Supplementary Materials

The Oncology Care Model and Adherence to Oral Cancer Drugs: A Difference-in-Differences Analysis

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Supplementary Methods

Identification of study cohorts.

Analyses focused on beneficiary-episodes for (a) chronic leukemia (ICD9 codes 205.10, 205.11, 205.12; ICD10 codes C92.10, C92.11, C92.12) treated with TKIs (imatinib, dasatinib, nilotinib, bosutinib, ponatinib); (b) prostate cancer (ICD9 code 185: ICD10 code C61) treated with enzalutamide or abiraterone (initially approved for the treatment of metastatic castrate-resistant prostate cancer (abiraterone in 2011, enzalutamide in 2012), then for metastatic high-risk castration-sensitive prostate cancer (abiraterone in February 2018) and more recently, for non-metastatic castration-resistant prostate cancer (enzalutamide in July 2018)); or (c) "low-risk" breast cancer (ICD9 code 174, 175; ICD10 code C50) treated with tamoxifen, anastrozole, exemestane, or letrozole and no other systemic cancer therapy ("low-risk" breast cancer episodes by definition included only oral hormonal treatments). Oral drugs were identified in Part D prescription drug event data. Apalutamide, another oral anti-androgen for treating prostate cancer approved in February 2018 for non-metastatic castrate-resistant prostate cancer, was used infrequently during the study period (0.8% of episodes for prostate cancer) and was not included. We included beneficiaries enrolled in Medicare Part D during all six months of an episode (or until death or hospice enrollment).

Adherence

As described in the Methods, to measure adherence, we calculated the proportion of days covered (PDC) by summing the number of actual days' supply dispensed divided by the number of days between the index fill of the drug of interest and the last day of the six-month episode (or the date of death or hospice enrollment). PDC is recommended by the Pharmacy Quality Alliance for measuring adherence in studies using administrative data. We capped PDC at 100% (PDC could exceed 100% if patients had early refills or if the last fill days supply exceeded the remaining days in the 6-month episode).

If beneficiaries were hospitalized, the number of days in the hospital was subtracted from the denominator for calculating PDC. For CML episodes, we assessed use of any TKI (including imatinib, dasatinib, nilotinib, bosutinib, or ponatinib); we also assessed adherence individually for the three most frequently prescribed TKIs—imatinib, dasatinib, and nilotinib. For prostate cancer episodes, we examined use of enzalutamide or abiraterone; we also assessed adherence to each drug separately. Episodes for prostate cancer were censored if a beneficiary switched to a different drug for treating metastatic prostate cancer, suggesting disease progression while on abiraterone or enzalutamide. Thus, we censored at the time of a switch to enzalutamide (if on abiraterone), abiraterone (if on enzalutamide), docetaxel, cabazitaxel, sipuleucel-T, or mitoxantrone. For breast cancer episodes, we examined use of any hormonal therapy and each of the four drugs individually. We expected that most beneficiaries taking hormonal therapy had non-metastatic disease and were thus on long-term hormonal therapy. As above, patients taking hormonal therapy for metastatic cancer were included only if they were taking hormonal therapy without any other systemic cancer therapies, including CDK4/6 inhibitors, for the entire six-month episode.

Supplementary Tables

Supplementary Table 1. Additional Patient, Practice and Market Characteristics of OCM and Comparison Episodes

Episode characteristics	Chronic Myelogenous Leukemia Cohort				Prostate Cancer Cohort				Low-Risk Breast Cancer Cohort			
	OCM Baseline	OCM Intervention	Comparison Baseline	Comparison Intervention	OCM Baseline	OCM Intervention	Comparison Baseline	Comparison Intervention	OCM Baseline	OCM Intervention	Comparison Baseline	Comparison Intervention
No. of episodes	4349	7803	4921	8408	8131	14919	10358	17768	81887	155916	93258	159296
Beneficiary alignment in other value-based models, N (%)												
Yes	1322 (30.4)	3434 (44.0)	1164 (23.7)	3339 (39.7)	2564 (31.5)	6656 (44.6)	2744 (26.5)	6953 (39.1)	26128 (31.9)	72630 (46.6)	24417 (26.2)	65709 (41.2)
No	3027 (69.6)	4369 (56.0)	3757 (76.3)	5069 (60.3)	5567 (68.5)	8263 (55.4)	7614 (73.5)	10815 (60.9)	55759 (68.1)	83286 (53.4)	68841 (73.8)	93587 (58.8)
Beneficiary had episode in prior 6 months												
Yes	3322 (76.4)	5919 (75.9)	3748 (76.2)	6328 (75.3)	7067 (86.9)	11818 (79.2)	9052 (87.4)	14047(79.1)	43400 (53.0)	78536 (50.4)	50409 (54.1)	76782 (48.2)
No	1027 (23.6)	1884 (24.1)	1173 (23.8)	2080 (24.7)	1064 (13.1)	3101 (20.8)	1306 (12.6)	3721 (20.9)	38487 (47.0)	77380 (49.6)	42849 (45.9)	82514 (51.8)
Chemotherapy source, N (%)[a]												
Part D only	4312 (99.1)	7750 (99.3)	4882 (99.2)	8328 (99.0)	1225 (15.1)	1845 (12.4)	1614 (15.6)	2008 (11.3)	81887 (100)	155916 (100)	93258 (100)	159296 (100)
Parts B&D	37 (0.9)	53 (0.7)	39 (0.8)	80 (1.0)	6906 (84.9)	13074 (87.6)	8744 (84.4)	15760 (88.7)				
Practice Characteristics												
Affiliated with Academic Medical Center, N (%)												
No	3611 (83.0)	6215 (79.6)	4142 (84.2)	6634 (78.9)	6407 (78.8)	11120 (74.5)	8513 (82.2)	13787 (77.6)	68796 (84.0)	131003 (84.0)	81063 (86.9)	134686 (84.6)
Yes	738 (17.0)	1588 (20.4)	779 (15.8)	1774 (21.1)	1724 (21.2)	3799 (25.5)	1845 (17.8)	3981 (22.4)	13091 (16.0)	24913 (16.0)	12195 (13.1)	24610 (15.4)
Affiliated with health system, N (%)												
No/Missing	3099 (71.3)	4992 (64.0)	2068 (42.0)	3158 (37.6)	5374 (66.1)	8735 (58.5)	4525 (43.7)	7414 (41.7)	57003 (69.6)	103841 (66.6)	39982 (42.9)	63088 (39.6)
Yes	1250 (28.7)	2811 (36.0)	2853 (58.0)	5250 (62.4)	2757 (33.9)	6184 (41.5)	5833 (56.3)	10354 (58.3)	24884 (30.4)	52075 (33.4)	53276 (57.1)	96208 (60.4)
Owned by a hospital, N (%)												
No/Missing	3239 (74.5)	6465 (82.9)	2513 (51.1)	5851 (69.6)	5640 (69.4)	12187 (81.7)	5061 (48.9)	11339 (63.8)	60785 (74.2)	132855 (85.2)	47609 (51.1)	110392 (69.3)
Yes	1110 (25.5)	1338 (17.1)	2408 (48.9)	2557 (30.4)	2491 (30.6)	2732 (18.3)	5297 (51.1)	6429 (36.2)	21102 (25.8)	23061 (14.8)	45649 (48.9)	48904 (30.7)
Missing data on ownership	<11 (<0.1)	11 (0.1)	<11 (<0.1)	32 (0.4)	12 (0.1)	18 (0.1)	12 (0.1)	79 (0.4)	103 (0.1)	241 (0.2)	190 (0.2)	467 (0.3)
Total N episodes quartile, N (%)												
1 to 42	44 (1.0)	53 (0.7)	263 (5.3)	367 (4.4)	49 (0.6)	85 (0.6)	399 (3.9)	623 (3.5)	857 (1.0)	1130 (0.7)	5345 (5.7)	6901 (4.3)
43 50 99	138 (3.2)	277 (3.5)	798 (16.2)	1033 (12.3)	234 (2.9)	448 (3.0)	1311 (12.7)	1835 (10.3)	3247 (4.0)	5540 (3.6)	16568 (17.8)	21937 (13.8)
100 to 196	558 (12.8)	712 (9.1)	1301 (26.4)	1962 (23.3)	1089 (13.4)	1480 (9.9)	2638 (25.5)	3607 (20.3)	12284 (15.0)	17378 (11.1)	25005 (26.8)	38261 (24.0)
197-7239	3609 (83.0)	6761 (86.6)	2559 (52.0)	5046 (60.0)	6759 (83.1)	12906 (86.5)	6010 (58.0)	11703 (65.9)	65499 (80.0)	131868 (84.6)	46340 (49.7)	92197 (57.9)
NPIs that only have oncology specialty, N (%)												

No	3325 (76.5)	6356 (81.5)	3373 (68.5)	6027 (71.7)	6484 (79.7)	12497 (83.8)	7673 (74.1)	14141 (79.6)	63702 (77.8)	125398 (80.4)	63978 (68.6)	115295 (72.4)
Yes	1024 (23.5)	1447 (18.5)	1548 (31.5)	2381 (28.3)	1647 (20.3)	2422 (16.2)	2685 (25.9)	3627 (20.4)	18185 (22.2)	30518 (19.6)	29280 (31.4)	44001 (27.6)
Practice has 3 or less oncology NPIs, N (%)												
No	4256 (97.9)	7660 (98.2)	4241 (86.2)	7556 (89.9)	7874 (96.8)	14583 (97.7)	8913 (86.0)	15824 (89.1)	79903 (97.6)	152866 (98.0)	79640 (85.4)	141378 (88.8)
Yes	93 (2.1)	143 (1.8)	680 (13.8)	852 (10.1)	257 (3.2)	336 (2.3)	1445 (14.0)	1944 (10.9)	1984 (2.4)	3050 (2.0)	13618 (14.6)	17918 (11.2)
Practice has at least one radiation oncologist, N (%)												
No	1311 (30.1)	2156 (27.6)	2795 (56.8)	4267 (50.7)	2489 (30.6)	4202 (28.2)	5456 (52.7)	7980 (44.9)	25869 (31.6)	47339 (30.4)	52457 (56.2)	81135 (50.9)
Yes	3038 (69.9)	5647 (72.4)	2126 (43.2)	4141 (49.3)	5642 (69.4)	10717 (71.8)	4902 (47.3)	9788 (55.1)	56018 (68.4)	108577 (69.6)	40801 (43.8)	78161 (49.1)
Practice has at least one gynecologic oncologist, N (%)												
No	2062 (47.4)	2755 (35.3)	3267 (66.4)	4973 (59.1)	3739 (46.0)	5382 (36.1)	6759 (65.3)	10533 (59.3)	38246 (46.7)	58155 (37.3)	61550 (66.0)	96337 (60.5)
Yes	2287 (52.6)	5048 (64.7)	1654 (33.6)	3435 (40.9)	4392 (54.0)	9537 (63.9)	3599 (34.7)	7235 (40.7)	43641 (53.3)	97761 (62.7)	31708 (34.0)	62959 (39.5)
Practice has at least one surgical oncologist, N (%)												
No	2563 (58.9)	4029 (51.6)	3762 (76.4)	5426 (64.5)	4607 (56.7)	7342 (49.2)	7699 (74.3)	11201 (63.0)	48218 (58.9)	82354 (52.8)	69670 (74.7)	104635 (65.7)
Yes	1786 (41.1)	3774 (48.4)	1159 (23.6)	2982 (35.5)	3524 (43.3)	7577 (50.8)	2659 (25.7)	6567 (37.0)	33669 (41.1)	73562 (47.2)	23588 (25.3)	54661 (34.3)
Percent NP/PA Quartile, N (%)												
0%	1105 (25.4)	821 (10.5)	1431 (29.1)	1883 (22.4)	1944 (23.9)	1689 (11.3)	2476 (23.9)	3066 (17.3)	19736 (24.1)	18454 (11.8)	26341 (28.2)	35145 (22.1)
0 to 5.9%	753 (17.3)	1326 (17.0)	314 (6.4)	416 (4.9)	1338 (16.5)	2339 (15.7)	1143 (11.0)	1248 (7.0)	14350 (17.5)	23951 (15.4)	7184 (7.7)	8624 (5.4)
>>5.9% to 17.5%	1319 (30.3)	1516 (19.4)	1559 (31.7)	2076 (24.7)	2369 (29.1)	3115 (20.9)	3626 (35.0)	4546 (25.6)	23190 (28.3)	30908 (19.8)	31500 (33.8)	43203 (27.1)
>17.6%	1172 (26.9)	4140 (53.1)	1617 (32.9)	4033 (48.0)	2480 (30.5)	7776 (52.1)	3113 (30.1)	8908 (50.1)	24611 (30.1)	82603 (53.0)	28233 (30.3)	72324 (45.4)
Market Characteristics												
Market population quartile, N (%)												
4684-63036	53 (1.2)	102 (1.3)	317 (6.4)	438 (5.2)	72 (0.9)	196 (1.3)	445 (4.3)	697 (3.9)	1039 (1.3)	2513 (1.6)	5897 (6.3)	8915 (5.6)
63,037-150,033	427 (9.8)	738 (9.5)	801 (16.3)	1166 (13.9)	664 (8.2)	1163 (7.8)	1480 (14.3)	2189 (12.3)	7558 (9.2)	14208 (9.1)	15852 (17.0)	24616 (15.5)
150,034-371,537	754 (17.3)	1110 (14.2)	1419 (28.8)	2283 (27.2)	1357 (16.7)	2202 (14.8)	2614 (25.2)	4026 (22.7)	12293 (15.0)	22395 (14.4)	23294 (25.0)	39048 (24.5)
371,538-10,170,292	3115 (71.6)	5853 (75.0)	2384 (48.4)	4521 (53.8)	6038 (74.3)	11358 (76.1)	5819 (56.2)	10856 (61.1)	60997 (74.5)	116800 (74.9)	48215 (51.7)	86717 (54.4)
Percent over 65 quartile, N (%)												
7.1 to13.09%	1773 (40.8)	1793 (23.0)	1858 (37.8)	2260 (26.9)	3086 (38.0)	3394 (22.7)	4147 (40.0)	4741 (26.7)	30783 (37.6)	34040 (21.8)	35869 (38.5)	39896 (25.0)
13.10 to 14.61%	1134 (26.1)	2766 (35.4)	1560 (31.7)	2878 (34.2)	2532 (31.1)	5525 (37.0)	3305 (31.9)	6572 (37.0)	25101 (30.7)	59208 (38.0)	29396 (31.5)	56859 (35.7)
14.62 to 17.89%	839 (19.3)	1632 (20.9)	878 (17.8)	2093 (24.9)	1362 (16.7)	3409 (22.9)	1876 (18.1)	4162 (23.4)	14592 (17.8)	32961 (21.1)	17555 (18.8)	39319 (24.7)
>17.89%	603 (13.9)	1612 (20.7)	625 (12.7)	1177 (14.0)	1151 (14.2)	2591 (17.4)	1030 (9.9)	2293 (12.9)	11411 (13.9)	29707 (19.1)	10438 (11.2)	23222 (14.6)
Percent poverty quartile, N (%)												
3.9 to 12.0%	918 (21.1)	1981 (25.4)	869 (17.7)	2427 (28.9)	1617 (19.9)	3898 (26.1)	1819 (17.6)	5658 (31.8)	17041 (20.8)	41499 (26.6)	18585 (19.9)	50215 (31.5)
>12.0 to 15.4%	1515 (34.8)	2618 (33.6)	1146 (23.3)	2290 (27.2)	2777 (34.2)	5005 (33.5)	2401 (23.2)	4839 (27.2)	27884 (34.1)	52008 (33.4)	21454 (23.0)	44411 (27.9)
>15.4 to 18.8%	1137 (26.1)	2632 (33.7)	1683 (34.2)	2392 (28.4)	2228 (27.4)	4755 (31.9)	3987 (38.5)	5224 (29.4)	22580 (27.6)	49350 (31.7)	33261 (35.7)	45020 (28.3)
>18.8%	779 (17.9)	572 (7.3)	1223 (24.9)	1299 (15.4)	1509 (18.6)	1261 (8.5)	2151 (20.8)	2047 (11.5)	14382 (17.6)	13059 (8.4)	19958 (21.4)	19650 (12.3)

Medicare Advantage penetration quartile, N (%)												
0.7 to 17.93%	436 (10.0)	378 (4.8)	625 (12.7)	547 (6.5)	844 (10.4)	706 (4.7)	1232 (11.9)	1010 (5.7)	8348 (10.2)	7854 (5.0)	13264 (14.2)	12119 (7.6)
17.94 to 28.31%	1309 (30.1)	1384 (17.7)	1572 (31.9)	2060 (24.5)	2256 (27.8)	2565 (17.2)	3050 (29.5)	4138 (23.3)	23964 (29.3)	29683 (19.0)	29259 (31.4)	41137 (25.8)
28.32% to 39.24%	1469 (33.8)	3412 (43.7)	1475 (30.0)	2777 (33.0)	2719 (33.4)	6286 (42.1)	3308 (31.9)	5626 (31.7)	27933 (34.1)	65435 (42.0)	26997 (28.9)	49458 (31.0)
>39.24%	1135 (26.1)	2629 (33.7)	1249 (25.4)	3024 (36.0)	2312 (28.4)	5362 (35.9)	2768 (26.7)	6994 (39.4)	21642 (26.4)	52944 (34.0)	23738 (25.5)	56582 (35.5)
Specialists per PCP ratio quartile, N (%)												
0 to 0.684	72 (1.7)	143 (1.8)	260 (5.3)	429 (5.1)	171 (2.1)	199 (1.3)	428 (4.1)	781 (4.4)	1599 (2.0)	3158 (2.0)	5114 (5.5)	8634 (5.4)
0.685 to 0.944	359 (8.3)	679 (8.7)	770 (15.6)	876 (10.4)	511 (6.3)	1022 (6.9)	1434 (13.7)	1652 (9.3)	6303 (7.7)	12514 (8.0)	14462 (15.5)	18235 (11.4)
0.955 to 1.257	605 (13.9)	818 (10.5)	1282 (26.1)	2030 (24.1)	1102 (13.6)	1756 (11.8)	2548 (24.6)	3856 (21.7)	11508 (14.1)	20230 (13.0)	23809 (25.5)	40721 (25.6)
>1.257	3313 (76.2)	6163 (79.0)	2609 (53.0)	5073 (60.3)	6347 (78.1)	11942 (80.0)	5948 (57.6)	11479 (64.6)	62477 (76.3)	120014 (77.0)	49873 (53.5)	91706 (57.6)
MBSF Comp FFS IP ER quartile, N (%)												
195 to 1535	274 (6.3)	594 (7.6)	740 (15.0)	1301 (15.5)	758 (9.3)	1490 (10.0)	1579 (15.2)	3044 (17.1)	7093 (8.7)	13174 (8.4)	13535 (14.5)	24338 (15.3)
>1535 to 1834	1261 (29.0)	2257 (28.9)	1196 (24.3)	2002 (23.8)	2117 (26.0)	3933 (26.4)	2849 (27.5)	5197 (29.3)	22966 (28.0)	47373 (30.4)	24867 (26.7)	43089 (27.0)
>1834 to 2096	1643 (37.8)	2753 (35.3)	1373 (27.9)	2406 (28.6)	2966 (36.5)	4872 (32.7)	2591 (25.0)	4316 (24.3)	28536 (34.8)	50249 (32.2)	27329 (29.3)	47031 (29.5)
>2096	1171 (26.9)	2199 (28.2)	1612 (32.8)	2699 (32.1)	2290 (28.2)	4624 (31.0)	3339 (32.2)	5211 (29.3)	23292 (28.4)	45120 (28.9)	27527 (29.5)	44838 (28.1)
Primary care health professional shortage area category, N (%)												
0	1227 (28.2)	2655 (34.0)	1949 (39.6)	3533 (42.0)	2503 (30.8)	5665 (38.0)	4532 (43.7)	7991 (45.0)	25543 (31.2)	55231 (35.4)	39834 (42.7)	67389 (42.3)
>0 to 20	3094 (71.1)	5064 (64.9)	2911 (59.2)	4774 (56.8)	5539 (68.1)	9089 (60.9)	5715 (55.2)	9582 (53.9)	55043 (67.2)	97393 (62.5)	52393 (56.2)	89861 (56.4)
>20 to 100	28 (0.6)	84 (1.1)	61 (1.2)	101 (1.2)	87 (1.1)	165 (1.1)	111 (1.1)	195 (1.1)	1301 (1.6)	3292 (2.1)	1031 (1.1)	2046 (1.3)

[a]Chemotherapy source was based on any chemotherapy received during the episode, including Part B drugs, even though our current analyses focus only on Part D drugs. By OCM definition of "low-risk breast cancer episodes," these episodes included beneficiaries with breast cancer who were receiving only oral hormonal therapies. OCM=Oncology Care Model; NPI=National Provider Identifier; NP=Nurse practitioner; PA=physician's assistant; PCP=primary care physician; MBSF=Master Beneficiary Summary File; FFS=fee-for-service

Supplementary Table 2. Adherence to individual tyrosine kinase inhibitors for CML[a]

Proportion of days covered	No. of Episodes		OCM Proportion of Days Covered		Comparison Proportion of Days Covered		Impact Estimates			
	OCM	Comparison	Baseline percent	Inter-vention percent	Baseline percent	Inter-vention percent	DID, %	*P*[a]	90% LCL, %	90% UCL, %
All TKIs	12,152	13,329	87.6	86.1	88.1	86.8	-0.3%	0.60	-1.2	0.6
Dasatinib only	2,428	2,773	86.9	85.7	87.3	85.5	0.7%	0.57	-1.2	2.5
Imatinib only	6,001	6,740	89.3	87.6	90.1	89.1	-0.7%	0.27	-1.8	0.4
Nilotinib only	2,539	2,592	86.2	84.6	85.8	84.4	-0.2%	0.87	-2.4	2.0

[a] Impact estimates and 2-sided P values based on difference-in-differences regression analysis. TKI=tyrosine kinase inhibitor; OCM: Oncology Care Model intervention group; PDC: Proportion of days covered; TKIs: Tyrosine kinase inhibitors; DID: difference-in-differences estimate; LCL=lower confidence interval; UCL=upper confidence interval

Supplementary Table 3. Adherence to abiraterone and enzalutamide for prostate cancer

Proportion of days covered	No. of Episodes		OCM Proportion of Days Covered		Comparison Proportion of Days Covered		Impact Estimates			
	OCM	Comparison	Baseline percent	Inter-vention percent	Baseline percent	Inter-vention percent	DID, %	*P*[a]	90% LCL, %	90% UCL, %
Abiraterone or enzalutamide	23,050	28,126	88.6	84.5	89.1	84.5	0.4	0.34	-0.3	1.2
Abiraterone	13,039	15,303	90.4	86.3	90.5	86.1	0.4	0.51	-0.6	1.3
Enzalutamide	10,011	12,823	86.6	82.0	87.5	82.5	0.4	0.54	-0.7	1.6

[a] Impact estimates and 2-sided P values based on difference-in-differences regression analysis. OCM: Oncology Care Model intervention group; PDC: Proportion of days covered; DID: difference-in-differences estimate; LCL=lower confidence interval; UCL=upper confidence interval

Supplementary Table 4. Adherence to hormonal therapies for low-risk breast cancer

Proportion of days covered	No. of Episodes		OCM Proportion of Days Covered		Comparison Proportion of Days Covered		Impact Estimates			
	OCM	Comparison	Baseline percent	Inter-vention percent	Baseline percent	Inter-vention percent	DID, %	*P*[a]	90% LCL, %	90% UCL, %
All hormonal therapies	237,803	252,554	90.4	90.8	90.7	91.1	0.0	0.86	-0.2	0.2
Anastrozole only	116,515	126,709	91.5	91.6	91.5	91.9	-0.3	0.03	-0.6	-0.1
Exemestane only	17,958	16,290	88.3	88.5	88.5	87.8	0.8	0.06	0.1	1.6
Letrozole only	56,865	57,893	90.7	91.3	91.1	91.5	0.1	0.52	-0.2	0.5
Tamoxifen only	35,591	39,892	88.8	89.5	89.4	89.6	0.4	0.19	-0.1	0.9

[a] Impact estimates and 2-sided P values based on difference-in-differences regression analysis. OCM: Oncology Care Model intervention group; PDC: Proportion of days covered; DID: difference-in-differences estimate; LCL=lower confidence interval; UCL=upper confidence interval

Supplementary Table 5: Adherence to TKIs for Chronic Myelogenous Leukemia: Full Model Results[a]

Episode characteristics	Coefficient	Robust Standard Error.	t	P>|t|	95% Confidence Interval	
OCM	-.004462	.0054296	-0.82	0.411	-.0151038	.0061798
Intervention period	-.0122855	.0037371	-3.29	0.001	-.0196101	-.0049608
Interaction of OCM * intervention	-.0029822	.0056173	-0.53	0.595	-.0139918	.0080275
Male	.0221079	.0029016	7.62	0.000	.0164209	.027795
Black	-.0179575	.0066298	-2.71	0.007	-.0309517	-.0049634
Hispanic	-.0036753	.0097558	-0.38	0.706	-.0227963	.0154457
Other	.0075391	.00811	0.93	0.353	-.0083562	.0234344
Dual Eligible	.0088309	.0042073	2.10	0.036	.0005848	.0170771
Beneficiary alignment in other value-based models	.0007585	.0033093	0.23	0.819	-.0057276	.0072445
HCC Risk Score_Q1	.0474798	.0078037	6.08	0.000	.0321849	.0627747
HCC Risk Score_Q2	.0393114	.0036954	10.64	0.000	.0320686	.0465543
HCC Risk Score_Q3	.0202645	.0037857	5.35	0.000	.0128447	.0276842
Under 65	-.0288165	.0046469	-6.20	0.000	-.0379242	-.0197088
70-74	-.0045835	.0035169	-1.30	0.192	-.0114765	.0023096
75-79	-.0081929	.0045202	-1.81	0.070	-.0170524	.0006666
80-84	-.0086897	.0049518	-1.75	0.079	-.0183952	.0010157
Over 84	-.0240258	.0058955	-4.08	0.000	-.0355808	-.0124708
Beneficiary had previous episode in performance period	.0429407	.0034553	12.43	0.000	.0361685	.0497128
Affiliated with Academic Medical Center	-.0128656	.0059511	-2.16	0.031	-.0245295	-.0012017
Affiliated with health system	.0044095	.0047172	0.93	0.350	-.004836	.0136549
Owned by a hospital	.0070964	.0045008	1.58	0.115	-.001725	.0159178
SK&A data missing	-.0007344	.0286693	-0.03	0.980	-.0569253	.0554564
Total N episodes quartile_Q1	-.0075675	.0093851	-0.81	0.420	-.025962	.010827
Total N episodes quartile_Q2	-.0017852	.0066138	-0.27	0.787	-.0147481	.0111777
Total N episodes quartile_Q3	-.0035832	.0047543	-0.75	0.451	-.0129015	.005735
Practice has 3 or less oncology NPIs	.0023461	.0066241	0.35	0.723	-.010637	.0153292
NPIs that only have oncology specialty	.0083407	.0041808	1.99	0.046	.0001464	.0165349
Practice has at least one radiation oncologist	.0003589	.0042816	0.08	0.933	-.0080329	.0087508
Practice has at least one surgical oncologist	.0036988	.0043479	0.85	0.395	-.0048228	.0122205
Practice has at least one gynecologic oncologist	-.0047701	.0045015	-1.06	0.289	-.0135928	.0040526
Percent NP/PA Quartile_Q1	-.0077586	.0062014	-1.25	0.211	-.019913	.0043959
Percent NP/PA Quartile_Q2	.0027341	.0075313	0.36	0.717	-.012027	.0174951
Percent NP/PA Quartile_Q3	-.004804	.0037317	-1.29	0.198	-.0121179	.00251
Market population quartile_Q1	-.0008255	.0092206	-0.09	0.929	-.0188976	.0172466
Market population quartile_Q2	.0000411	.0069548	0.01	0.995	-.0135901	.0136723

Market population quartile_Q3	-.0094129	.0052125	-1.81	0.071	-.0196292	.0008033
Percent over 65 quartile_Q2	.0024721	.0038147	0.65	0.517	-.0050046	.0099488
Percent over 65 quartile_Q3	.0043216	.0051729	0.84	0.403	-.0058171	.0144603
Percent over 65 quartile_Q4	-.0020726	.0069993	-0.30	0.767	-.015791	.0116458
Percent poverty quartile_Q1	-.0032784	.00501	-0.65	0.513	-.0130978	.006541
Percent poverty quartile_Q2	-.0032883	.0036796	-0.89	0.372	-.0105003	.0039236
Percent poverty quartile_Q4	.008009	.0048641	1.65	0.100	-.0015245	.0175424
Medicare Advantage penetration quartile_Q1	-.004448	.007185	-0.62	0.536	-.0185304	.0096343
Medicare Advantage penetration quartile_Q2	-.0037564	.0042064	-0.89	0.372	-.0120007	.0044879
Medicare Advantage penetration quartile_Q4	-.0006765	.0042941	-0.16	0.875	-.0090928	.0077398
Primary care health professional shortage area category_0	-.004909	.0054373	-0.90	0.367	-.0155659	.0057479
Primary care health professional shortage area category_>20 to 100	-.0098053	.0188955	-0.52	0.604	-.0468398	.0272293
Specialists per PCP ratio quartile_Q1	.0105619	.0082851	1.27	0.202	-.0056765	.0268004
Specialists per PCP ratio quartile_Q2	.0040254	.0063126	0.64	0.524	-.008347	.0163978
Specialists per PCP ratio quartile_Q3	.0104556	.0049684	2.10	0.035	.0007176	.0201935
MBSF Comp FFS IP ER quartile_Q1	.0122202	.0071643	1.71	0.088	-.0018217	.026262
MBSF Comp FFS IP ER quartile_Q2	.0011401	.0048505	0.24	0.814	-.0083668	.0106469
MBSF Comp FFS IP ER quartile_Q4	-.0134364	.0052219	-2.57	0.010	-.0236712	-.0032015
Alabama	-.0213779	.0163799	-1.31	0.192	-.0534819	.010726
Arkansas	-.0019717	.012019	-0.16	0.870	-.0255285	.021585
Arizona	-.0054867	.014809	-0.37	0.711	-.0345118	.0235384
California	-.0166564	.0121151	-1.37	0.169	-.0404015	.0070886
Colorado	.0026709	.0116847	0.23	0.819	-.0202308	.0255725
Connecticut	.0416337	.0160398	2.60	0.009	.0101962	.0730712
District of Columbia	-.1296131	.0190577	-6.80	0.000	-.1669654	-.0922608
Georgia	-.0234098	.0152059	-1.54	0.124	-.0532127	.0063932
Iowa	-.024399	.0155746	-1.57	0.117	-.0549246	.0061266
Idaho	-.0140821	.0422882	-0.33	0.739	-.0969654	.0688012
Illinois	.0004505	.0114528	0.04	0.969	-.0219967	.0228976
Indiana	-.0137294	.0158122	-0.87	0.385	-.0447207	.0172619
Kansas	-.0050471	.0137264	-0.37	0.713	-.0319504	.0218561
Kentucky	-.0140835	.0137309	-1.03	0.305	-.0409956	.0128285
Louisiana	-.0091423	.0189069	-0.48	0.629	-.046199	.0279145
Massachusetts	.0221598	.0105923	2.09	0.036	.0013992	.0429203
Maine	-.0091444	.012916	-0.71	0.479	-.0344594	.0161706
Michigan	.0164939	.0109454	1.51	0.132	-.0049587	.0379464
Minnesota	.0095343	.0131689	0.72	0.469	-.0162764	.0353449
Missouri	-.0131584	.0143391	-0.92	0.359	-.0412625	.0149457
Mississippi	.0236936	.0135517	1.75	0.080	-.0028673	.0502545

Montana	-.0557422	.0549447	-1.01	0.310	-.1634319	.0519475
North Carolina	-.0125618	.0136483	-0.92	0.357	-.0393119	.0141883
North Dakota	.0221243	.01934	1.14	0.253	-.0157815	.06003
Nebraska	-.0010859	.0162441	-0.07	0.947	-.0329237	.030752
New Hampshire	.094661	.01817	5.21	0.000	.0590485	.1302736
New Jersey	.0042295	.010916	0.39	0.698	-.0171654	.0256244
New Mexico	-.0339709	.0228607	-1.49	0.137	-.0787771	.0108352
Nevada	-.0276537	.012326	-2.24	0.025	-.0518122	-.0034953
New York	.0269266	.0103427	2.60	0.009	.0066553	.047198
Ohio	.019216	.0105551	1.82	0.069	-.0014716	.0399035
Oklahoma	-.0372362	.0130479	-2.85	0.004	-.0628096	-.0116628
Oregon	-.0117839	.0134931	-0.87	0.382	-.0382298	.014662
Pennsylvania	-.003978	.0105158	-0.38	0.705	-.0245887	.0166327
Rhode Island	.0719464	.0126404	5.69	0.000	.0471716	.0967212
South Carolina	-.0198842	.0139062	-1.43	0.153	-.0471397	.0073714
South Dakota	-.1092851	.0165275	-6.61	0.000	-.1416785	-.0768917
Tennessee	.0049808	.0109894	0.45	0.650	-.0165581	.0265196
Texas	-.0177494	.0099655	-1.78	0.075	-.0372814	.0017825
Utah	-.0109914	.0161068	-0.68	0.495	-.0425601	.0205772
Virginia	-.0034775	.012326	-0.28	0.778	-.027636	.0206811
Washington	-.0316812	.0199982	-1.58	0.113	-.070877	.0075146
Wisconsin	.0216506	.0135752	1.59	0.111	-.0049562	.0482575
West Virginia	-.0155125	.0210944	-0.74	0.462	-.0568568	.0258318
_constant	.8273172	.0128605	64.33	0.000	.802111	.8525234

[a] Difference-in-differences regression analysis.

TKI=tyrosine kinase inhibitor; OCM=Oncology Care Model; HCC=Hierarchical Condition Category; Q=quartile; NPI=National Provider Identifier; NP=Nurse practitioner; PA=physician's assistant; PCP=primary care physician; MBSF=Master Beneficiary Summary File; FFS=fee-for-service; IP=inpatient; ER=emergency room.

Supplementary Table 6: Adherence to Abiraterone or Enzalutamide for Prostate Cancer: Full Model Results[a]

Episode characteristics	Coefficient	Robust Standard Error	t	P>|t|	95% Confidence Interval	
OCM	-.4894995	.4272275	-1.15	0.252	-1.328282	.3492829
Intervention period	-4.606566	.3178724	-14.49	0.000	-5.23065	-3.982482
Interaction of OCM * intervention	.4379734	.4536685	0.97	0.335	-.452721	1.328668
Black	-1.89197	.3942356	-4.80	0.000	-2.665979	-1.117961
Hispanic	-1.161144	.5114991	-2.27	0.024	-2.165378	-.1569095
Other	-.1894297	.5140404	-0.37	0.713	-1.198653	.8197939
65-69	.2612503	.6019178	0.43	0.664	-.9205041	1.443005
70-74	.5840506	.600594	0.97	0.331	-.5951049	1.763206
75-79	.0785989	.5757672	0.14	0.891	-1.051814	1.209012
80-84	-.7706805	.6223027	-1.24	0.216	-1.992457	.4510962
Over 84	-2.087907	.6246645	-3.34	0.001	-3.31432	-.8614934
Dual Eligible	1.416217	.3783449	3.74	0.000	.6734062	2.159027
Beneficiary alignment in other value-based models	-.2064644	.2250274	-0.92	0.359	-.6482642	.2353354
Beneficiary had previous episode in performance period	-.3330747	.2667645	-1.25	0.212	-.8568176	.1906681
HCC Risk Score_Q2	-1.722216	.4033996	-4.27	0.000	-2.514217	-.9302156
HCC Risk Score_Q3	-2.055577	.3016714	-6.81	0.000	-2.647853	-1.463301
HCC Risk Score_Q4	-3.405792	.330175	-10.32	0.000	-4.054029	-2.757554
Affiliated with Academic Medical Center	-1.228171	.471616	-2.60	0.009	-2.154102	-.3022402
Affiliated with health system	.344304	.3748772	0.92	0.359	-.3916982	1.080306
Owned by a hospital	-.0643017	.3818645	-0.17	0.866	-.8140222	.6854188
SK&A data missing	-2.629376	1.536129	-1.71	0.087	-5.645283	.38653
Total N episodes quartile_Q2	1.119845	.8841998	1.27	0.206	-.616118	2.855808
Total N episodes quartile_Q3	.9947095	.8810304	1.13	0.259	-.7350311	2.72445
Total N episodes quartile_Q4	.9074806	.8881343	1.02	0.307	-.8362073	2.651168
Practice has 3 or less oncology NPIs	.7030358	.5342889	1.32	0.189	-.3459419	1.752013
NPIs that only have oncology specialty	-.3388806	.3912918	-0.87	0.387	-1.10711	.4293487
Practice has at least one radiation oncologist	.5487752	.3463393	1.58	0.114	-.1311981	1.228749
Practice has at least one surgical oncologist	.3032989	.3717363	0.82	0.415	-.4265368	1.033135
Practice has at least one gynecologic oncologist	.3968174	.3779747	1.05	0.294	-.3452663	1.138901
Percent NP/PA Quartile_Q2	.8170596	.4507422	1.81	0.070	-.0678896	1.702009
Percent NP/PA Quartile_Q3	-.0982533	.4118138	-0.24	0.811	-.9067737	.7102671
Percent NP/PA Quartile_Q4	-.0271791	.4319994	-0.06	0.950	-.8753302	.8209721
Market population quartile_Q2	-.8522222	.7913423	-1.08	0.282	-2.405877	.7014324
Market population quartile_Q3	-1.084445	.7981362	-1.36	0.175	-2.651438	.4825482
Market population quartile_Q4	-1.256068	.8277941	-1.52	0.130	-2.881289	.3691533

Percent over 65 quartile_Q2	-.8506981	.4113689	-2.07	0.039	-1.658345	-.0430511
Percent over 65 quartile_Q3	-.278058	.5193684	-0.54	0.593	-1.297742	.7416262
Percent over 65 quartile_Q4	-.545453	.6645314	-0.82	0.412	-1.850138	.7592318
Percent poverty quartile_Q2	-.5163249	.4171393	-1.24	0.216	-1.335301	.3026512
Percent poverty quartile_Q3	-.619869	.4929254	-1.26	0.209	-1.587637	.3478991
Percent poverty quartile_Q4	-.3413157	.5620039	-0.61	0.544	-1.444707	.7620754
Medicare Advantage penetration quartile_Q2	.8531648	.5176911	1.65	0.100	-.1632262	1.869556
Medicare Advantage penetration quartile_Q3	.3341749	.616287	0.54	0.588	-.8757909	1.544141
Medicare Advantage penetration quartile_Q4	.9480667	.6678814	1.42	0.156	-.3631953	2.259329
Primary care health professional shortage area category_>0 to 20	-.3758392	.3651497	-1.03	0.304	-1.092743	.3410648
Primary care health professional shortage area category_>20 to 100	-3.08952	1.499917	-2.06	0.040	-6.03433	-.1447101
Specialists per PCP ratio quartile_Q2	.7107558	.7523345	0.94	0.345	-.7663142	2.187826
Specialists per PCP ratio quartile_Q3	.6078751	.6790492	0.90	0.371	-.7253129	1.941063
Specialists per PCP ratio quartile_Q4	.6745581	.7034703	0.96	0.338	-.7065761	2.055692
MBSF Comp FFS IP ER quartile_Q2	-.0837738	.6291761	-0.13	0.894	-1.319045	1.151497
MBSF Comp FFS IP ER quartile_Q3	.3009066	.7004353	0.43	0.668	-1.074269	1.676082
MBSF Comp FFS IP ER quartile_Q4	-.0131974	.7688551	-0.02	0.986	-1.522703	1.496308
Alabama	-.4563904	1.320368	-0.35	0.730	-3.04869	2.135909
Arizona	-.939536	1.039826	-0.90	0.367	-2.981043	1.101971
Arkansas	.6888682	1.161962	0.59	0.553	-1.592431	2.970167
California	-.2221213	.9537008	-0.23	0.816	-2.094537	1.650294
Colorado	.7809898	1.275537	0.61	0.541	-1.723292	3.285272
Connecticut	1.238794	1.227672	1.01	0.313	-1.171514	3.649102
District of Columbia	-4.566042	3.00432	-1.52	0.129	-10.46447	1.332385
Georgia	-.8788016	1.074107	-0.82	0.414	-2.987613	1.23001
Idaho	2.237262	1.084369	2.06	0.039	.1083027	4.366221
Illinois	-.246478	.8590769	-0.29	0.774	-1.933117	1.440161
Indiana	-1.151089	1.60447	-0.72	0.473	-4.301169	1.998991
Iowa	.872898	1.124267	0.78	0.438	-1.334392	3.080188
Kansas	-.9144104	1.052117	-0.87	0.385	-2.980048	1.151227
Kentucky	-1.774452	.8771596	-2.02	0.043	-3.496593	-.0523106
Louisiana	-.852798	1.406336	-0.61	0.544	-3.61388	1.908284
Maine	2.372415	1.194395	1.99	0.047	.0274412	4.717389
Massachusetts	.0947105	1.1027	0.09	0.932	-2.070238	2.259659
Michigan	-.6345659	1.079831	-0.59	0.557	-2.754616	1.485484
Minnesota	-5.618383	1.077265	-5.22	0.000	-7.733395	-3.503371
Mississippi	.9808594	1.334062	0.74	0.462	-1.638325	3.600044
Missouri	.383543	1.099977	0.35	0.727	-1.776059	2.543145
Montana	-2.193341	1.29714	-1.69	0.091	-4.740036	.3533535
Nebraska	1.061462	1.085646	0.98	0.329	-1.070004	3.192929

Nevada	1.22628	1.834356	0.67	0.504	-2.37514	4.827699
New Hampshire	-1.703105	1.210924	-1.41	0.160	-4.08053	.6743201
New Jersey	-.905739	.7864976	-1.15	0.250	-2.449882	.6384041
New Mexico	-1.601248	1.490557	-1.07	0.283	-4.527681	1.325185
New York	.9066484	.7427916	1.22	0.223	-.551686	2.364983
North Carolina	-.6365711	.8577933	-0.74	0.458	-2.32069	1.047548
North Dakota	-1.333924	2.38447	-0.56	0.576	-6.015392	3.347543
Ohio	.3970645	.9821262	0.40	0.686	-1.531159	2.325288
Oklahoma	-2.35873	1.702688	-1.39	0.166	-5.701645	.9841845
Oregon	.0262733	1.626137	0.02	0.987	-3.166346	3.218893
Pennsylvania	.072084	.7335184	0.10	0.922	-1.368044	1.512212
Rhode Island	-2.916115	1.13826	-2.56	0.011	-5.150878	-.6813512
South Carolina	.2806796	1.566893	0.18	0.858	-2.795626	3.356985
South Dakota	-2.120335	1.259391	-1.68	0.093	-4.592918	.3522476
Tennessee	-.1440661	1.466754	-0.10	0.922	-3.023767	2.735635
Texas	-1.686263	.7392734	-2.28	0.023	-3.13769	-.2348357
Utah	.117424	1.798834	0.07	0.948	-3.414255	3.649103
Virginia	-1.70634	1.013681	-1.68	0.093	-3.696515	.2838356
Washington	-.3859322	1.367283	-0.28	0.778	-3.070341	2.298477
West Virginia	1.068742	.9654783	1.11	0.269	-.8267964	2.964281
Wisconsin	-.0537148	.881701	-0.06	0.951	-1.784772	1.677342
_ constant	91.80481	1.759686	52.17	0.000	88.35	95.25963

[a] Difference-in-differences regression analysis.

OCM=Oncology Care Model; HCC=Hierarchical Condition Category; Q=Quartile; NPI=National Provider Identifier; NP=Nurse practitioner; PA=physician's assistant; PCP=primary care physician; MBSF=Master Beneficiary Summary File; FFS=fee-for-service; IP=inpatient; ER=emergency room

Supplementary Table 7: Adherence to Hormonal Therapy for Low-Risk Breast Cancer

Episode characteristics	Coefficient	Robust Standard Error	t	P>|t|	95% Confidence Interval	
OCM	-.0025454	.0012381	-2.06	0.040	-.0049721	-.0001187
Intervention period	.0038534	.0008254	4.67	0.000	.0022357	.0054711
Interaction of OCM * intervention	.0002249	.0012424	0.18	0.856	-.0022102	.0026601
Male	.0141749	.002411	5.88	0.000	.0094494	.0189003
Black	-.0144627	.0011982	-12.07	0.000	-.0168111	-.0121144
Hispanic	-.0063306	.0014171	-4.47	0.000	-.009108	-.0035531
Other	.0043684	.0016443	2.66	0.008	.0011456	.0075911
Dual Eligible	-.0015682	.0009331	-1.68	0.093	-.0033971	.0002607
Beneficiary alignment in other value-based models	.0015957	.000622	2.57	0.010	.0003766	.0028148
HCC Risk Score_Q1	.0123492	.001307	9.45	0.000	.0097876	.0149109
HCC Risk Score_Q2	.0053951	.0012695	4.25	0.000	.002907	.0078833
HCC Risk Score_Q3	.006887	.0013424	5.13	0.000	.0042559	.009518
Under 65	-.0266056	.0012963	-20.52	0.000	-.0291463	-.0240649
70-74	.0015697	.0006454	2.43	0.015	.0003047	.0028347
75-79	-.0007634	.0008552	-0.89	0.372	-.0024396	.0009128
80-84	-.0031263	.0009814	-3.19	0.001	-.0050498	-.0012028
Over 84	-.0026003	.0010492	-2.48	0.013	-.0046567	-.0005439
Beneficiary had previous episode in performance period	.0229181	.0005546	41.32	0.000	.0218311	.0240052
Affiliated with Academic Medical Center	-.0020656	.0013895	-1.49	0.137	-.0047889	.0006578
Affiliated with health system	.0017834	.0010483	1.70	0.089	-.0002713	.0038381
Owned by a hospital	.0001495	.0009691	0.15	0.877	-.0017499	.0020489
SK&A data missing	-.0068251	.0048851	-1.40	0.162	-.0163998	.0027496
Total N episodes quartile_Q1	-.0060961	.0023545	-2.59	0.010	-.0107109	-.0014813
Total N episodes quartile_Q2	-.0020702	.0013035	-1.59	0.112	-.0046249	.0004846
Total N episodes quartile_Q3	-.0007366	.0009805	-0.75	0.452	-.0026583	.0011851
Practice has 3 or less oncology NPIs	.0024362	.0014914	1.63	0.102	-.0004869	.0053593
NPIs that only have oncology specialty	-.001751	.0010393	-1.68	0.092	-.0037879	.0002859
Practice has at least one radiation oncologist	-.0007878	.0011345	-0.69	0.487	-.0030115	.0014358
Practice has at least one surgical oncologist	.0021791	.0010525	2.07	0.038	.0001163	.0042419
Practice has at least one gynecologic oncologist	-.000691	.0011447	-0.60	0.546	-.0029346	.0015526
Percent NP/PA Quartile_Q1	.0030498	.0010885	2.80	0.005	.0009164	.0051832
Percent NP/PA Quartile_Q2	.001817	.0014209	1.28	0.201	-.0009679	.0046019
Percent NP/PA Quartile_Q3	-.0001937	.0008081	-0.24	0.811	-.0017776	.0013902
Market population quartile_Q1	.0016319	.0024509	0.67	0.506	-.0031718	.0064356
Market population quartile_Q2	.0023387	.0015619	1.50	0.134	-.0007225	.0053998

Market population quartile_Q3	.0012536	.0012411	1.01	0.312	-.001179	.0036862
Percent over 65 quartile_Q2	-.0001432	.0010197	-0.14	0.888	-.0021417	.0018553
Percent over 65 quartile_Q3	.0017659	.0013069	1.35	0.177	-.0007955	.0043273
Percent over 65 quartile_Q4	.0026212	.0017283	1.52	0.129	-.0007662	.0060087
Percent poverty quartile_Q1	.001663	.001273	1.31	0.191	-.0008322	.0041581
Percent poverty quartile_Q2	.0006446	.0009142	0.71	0.481	-.0011472	.0024364
Percent poverty quartile_Q4	-.000554	.0011771	-0.47	0.638	-.0028612	.0017532
Medicare Advantage penetration quartile_Q1	-.0002496	.0017684	-0.14	0.888	-.0037155	.0032163
Medicare Advantage penetration quartile_Q2	-.0013148	.0010893	-1.21	0.227	-.0034498	.0008203
Medicare Advantage penetration quartile_Q4	.0017958	.0010423	1.72	0.085	-.0002471	.0038388
Primary care health professional shortage area category_0	-.0001183	.0009349	-0.13	0.899	-.0019506	.0017141
Primary care health professional shortage area category_>20 to 100	.0054456	.0022891	2.38	0.017	.0009591	.0099321
Specialists per PCP ratio quartile_Q1	-.0053944	.0021842	-2.47	0.014	-.0096755	-.0011134
Specialists per PCP ratio quartile_Q2	-.0048895	.001515	-3.23	0.001	-.0078588	-.0019202
Specialists per PCP ratio quartile_Q3	-.0022639	.0011884	-1.91	0.057	-.0045931	.0000653
MBSF Comp FFS IP ER quartile_Q1	-.0028956	.0019052	-1.52	0.129	-.0066298	.0008386
MBSF Comp FFS IP ER quartile_Q2	.0008728	.0011918	0.73	0.464	-.001463	.0032086
MBSF Comp FFS IP ER quartile_Q4	.0001113	.0011543	0.10	0.923	-.0021511	.0023736
Alabama	.007058	.0037138	1.90	0.057	-.0002209	.014337
Arkansas	.0032894	.0027825	1.18	0.237	-.0021643	.008743
Arizona	.0025233	.0039783	0.63	0.526	-.005274	.0103207
California	.0017833	.0026553	0.67	0.502	-.003421	.0069877
Colorado	.0056131	.0031285	1.79	0.073	-.0005186	.0117447
Connecticut	.0102893	.0032992	3.12	0.002	.003823	.0167556
District of Columbia	.0077718	.00561	1.39	0.166	-.0032235	.0187672
Georgia	-.0039366	.0033844	-1.16	0.245	-.0105699	.0026968
Iowa	.0181256	.0032627	5.56	0.000	.0117308	.0245205
Idaho	.0116198	.003638	3.19	0.001	.0044894	.0187501
Illinois	.0151749	.0026512	5.72	0.000	.0099786	.0203712
Indiana	.0157618	.003312	4.76	0.000	.0092704	.0222532
Kansas	.0093222	.0055271	1.69	0.092	-.0015107	.0201552
Kentucky	.0035994	.0031054	1.16	0.246	-.0024871	.0096858
Louisiana	-.0026967	.003099	-0.87	0.384	-.0087705	.0033772
Massachusetts	.0128848	.0036734	3.51	0.000	.005685	.0200845
Maine	.0078157	.0030144	2.59	0.010	.0019075	.0137239
Michigan	.007974	.0023159	3.44	0.001	.0034349	.012513
Minnesota	.0209268	.0042108	4.97	0.000	.0126737	.0291798
Missouri	.0108115	.0027981	3.86	0.000	.0053273	.0162957

Mississippi	.0033037	.0042373	0.78	0.436	-.0050012	.0116087
Montana	.0151984	.0048318	3.15	0.002	.0057283	.0246686
North Carolina	.0035359	.002934	1.21	0.228	-.0022146	.0092865
North Dakota	.0173486	.0031588	5.49	0.000	.0111575	.0235397
Nebraska	.0204657	.0028582	7.16	0.000	.0148636	.0260677
New Hampshire	.0088353	.0035299	2.50	0.012	.0019169	.0157538
New Jersey	.0186694	.0026524	7.04	0.000	.0134708	.0238681
New Mexico	-.0040481	0058935	-0.69	0.492	-.0155992	.007503
Nevada	-.0099327	.0036444	-2.73	0.006	-.0170756	-.0027898
New York	.010348	.0026031	3.98	0.000	.0052461	.0154499
Ohio	.0067941	.0024516	2.77	0.006	.001989	.0115992
Oklahoma	-.0033797	.0039875	-0.85	0.397	-.0111951	.0044356
Oregon	-.0034873	.0049621	-0.70	0.482	-.0132128	.0062382
Pennsylvania	.0075429	.0020677	3.65	0.000	.0034902	.0115956
Rhode Island	.0133335	.0028692	4.65	0.000	.00771	.0189571
South Carolina	.0014317	.0036768	0.39	0.697	-.0057747	.0086381
South Dakota	.0065328	.0041854	1.56	0.119	-.0016704	.0147359
Tennessee	.0025199	.0034033	0.74	0.459	-.0041505	.0091902
Texas	.0014139	.0022603	0.63	0.532	-.0030161	.0058439
Utah	.006399	.0034817	1.84	0.066	-.0004251	.0132231
Virginia	.0059447	.0033927	1.75	0.080	-.0007049	.0125943
Washington	.000225	.0045049	0.05	0.960	-.0086044	.0090543
Wisconsin	.0171958	.0033561	5.12	0.000	.0106179	.0237737
West Virginia	.0075304	.0030365	2.48	0.013	.0015791	.0134818
_ constant	.8816131	.0030779	286.43	0.000	.8755805	.8876458

[a] Difference-in-differences regression analysis.

OCM=Oncology Care Model; HCC=Hierarchical Condition Category; Q=Quartile; NPI=National Provider Identifier; NP=Nurse practitioner; PA=physician's assistant; PCP=primary care physician; MBSF=Master Beneficiary Summary File; FFS=fee-for-service; IP=inpatient; ER=emergency room

Supplementary Table 8: Impact of OCM on Adherence to Oral Drugs for CML, Prostate Cancer, and Hormonal Therapy for Breast Cancer Among New Users[a]

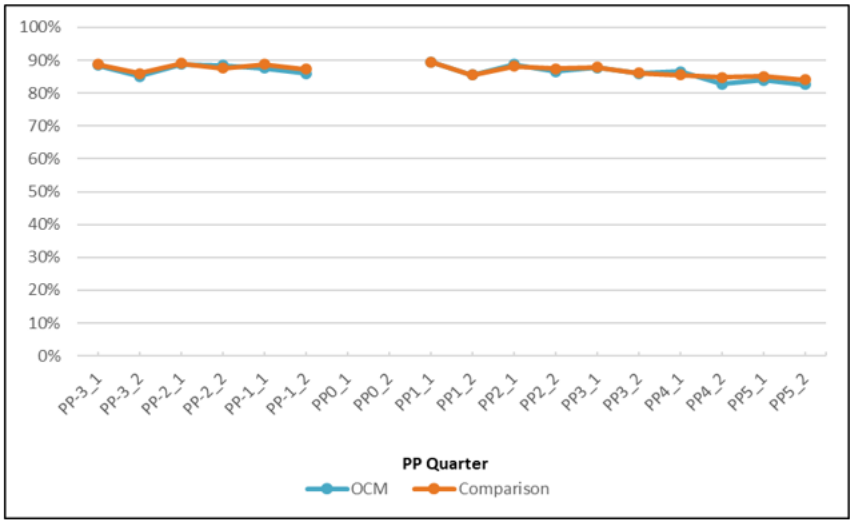
Proportion of days covered	No. of Episodes		OCM Proportion of Days Covered		Comparison Proportion of Days Covered		Impact Estimates			
	OCM	Comparison	Baseline percent	Inter-vention percent	Baseline percent	Inter-vention percent	DID, %	*P*[b]	90% LCL, %	90% UCL, %
All tyrosine kinase inhibitors	2,911	3,253	84.5	83.5	84.8	83.2	0.6	0.57	-1.2	2.5
Enzalutamide or abiraterone	4,165	5,027	89.3	84.9	90.0	85.4	0.2	0.84	-1.5	2.0
Hormonal therapy for breast cancer	115,867	125,363	89.2	89.7	89.6	90.0	0.1	0.60	-0.2	0.4

[a] Impact estimates and 2-sided P values based on difference-in-differences regression analysis. OCM: Oncology Care Model intervention group; DID: difference-in-differences estimate; LCL=lower confidence interval; UCL=upper confidence interval

Supplementary Figures.

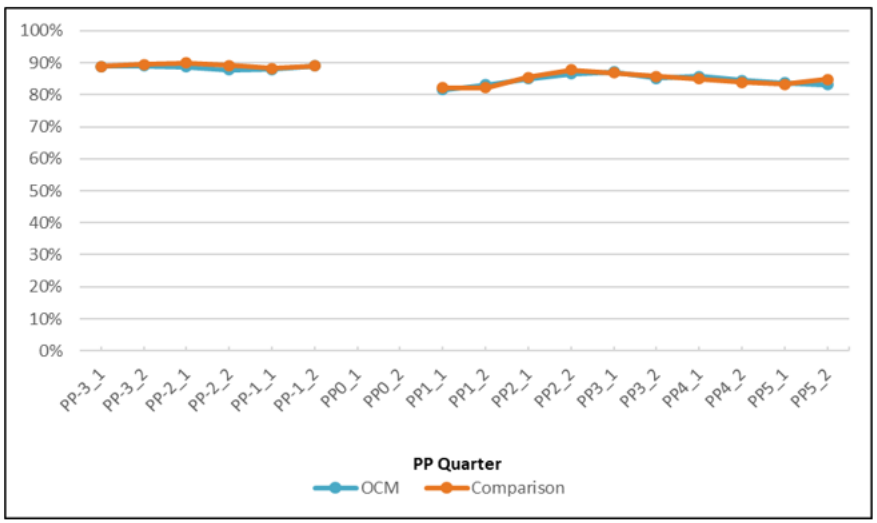
Supplementary Figure 1: Adherence in OCM and Comparison Practices by Quarter, Unadjusted

Panel A



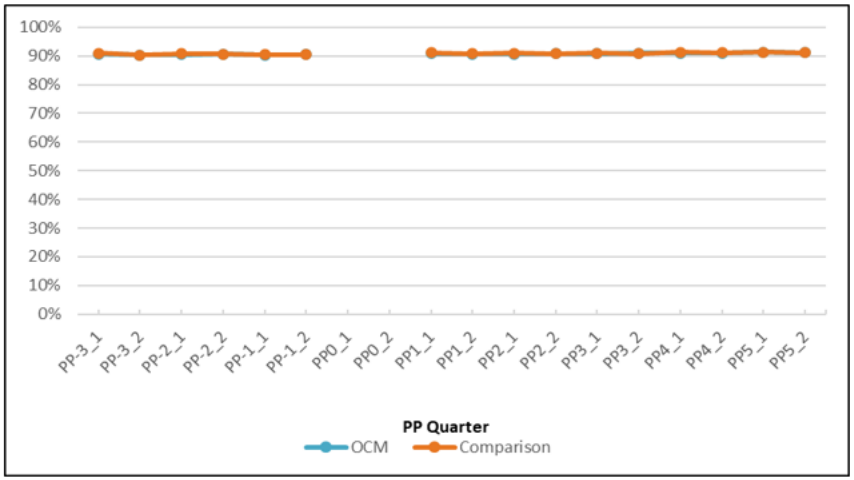
Adjusted pre-trend estimate -0.2% per quarter in OCM relative to comparison practices (95% CI -0.6%, 0.2%)

Panel B



Adjusted pre-trend estimate 0.0% per quarter in OCM relative to comparison practices (95% CI -0.3%, 0.3%)

Panel C

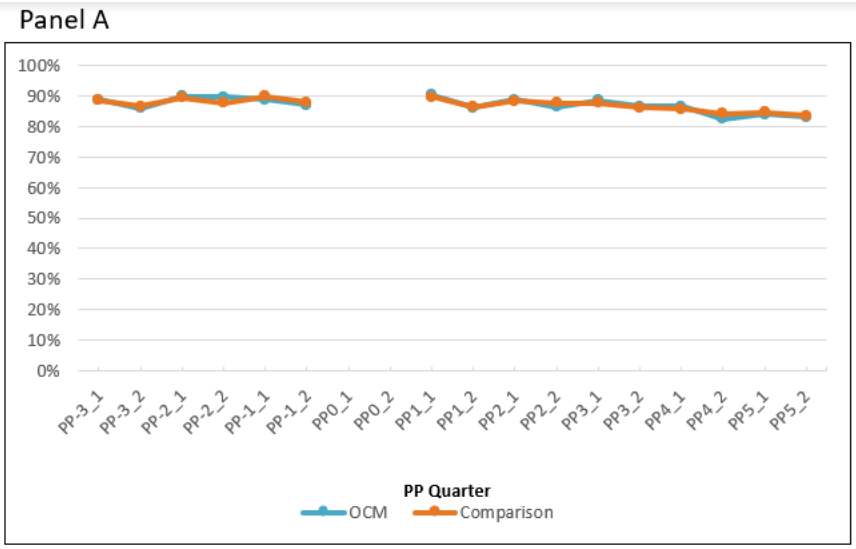


Adjusted pre-trend estimate 0.0% per quarter in OCM relative to comparison practices (95% CI -0.1%, 0.1%)

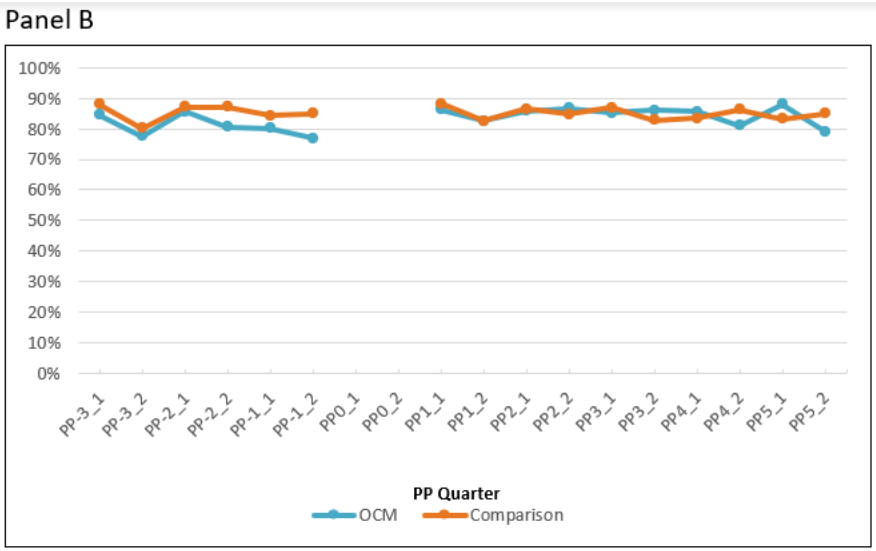
OCM=Oncology Care Model; PP=Performance Period

These figures show the quarterly trends in adherence by quarter in OCM and comparison practices. Panel A shows adherence to tyrosine kinase inhibitors for chronic myelogenous leukemia. Panel B shows adherence to abiraterone or enzalutamide for beneficiaries with high-intensity prostate cancer. Panel C shows adherence to hormonal therapy for patients with low-risk breast cancer. All panels show similar patterns of adherence in the pre-period for OCM and comparison episodes.

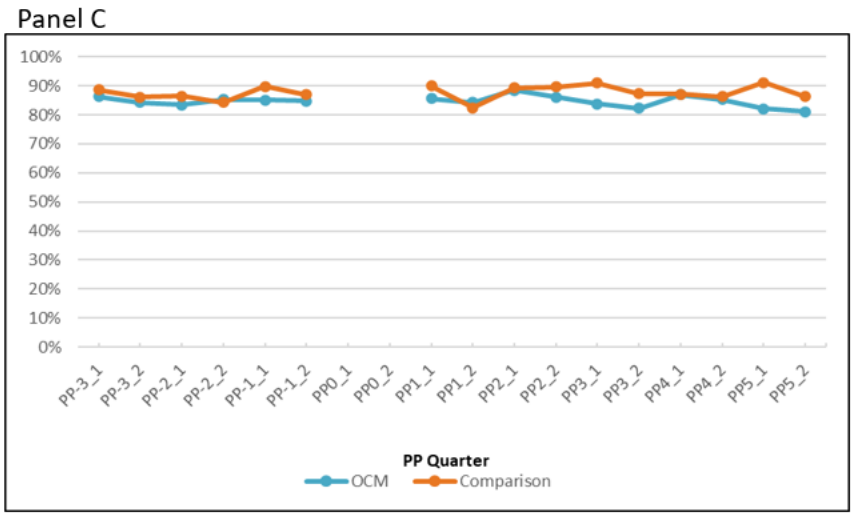
Supplementary Figure 2. Adherence to TKIs for CML in OCM and Comparison Practices by Quarter, Unadjusted, Stratified by Race/Ethnicity



Adjusted pre-trend estimate -0.2% per quarter in OCM relative to comparison practices (95% CI -0.6%, 0.3%)



Adjusted pre-trend estimate -1.5% per quarter in OCM relative to comparison practices (95% CI -2.9%, -0.2%)



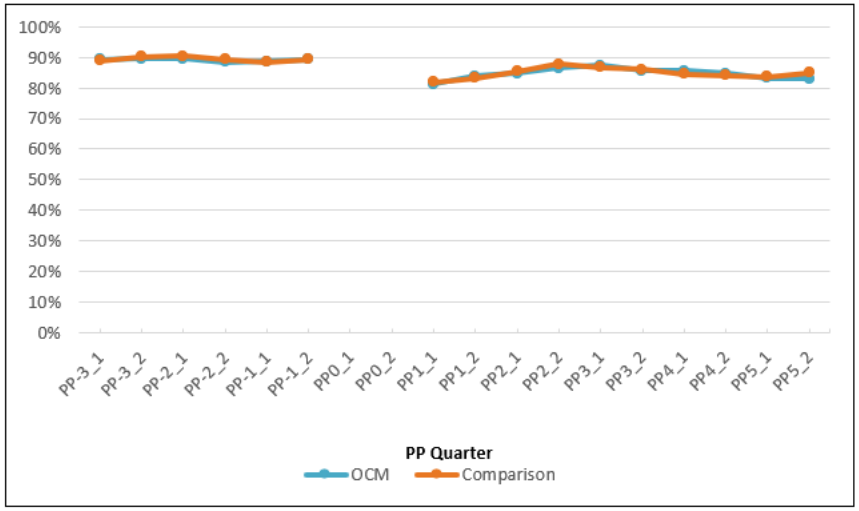
Adjusted pre-trend estimate 0.3% per quarter in OCM relative to comparison practices (95% CI -0.9%, 1.5%)

TKI=Tyrosine Kinase Inhibitor; CML=Chronic Myelogenous Leukemia; OCM=Oncology Care Model; PP=Performance Period

These figures show the quarterly trends in adherence to TKIs for CML by quarter in OCM and comparison practices, stratified by race/ethnicity. Panel A shows adherence for White beneficiaries. Panel B shows adherence for Black beneficiaries. Panel C shows adherence for Hispanic beneficiaries. Panels A and C show similar patterns of adherence in the pre-period for OCM and comparison episodes. Panel B shows evidence for differential trends; findings were robust to sensitivity analyses that adjusted for the differential trend, with a larger relative effect of OCM, given that lines were diverging at the end of the baseline period.

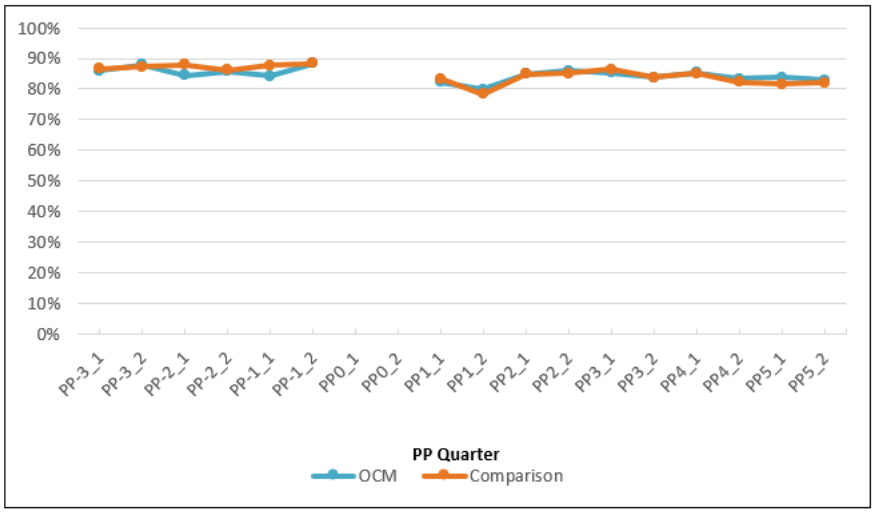
Supplementary Figure 3. Adherence to Abiraterone or Enzalutamide for High-Intensity Prostate Cancer in OCM and Comparison Practices by Quarter, Unadjusted, Stratified by Race/Ethnicity

Panel A



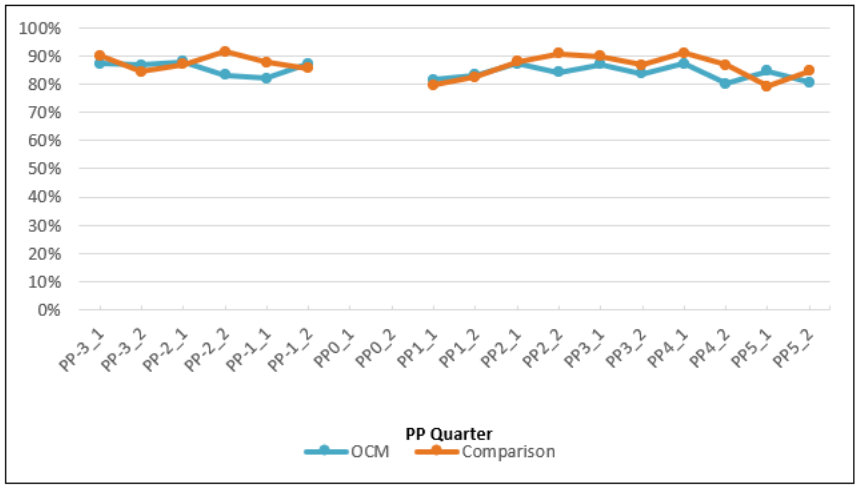
Adjusted pre-trend estimate 0. 0% per quarter in OCM relative to comparison practices (95% CI -0.3%, 0.3%)

Panel B



Adjusted pre-trend estimate -0.2% per quarter in OCM relative to comparison practices (95% CI -1.0%, 0.6%)

Panel C



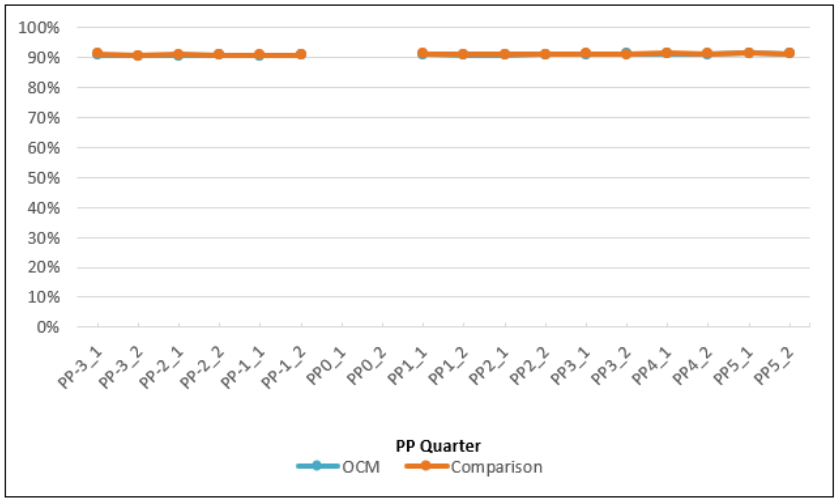
Adjusted pre-trend estimate 0.6% per quarter in OCM relative to comparison practices (95% CI -0.7%, 1.9%)

OCM=Oncology Care Model; PP=Performance Period

These figures show the quarterly trends in adherence to abiraterone/enzalutamide for high-intensity prostate cancer by quarter in OCM and comparison practices, stratified by race/ethnicity. Panel A shows adherence for White beneficiaries. Panel B shows adherence for Black beneficiaries. Panel C shows adherence for Hispanic beneficiaries. All panels show similar patterns of adherence in the pre-period for OCM and comparison episodes.

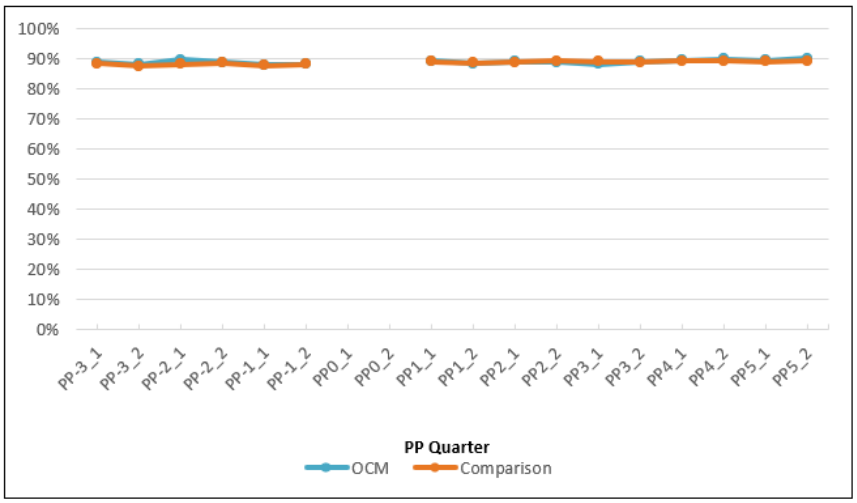
Supplementary Figure 4. Adherence to Hormonal Therapy for Low-Risk Breast Cancer in OCM and Comparison Practices by Quarter, Unadjusted, Stratified by Race/Ethnicity

Panel A



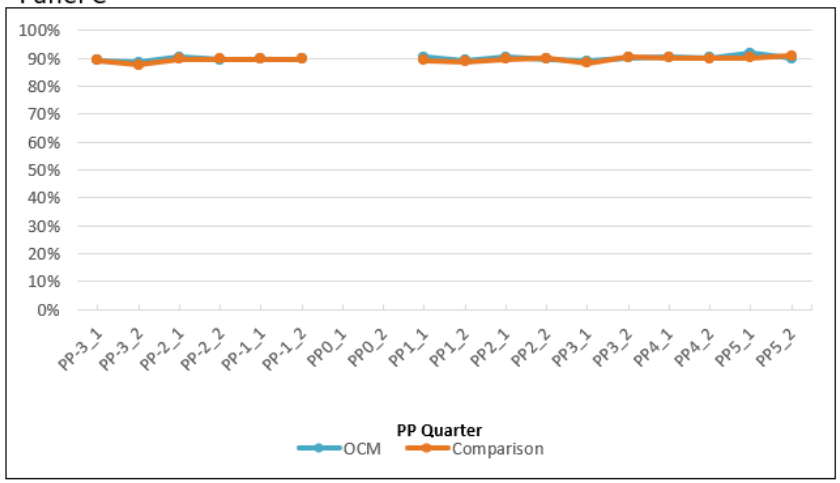
Adjusted pre-trend estimate 0. 0% per quarter in OCM relative to comparison practices (95% CI -0.1%, 0.1%)

Panel B



Adjusted pre-trend estimate -0.1% per quarter in OCM relative to comparison practices (95% CI -0.3%, 0.2%)

Panel C



Adjusted pre-trend estimate -0.2% per quarter in OCM relative to comparison practices (95% CI -0.5%, 0.2%)

OCM=Oncology Care Model; PP=Performance Period

These figures show the quarterly trends in adherence to hormonal therapy for low-risk breast cancer by quarter in OCM and comparison practices, stratified by race/ethnicity. Panel A shows adherence for White beneficiaries. Panel B shows adherence for Black beneficiaries. Panel C shows adherence for Hispanic beneficiaries. All panels show similar patterns of adherence in the pre-period for OCM and comparison episodes.