*	26.9	20.4***	23.9	26.7	33.3	17.4***	30.9	28.8
% reporting 6+ meds, past 6 months	47.7	59.7***	55.3	53.7	65.8	52.3***	47.2	44.9	71.5	37.8***	45.7	50.1*
% reporting "fair-poor" overall health	37.6	33.7*	43.0	42.0	30.1	23.5***	28.2	25.1*	50.3	27.0***	24.2	24.0
% reporting "fair-poor" mental health	22.6	18.8**	23.2	23.1	11.4	12.0	15.3	10.8***	28.1	17.0***	9.5	9.4

Sources: Survey information from the Baseline Survey or the Model Year 3 Survey.

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages and means reported. Comparisons over time are adjusted for gender, education, rural/urban residence, age, self-reported doctor visits, self-reported medication use, self-reported overall health, and self-reported mental health.

[a] Weighted Model Year 3 Survey.

[b] Characteristics are identified through Medicare enrollment data, with the exception of education which was identified through beneficiary survey data.

[c] Characteristics are identified through beneficiary survey data.

B.7.2 Findings: Experience with Healthcare and Medication Management Services

Beneficiaries' Perceptions of Care Coordination

Care coordination is important to the success of the Enhanced MTM Model since care that is not coordinated among providers may result in suboptimal medication regimens and adverse drug events. Beneficiaries with multiple prescribers and care transitions may be at heightened risk for DTPs if medication lists are not reconciled with follow-up to prescribers to resolve any medication issues. Sponsors' Transitions of Care interventions aim to address medication issues following hospital discharge and may be perceived by beneficiaries as a team-based effort as pharmacists work with beneficiaries' prescribers to address any identified issues during medication reconciliation. The use of community pharmacies for Enhanced MTM service delivery, which typically involves pharmacy providers working with beneficiaries' prescription drug plans (PDPs) and prescribers (if necessary), may also contribute to beneficiaries perceiving their care is well coordinated by their healthcare team.

Across all sponsors and for each sponsor separately, a significantly larger proportion of Model Year 3 Survey respondents perceived that their doctor's office, pharmacy, and PDP always worked together as a team, relative to baseline (Appendix Table B.7.3). The improvement in beneficiaries' perceptions of care coordination may have been driven in part by implementation of Enhanced MTM. The results, however, may also reflect a broad shift in healthcare delivery since baseline measurement, such as a growing commitment across the nation to patient-centered care that is not specific to Enhanced MTM implementation. Because the beneficiary survey was only administered to beneficiaries enrolled in Enhanced MTM-participating plans, it is unknown how the perceptions of beneficiaries enrolled in non-participating plans may have shifted over the same time.

Despite the improvement in beneficiaries' perceptions of care coordination from baseline to Model Year 3 measurement, only 38.9 percent of Model Year 3 Survey respondents reported that their doctor's office, pharmacy, and PDP always worked together as a team. At the sponsor level, the proportions ranged from 44.7 percent (WellCare) to 35.0 percent (UnitedHealth). This suggests there is still opportunity for Enhanced MTM interventions to better coordinate care across different healthcare providers to improve beneficiary perception of team-based care.

Appendix Table B.7.3: Beneficiary Perception of Care Coordination Improved for Every Sponsor from Baseline to Model Year 3 Measurement

Sponsor	Baseline Survey, 2017		Weighted Model Year 3 Survey, 2019	
	Survey Completes	% Reporting Doctor's Office, Pharmacy, and PDP Always Worked as a Team[a]	Survey Completes	% Reporting Doctor's Office, Pharmacy, and PDP Always Worked as a Team[a]
Modelwide	4,574	28.0	5,007	38.9***
SilverScript/CVS	703	30.0	851	39.5***
Humana	561	31.1	697	42.2***
BCBS NPA	1,121	28.7	980	41.8***
UnitedHealth	717	25.0	767	35.0***
WellCare	639	32.9	843	44.7***
BCBS FL	833	21.9	869	36.4***

Sources: Survey information from the Baseline Survey or the Model Year 3 Survey.

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages and means reported. Comparisons over time are adjusted for gender, education, rural/urban residence, age, self-reported doctor visits, self-reported medication use, self-reported overall health, and self-reported mental health.

[a] In the past 6 months.

Beneficiaries' Access to Care

Access to care—another subdomain of beneficiary experience—did not change significantly between baseline and Model Year 3 measurement (Appendix Table B.7.4 – Appendix Table B.7.6). Significant changes in beneficiaries' experiences with accessing healthcare and prescription medications were not expected because improving access to care or medications has not been a widespread goal of sponsors' Enhanced MTM interventions. However, it is important to monitor this aspect of beneficiary experience to ensure that analyses of other outcomes are not confounded by differences in beneficiaries' access to care.

At both survey measurements, approximately 60 percent of all sponsors' respondents reported that they always received care as soon as it was needed in the past six months (Appendix Table B.7.4). Over-time comparisons revealed small differences between baseline and Model Year 3 that were not statistically significant for any sponsor, though the Modelwide difference was statistically significant at the 10 percent significance level.

Appendix Table B.7.4: Beneficiaries Reporting Always Getting Timely Care Did Not Significantly Change for Any Sponsor between Baseline and Model Year 3

Sponsor	Baseline Survey, 2017		Weighted Model Year 3 Survey, 2019	
	Survey Completes	% Reporting Always Got Care as Soon as Needed[a]	Survey Completes	% Reporting Always Got Care as Soon as Needed[a]
Modelwide	**4,574**	**61.1**	**5,007**	**59.2***
SilverScript/CVS	703	62.2	851	57.2
Humana	561	61.9	697	57.3
BCBS NPA	1,121	61.9	980	62.6
UnitedHealth	717	56.9	767	58.4
WellCare	639	59.6	843	60.8
BCBS FL	833	63.7	869	61.0

Sources: Survey information from the Baseline Survey or the Model Year 3 Survey.
Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages and means reported. Comparisons over time are adjusted for gender, education, rural/urban residence, age, self-reported doctor visits, self-reported medication use, self-reported overall health, and self-reported mental health.
[a] In the past 6 months.

Modelwide, over two-thirds of Model Year 3 Survey respondents reported it was always easy to get needed care, tests, or treatments in the past six months, and this finding was not

statistically different from baseline measurement (Appendix Table B.7.5). Similarly, the over-time differences at the sponsor level were small and not statistically significant.

Appendix Table B.7.5: Beneficiaries Reporting Ease with Getting Needed Care Did Not Significantly Change between Baseline and Model Year 3

| Sponsor | Baseline Survey, 2017 | | Weighted Model Year 3 Survey, 2019 | |
	Survey Completes	% Reporting Always Easy to Get Needed Care, Tests, or Treatment[a]	Survey Completes	% Reporting Always Easy to Get Needed Care, Tests, or Treatment[a]
Modelwide	**4,574**	**67.5**	**5,007**	**67.2**
SilverScript/CVS	703	64.3	851	63.3
Humana	561	66.6	697	68.1
BCBS NPA	1,121	70.6	980	70.2
UnitedHealth	717	63.4	767	65.9
WellCare	639	67.3	843	69.1
BCBS FL	833	70.0	869	71.5

Sources: Survey information from the Baseline Survey or the Model Year 3 Survey.
Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages and means reported. Comparisons over time are adjusted for gender, education, rural/urban residence, age, self-reported doctor visits, self-reported medication use, self-reported overall health, and self-reported mental health.
[a] In the past 6 months.

At Model Year 3 measurement, about 72 percent of all survey respondents reported it was easy to use their PDP to get prescription medications, which was not significantly different from baseline (Appendix Table B.7.6). At the sponsor level, the proportions of Model Year 3 Survey respondents reporting it was always easy to use their PDP to get needed prescription medications ranged from 79.5 percent (BCBS NPA) to 64.7 percent (BCBS FL). For every sponsor, the differences between baseline and Model Year 3 were small and not statistically significant.

Appendix Table B.7.6: Beneficiaries Reporting Ease with Using PDP to Get Prescription Medications Did Not Significantly Change between Baseline and Model Year 3

Sponsor	Baseline Survey, 2017		Weighted Model Year 3 Survey, 2019	
	Survey Completes	% Reporting Always Easy to Use PDP to Get Rx[a]	Survey Completes	% Reporting Always Easy to Use PDP to Get Rx[a]
Modelwide	4,574	72.5	5,007	71.7
SilverScript/CVS	703	73.5	851	71.1
Humana	561	73.9	697	69.9
BCBS NPA	1,121	77.4	980	79.5
UnitedHealth	717	69.1	767	69.4
WellCare	639	72.7	843	76.7
BCBS FL	833	67.4	869	64.7

Sources: Survey information from the Baseline Survey or the Model Year 3 Survey.
Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages and means reported. Comparisons over time are adjusted for gender, education, rural/urban residence, age, self-reported doctor visits, self-reported medication use, self-reported overall health, and self-reported mental health.
[a] In the past 6 months.

Beneficiaries' Satisfaction with Care

Assessing beneficiaries' satisfaction with all the care they received is important to monitoring the overall care experience of beneficiaries, and can help confirm that beneficiaries' overall satisfaction with care is not declining as Enhanced MTM implementation progresses. The beneficiary survey asked respondents to rate all their healthcare over the previous six months from zero to 10, where zero indicated "the worst healthcare possible" and 10 indicated "the best healthcare possible." Overall, respondents rated their healthcare similarly at both baseline and Model Year 3 measurements, with no significant differences for any sponsor (Appendix Table B.7.7). Significant improvements in the average ratings of healthcare were not expected since the average ratings were quite positive at baseline, leaving little room for significant improvements. At Model Year 3 measurement, the average overall rating ranged from 8.9 (BCBS NPA and BCBS FL) to 8.5 (Humana).

Appendix Table B.7.7: Beneficiaries Were Generally Pleased with Their Healthcare at Baseline and Model Year 3

Sponsor	Average Overall Rating of Healthcare (0=worst to 10=best)[a]	
	Baseline Survey, 2017	Weighted Model Year 3 Survey, 2019
Modelwide	8.7	8.7
SilverScript/CVS	8.6	8.6
Humana	8.4	8.5
BCBS NPA	8.9	8.9
UnitedHealth	8.7	8.8
WellCare	8.6	8.7
BCBS FL	8.8	8.9

Sources: Survey information from the Baseline Survey or the Model Year 3 Survey.
Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages and means reported. Comparisons over time are adjusted for gender, education, rural/urban residence, age, self-reported doctor visits, self-reported medication use, self-reported overall health, and self-reported mental health.
[a] In the past 6 months.

Communication with MTM Providers

The quality of pharmacy and PDP provider communication is important to the success of the Model as beneficiaries with positive communication experiences may be more likely to engage in their care and better able to manage their medications.[16,17] At Model Year 3, beneficiaries generally reported having positive communication experiences when speaking with providers at their pharmacy or PDP (Appendix Figure B.7.1).[18] Of the Model Year 3 Survey respondents who reported speaking with their pharmacy or PDP about their health or medications, about 83 percent reported that staff at their pharmacy or PDP were always courteous and respectful and 61 percent reported that staff always listened carefully. However, only about half of the respondents reported that providers at their pharmacy or PDP always explained things in a way that was easy to understand. Of the Model Year 3 Survey respondents who reported receiving a reminder to fill or refill prescription medications, more than half indicated that reminders were always helpful.

Strategies used by providers to communicate with beneficiaries, such as using simple and concise language, can support beneficiary understanding of medication information. If beneficiaries do not understand their medication regimens, they may not develop the self-efficacy necessary to follow providers' recommendations. Accordingly, improvements to the clarity of medication information delivered by pharmacy and PDP providers may be an important catalyst to beneficiaries' drug-taking behavioral changes.

---

[16] Ngoh, L. N. "Health literacy: A barrier to pharmacist-patient communication and medication adherence." *Journal of the American Pharmacy Association* 49, no. 5 (2009):e132-e149, https://doi.org/10.1331/JAPhA.2009.07075.

[17] Bailey, S. C., Oramasianwu, C. U., & Wolf, M. S. "Rethinking adherence: A health literacy-informed model of medication self-management." *Journal of Health Communication* 18, Suppl 1 (2013): 20-30, https://doi.org/10.1080/10810730.2013.825672.

[18] The Baseline Survey did not include items about pharmacy or PDP communication. Instead, the Baseline Survey included a generic set of medication management items.

Appendix Figure B.7.1: Beneficiaries Generally Reported Positive Communication with Pharmacy or PDP at Model Year 3 Measurement, but Communication Not Always Easy to Understand
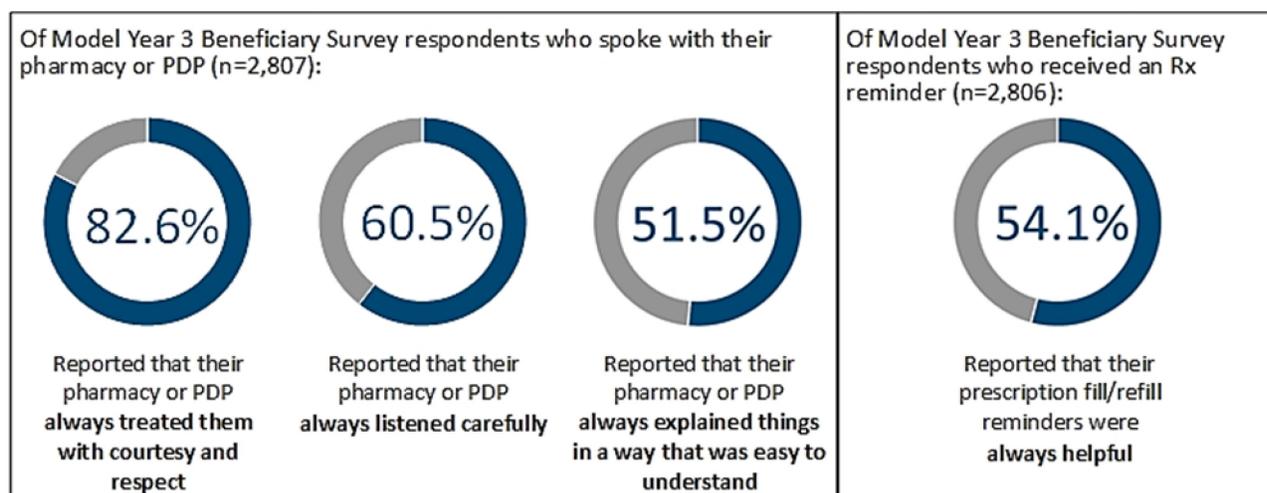
Source: Survey information from the Model Year 3 Survey.
Notes: Missing data are not included in the percentages. Comparisons over time are not presented because these specific survey items were not included in the Baseline Survey.

B.7.3 Findings: Patient Activation

Patient activation refers to beneficiaries' ability, confidence, and readiness to manage their own health and health care. Beneficiaries' level of activation is important to the success of the Model as downstream outcomes such as healthcare utilization hinge on beneficiaries taking an active role in their health. Beneficiaries with low levels of patient activation may be less engaged in their self-management of a chronic disease (e.g., monitoring their blood glucose levels, adhering to medication regimens, contacting their doctor when necessary), resulting in poorer health outcomes and higher healthcare utilization.[19] In theory, Enhanced MTM interventions—such as sponsor's case/disease management interventions—could improve activation among eligible beneficiaries through coaching aimed at boosting beneficiaries' self-management skills, knowledge, and confidence.

Although sponsors have implemented and refined numerous interventions to engage beneficiaries in medication management, there were no significant improvements in beneficiaries' activation for any sponsor (Appendix Table B.7.8). Modelwide, there was a significant change in the wrong direction between baseline and Model Year 3 Survey measurements, which was driven by a significant change in the wrong direction for Humana.

---

[19] Hibbard, J. H. & Greene, J. (2013). "What the evidence shows about patient activation: Better health outcomes and care experiences; Fewer data on costs." *Health Affairs,* 32, no. 2 (2013):207-214, https://doi.org/10.1377/hlthaff.2012.1061.

These findings suggest that Enhanced MTM strategies have not meaningfully improved beneficiaries' activation since baseline measurement. Enhanced MTM providers may not be adhering to Motivational Interviewing strategies or counseling beneficiaries at adequate intensity or frequency to effect change in beneficiaries' activation. To improve patient activation among the Enhanced MTM-eligible population, more intensive or routine patient-centered counseling (including Motivational Interviewing) may be necessary to reinforce the independent actions beneficiaries can take to manage their health. It is also important for any medication information to be communicated in a way that is easy for beneficiaries to understand so they are able to acquire the knowledge necessary for activation.

Appendix Table B.7.8: The Proportion of Beneficiaries Reporting Low Patient Activation Increased between Baseline and Model Year 3 Measurement for Humana, While Proportions Remained Steady for Every Other Sponsor

| | Baseline Survey, 2017 | | Weighted Model Year 3 Survey, 2019 | |
| | | | | |
Sponsor	**Survey Completes**	**Proportion with Low Patient Activation[a] (%)**	**Survey Completes**	**Proportion with Low Patient Activation[a] (%)**
Modelwide	**4,574**	**33.5**	**5,007**	**36.6*****
SilverScript/CVS	703	34.1	851	36.3
Humana	561	34.6	697	43.0***
BCBS NPA	1,121	37.3	980	40.9
UnitedHealth	717	31.5	767	32.4
WellCare	639	37.9	843	40.9
BCBS FL	833	25.7	869	29.1

Sources: Survey information from the Baseline Survey or the Model Year 3 Survey
Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages and means reported. Comparisons over time are adjusted for gender, education, rural/urban residence, age, self-reported doctor visits, self-reported medication use, self-reported overall health, and self-reported mental health.
[a] See *Evaluation of the Part D Enhanced Medication Therapy Management (MTM) Model: First Evaluation Report: Appendix H: Beneficiary Survey Methods* for survey composite scoring methods (available at https://downloads.cms.gov/files/mtm-firstevalrpt.pdf).

B.7.4 Findings: Self-Efficacy for Medication Adherence

Self-efficacy for medication adherence refers to beneficiaries' beliefs regarding their capacity to follow a prescribed medication regimen, even in challenging situations. Similar to patient activation, improved self-efficacy for medication adherence is an expected intermediate outcome of Enhanced MTM. Adherence counseling, which is offered by every sponsor to eligible beneficiaries, is intended to improve beneficiaries' self-efficacy for medication

adherence. Higher levels of self-efficacy for medication adherence likely lead to improved adherence and thereby better health outcomes and lower rates of emergency department and inpatient utilization.[20,21,22]

Modelwide, about 26 percent of Model Year 3 Survey respondents reported low self-efficacy for medication adherence compared to 28 percent at baseline, suggesting a favorable change. However, this change was not statistically significant (Appendix Table B.7.9). SilverScript/CVS was the only sponsor with a significant decrease in the proportion of respondents reporting low self-efficacy for medication adherence at Model Year 3 relative to baseline. Since the start of the Model, SilverScript/CVS has targeted a subset of beneficiaries for its Pharmacy Advisory Counseling intervention—an intervention focused in part on adherence to medications used in CMS Star measures.

Since the proportions of respondents reporting low self-efficacy for medication adherence at Model Year 3 and baseline decreased only slightly across sponsors, self-efficacy for medication adherence remains an area with a margin for improvement.

---

[20] Risser, J., Jacobsen, T. A., & Kripalani, S. "Development and psychometric evaluation of the Self-Efficacy for Appropriate Medication Use Scale (SEAMS) in low literacy patients with chronic disease." *Journal of Nursing Measurement* 15, no. 3 (2007):203-219, https://doi.org/10.1891/106137407783095757.

[21] Huang, Y., Shiyanbola, O. O., & Smith, P. D. "Association of health literacy and medication self-efficacy with medication adherence and diabetes control." *Patient Preference and Adherence* 12, (2018):793-802, https://doi.org/10.2147/PPA.S153312.

[22] Sokol, M. C., et al. "Impact of medication adherence on hospitalization risk and healthcare cost." *Medical Care* 43, no. 6 (2005):521-530, https://doi.org/10.1097/01.mlr.0000163641.86870.af.

Appendix Table B.7.9: The Proportion of Beneficiaries Reporting Low Self-Efficacy for Medication Adherence Was Steady between Baseline and Model Year 3 Measurement for Every Sponsor except SilverScript/CVS

| Sponsor | Baseline Survey, 2017 | | Weighted Model Year 3 Survey, 2019 | |
	Survey Completes	Proportion with Low Self-Efficacy for Medication Adherence[a] (%)	Survey Completes	Proportion with Low Self-Efficacy for Medication Adherence[a] (%)
Modelwide	**4,574**	**27.3**	**5,007**	**25.8**
SilverScript/CVS	703	32.8	851	27.4**
Humana	561	30.5	697	30.3
BCBS NPA	1,121	27.7	980	25.1
UnitedHealth	717	25.6	767	23.4
WellCare	639	27.0	843	27.2
BCBS FL	833	22.8	869	21.2

Sources: Survey information from the Baseline Survey or the Model Year 3 Survey; Enhanced MTM Encounter Data.

Notes: * p-value < 0.10; ** p-value < 0.05; *** p-value < 0.01. Missing data are not included in the percentages and means reported. Comparisons over time are adjusted for gender, education, rural/urban residence, age, self-reported doctor visits, self-reported medication use, self-reported overall health, and self-reported mental health.

[a] See *Evaluation of the Part D Enhanced Medication Therapy Management (MTM) Model: First Evaluation Report: Appendix H: Beneficiary Survey Methods* for survey composite scoring methods (available at https://downloads.cms.gov/files/mtm-firstevalrpt.pdf).

B.7.5 Methods: Overview of Sampling Approach and Survey Operations

The sponsors' Model Year 3 sampling frames were initially constructed using Model Year 2 Enhanced MTM eligibility data (MARx/TC-91 files) supplemented with sponsor-specific intervention eligibility flags provided directly by sponsors to the Acumen team.[23] A sampling variable, derived from analysis of Enhanced MTM Encounter Data, was then created to flag beneficiaries in the sample frame who received a related service in Model Year 2. The service receipt encounters of interest varied according to sponsors' interventions and approaches to Encounter Data reporting, but generally focused on high-intensity services. This approach differed from Baseline Survey sampling, which relied on sampling frames of beneficiaries who

---

[23] Beneficiaries sampled for the Model Year 3 Survey included those eligible for the following Model Year 2 interventions: Medication Therapy Counseling, Specialty Pharmacy Care Management, Pharmacy Advisor Counseling, and Long-Term Care interventions (SilverScript/CVS); Risk-Based (high- and medium-risk tiers) and Transitions of Care Medication Reconciliation interventions (Humana); High-Risk and Low-Risk/High-Cost interventions (BCBS NPA); Risk-Based (high-risk group) and Transitions of Care interventions (UnitedHealth); Medication Adherence (high- and moderate-priority), Opioid Utilization, Select Drug Therapy Problems, and High Utilizer interventions (WellCare); and Hospital Prevention, Diabetes Plus 3, Anticoagulant, Specialty Drug, and Transitions of Care interventions (BCBS FL).

would likely be targeted to receive Enhanced MTM services at the start of the Model by using approximated targeting criteria.[24]

Consistent with the Baseline Survey, the Model Year 3 sampling frames were linked with Medicare enrollment data and processed to exclude beneficiaries without continuous plan or Medicare Parts A and B enrollment in the last six months of Model Year 2, under age 18, or without a valid U.S. mailing address. Institutionalized beneficiaries were removed as a final step. Samples of approximately 2,000 beneficiaries were drawn for each sponsor in March of Model Year 3 (2019). Beneficiaries who received Enhanced MTM services of interest were oversampled to construct samples with roughly equal distributions of beneficiaries who had received services and had not received services.

The administration of the Model Year 3 Survey was similar to the approach at baseline, utilizing mail for all survey contact. The first survey package was mailed on April 11, 2019.[25] Each survey package included a cover letter, survey booklet, and postage-paid return envelope. A reminder letter was mailed to all sampled beneficiaries about 1.5 weeks after the initial survey. Approximately four weeks after the initial survey mail-out, a final survey was mailed to non-respondents. Data collection remained open through July 8, 2019.

B.7.6 Methods: Questionnaire

The survey instrument remained largely unchanged from baseline to allow comparisons over time.[26] Consistent with the Baseline Survey, the Model Year 3 Survey included questions derived from the Consumer Assessment of Healthcare Providers and Systems (CAHPS®) surveys,[27] the Self-Efficacy for Appropriate Medication Use Scale (SEAMS),[28] and the Medicare

---

[24] Details about the survey methodology for the Baseline Survey are available in *Evaluation of the Part D Enhanced Medication Therapy Management (MTM) Model: First Evaluation Report,* available at https://downloads.cms.gov/files/mtm-firstevalrpt.pdf.

[25] Approximately half of each sponsors' samples were randomized to receive a pre-notification letter one week in advance of the first survey mailing to test its impact on response rates.

[26] Two notable areas of variation between instruments included the following revisions: (i) a generic set of medication management items in the Baseline Survey were replaced with items focusing on salient Enhanced MTM experiences, and (ii) the self-reported medication adherence scale used at baseline was replaced with a new four-item scale. Accordingly, comparisons to baseline are not presented in these two areas. In the re-measurement survey, the Acumen team made additional minor modifications for language consistency and deleted measures from the baseline instrument considered less relevant to the research questions (i.e., doctor communication) to keep survey burden low and maintain an eight-page booklet format.

[27] Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services, Rockville, MD. https://www.ahrq.gov/cahps/index.html

[28] See Risser, J., Jacobson, T., & Kripalani, S. "Development and psychometric evaluation of the Self-efficacy for Appropriate Medication Use Scale (SEAMS) in low-literacy patients with chronic disease," *Journal of Nursing Measurement* 15, no. 3 (February 2007): 203-219, http://dx.doi.org/10.1891/106137407783095757.

Current Beneficiary Survey (MCBS) patient activation scales.[29] A new set of medication management items was developed based on the Acumen team's knowledge of sponsors' Enhanced MTM interventions.

B.7.7 Methods: Survey Sample Performance

Appendix Table B.7.10 shows Model Year 3 Survey completion and response rates for each of the six sponsors and for the overall sample. The overall response rate to the Model Year 3 Survey was 46.6 percent, using AAPOR Response Rate 4 definition.[30] From a starting sample of 10,874 surveys, a total of 5,007 completed surveys were received. Due to the following reasons, 57 beneficiaries were identified as ineligible to complete the survey: (i) beneficiaries reported to be deceased or in hospice care; (ii) beneficiaries reported to have mental or cognitive impairment; (iii) beneficiaries reported to be living in a nursing home or group care facility; and (iv) beneficiaries who indicated having a prescription coverage plan that is not the one for which they were sampled. Model Year 3 Survey response rates varied across sponsors, from 56 percent (BCBS NPA) to 41 percent (Humana).

Appendix Table B.7.10: Model Year 3 Survey Response Rates Varied Across Sponsors

Sponsor	Sample	Completes	Completion Rate[a] (%)	Response Rate[b] (%)
Modelwide	**10,874**	**5,007**	**46.0**	**46.6**
SilverScript/CVS	1,816	851	46.9	47.4
Humana	1,745	697	39.9	40.5
BCBS NPA	1,757	980	55.8	56.4
UnitedHealth	1,833	767	41.8	42.3
WellCare	1,902	843	44.3	44.6
BCBS FL	1,821	869	47.7	48.3

[a] The completion rate is the number of completes divided by the starting sample.
[b] The response rate takes into account survey ineligibility due to death and other causes. American Association for Public Opinion Research response rate #4 was used.

To assess whether survey response varied systematically by respondent characteristics, a bias analysis was conducted using demographic and geographic information from the Medicare enrollment file. Consistent with general patterns observed in survey research,[31] our team found

---

[29] See Parker, J. L., Regan, J. F., & Petroski, J. "Beneficiary Activation in the Medicare Population," *Medicare & Medicaid Research Review* 4, no. 4 (2014): E1-E14, http://dx.doi.org/10.5600/mmrr.004.04.b02.
[30] The American Association for Public Opinion Research. 2016. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition.* Available at https://www.aapor.org/AAPOR_Main/media/publications/Standard-Definitions20169theditionfinal.pdf.
[31] Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method. Hoboken, New Jersey: John Wiley & Sons, Inc.

that older, non-Hispanic, and rural beneficiaries were more likely to respond than other groups. Moreover, beneficiaries who were not dual status or not low-income subsidy (LIS)-eligible for any month in Model Year 2 were more likely to respond. These findings are consistent across baseline and Model Year 3 samples and should therefore have little effect on the over-time comparison of outcome measures. These patterns may also partially explain variation in response rates across sponsors.

B.7.8 Methods: Analytic and Survey Weighting Procedures

Weights were designed to address the oversampling of beneficiaries at Model Year 3 measurement who received Enhanced MTM services as part of sponsors' interventions that target beneficiaries with the highest spending, taking multiple medications, and at highest risk for DTPs or non-adherence. Preliminary base weights for those receiving versus not receiving services were calculated as the frame total divided by the final sample size in each category for each sponsor (base weights included post-stratification adjustment to final sample sizes). Relative base weights were assigned to "1" for beneficiaries who received Enhanced MTM services, and calculated as the ratio of preliminary base weights for those not receiving services, by sponsor. Use of relative base weights allows calculation of sample weighted percentages for those receiving Enhanced MTM services that are equal to the sponsor frame percentage for those receiving services. Model Year 3 Survey analyses presented in this report implement the resulting survey weights for all comparisons to baseline.

Comparison of results between the baseline and Model Year 3 measurement controlled for statistically significant differences between the baseline and Model Year 3 samples' demographic and health characteristics (shown in Appendix Table B.7.1). Linear regression models were used to generate adjusted estimates for each outcome, with the independent variables in the model including sample characteristics. Least square means for each regression model provided the adjusted estimates presented in this Appendix.