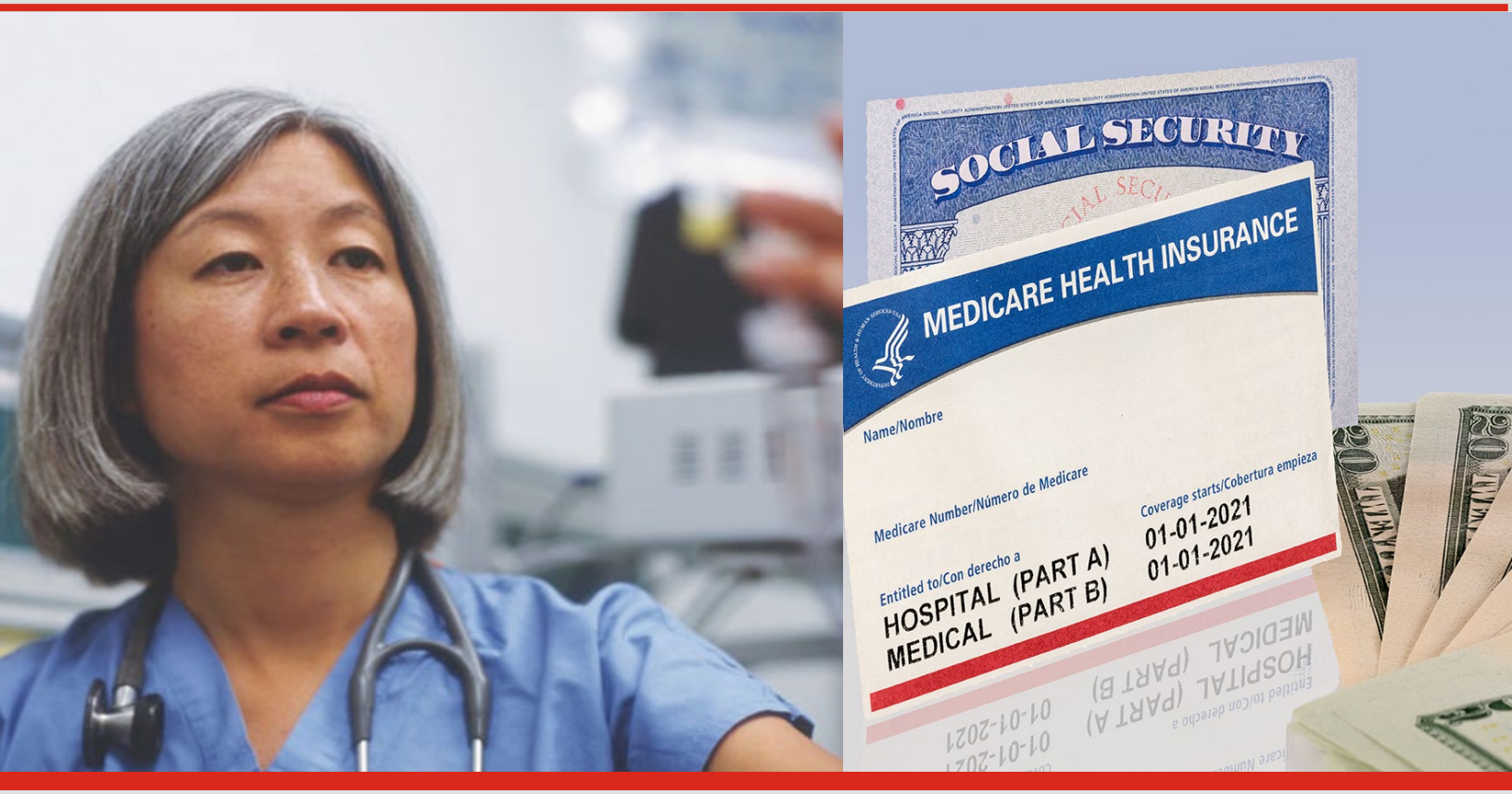
Evaluation of the Oncology Care Model:
Performance Periods 1-6

OCM Impacts on Payments



December 2021

Contract #HHSM-500-2014-000261

SUBMITTED BY

Abt Associates
Andrea Hassol, Project Director
6130 Executive Boulevard
Rockville, MD 20852

IN PARTNERSHIP WITH

The Lewin Group
Harvard Medical School
Geisel School of Medicine at Dartmouth
GDIT

PREPARED FOR

Jessica McNeely
Center for Medicare & Medicaid Innovation
Centers for Medicare & Medicaid Services
7500 Security Boulevard
Baltimore, MD 21244

AUTHORS

Abt Associates: Andrea Hassol, Nathan West

The Lewin Group: Carol Simon, Shalini Jhatakia, Inna Cintina, Yvette Overton, Amaka Ume, Maya Nilkant

Harvard Medical School: Nancy Keating, Mary Beth Landrum

Geisel School of Medicine at Dartmouth: Gabriel Brooks

General Dynamics Information Technology: Colleen Kummet, Van Doren Hsu, Stephanie Shao

ACKNOWLEDGMENTS

The evaluation team would also like to recognize contributions from additional team members:

The Lewin Group: David Zhang, Dylan Davis, Sehreen Khan, Sebastian Negrusa

CONTENTS

1. Oncology Care Model Background and Evaluation

1.1. Background of Oncology Care Model

The Centers for Medicare & Medicaid Services (CMS) is operating the Oncology Care Model (OCM) to reduce Medicare payments, improve the quality of care beneficiaries receive, and save taxpayer money, by fostering coordinated, high-quality, cost-effective cancer care. OCM focuses on Medicare fee for service (FFS) beneficiaries with cancer who are undergoing chemotherapy treatment.[1] OCM combines attributes of medical homes[2,3] (patient-centeredness, accessibility, evidence-based guidelines,[4] and continuous monitoring for improvement opportunities) with financial incentives for providing these services efficiently and with high quality.

OCM features a two-pronged financial incentive strategy. First, practices may bill for additional money to support care improvements. A participating practice may bill Medicare a $160 Monthly Enhanced Oncology Service (MEOS) fee for each FFS Medicare beneficiary with a chemotherapy episode that is attributed to the practice. This money is intended to support enhanced oncology services, including the following:

- 24/7 patient access to an appropriate clinician who has real-time access to the practice's medical records
- Core functions of patient navigation
- A documented Care Plan for every OCM patient containing 13 components recommended by the Institute of Medicine[5]
- Cancer treatment that is consistent with nationally recognized clinical guidelines

---

[1] Chemotherapy is defined for OCM purposes as systemic therapies including cytotoxic chemotherapy, hormonal therapy, biologic therapy, immunotherapy, and combinations of these therapies.

[2] Demartino JK and Larsen JK. Equity in Cancer Care: Pathways, Protocols, and Guidelines. *J Natl Compr Canc Netw* Oct. 1, 2012;10, Supplement 1:S1–S9.

[3] Page RD, Newcomer LN, Sprandino JD, et al. *The Patient-Centered Medical Home in Oncology: From Concept to Reality.* 2015 ASCO Educational Book. Retrieved on June 7, 2016 from http://meetinglibrary.asco.org/content/11500082-156.

[4] Demartino JK and Larsen JK. Equity in Cancer Care: Pathways, Protocols, and Guidelines. *J Natl Compr Canc Netw* Oct. 1, 2012;10, Supplement 1:S1–S9.

[5] Thirteen Care Plan elements recommended by the IOM (https://www.nap.edu/catalog/18359):
1. Patient information (e.g., name, date of birth, medication list, and allergies). 2. Diagnosis, including specific tissue information, relevant biomarkers, and stage. 3. Prognosis. 4. Treatment goals (curative, life-prolonging, symptom control, palliative care). 5. Initial plan for treatment and proposed duration, including specific chemotherapy drug names, doses, and schedule as well as surgery and radiation therapy (if applicable). 6. Expected response to treatment. 7. Treatment benefits and harms, including common and rare toxicities and how to manage these toxicities, as well as short-term and late effects of treatment. 8. Information on quality of life and a patient's likely experience with treatment. 9. Who will take responsibility for specific aspects of a patient's care (e.g., the cancer care team, the primary care/geriatrics care team, or other care teams). 10. Advance care plans, including advance directives and other legal documents. 11. Estimated total and out-of-pocket costs of cancer treatment. 12. A plan for addressing a patient's psychosocial health needs, including psychological, vocational, disability, legal, or financial concerns and their management. 13. Survivorship plan, including a summary of treatment and information on recommended follow-up activities and surveillance, as well as risk reduction and health promotion activities.

Second, practices can receive money in the form of retrospective performance-based payments (PBP) if they are able to meet Model cost and quality goals. Participating OCM practices are paid under Medicare's FFS billing rules, then CMS combines all Medicare-covered services into six-month episodes. Practices that meet performance quality and savings goals can receive PBP. CMS calculates PBP by comparing all expenditures during an episode (including MEOS payments) to risk-adjusted historical benchmarks, minus a discount that CMS retains. These payments are adjusted to reflect performance on quality measures. These adjustments are one mechanism to ensure that efficiency efforts that participating practices undertake are consistent with maintaining quality.

The six-year OCM began with six-month episodes starting on July 1, 2016 and will operate for 11 consecutive performance periods (PPs). The last episodes will end on June 30, 2022. Some practices participate in OCM on a partnership basis by pooling with other practices. This is usually because one or more oncologists work part-time in two related practices.[6]

Participating OCM practices (and pools) may voluntarily adopt two-sided risk. Under two-sided risk, practices earn PBPs when expenditures are less that the discounted target price and quality targets are met, and must repay payments when expenditures are more than 2.75 percent (or 2.5 percent under the alternative arrangement) above the target. As the discount is lower under 2-sided risk, high performing practices stand to earn a larger PBP than under one-sided risk. Accepting two-sided risk meets the Quality Payment Program's criteria for being an advanced alternative payment model. Beginning in PP8, two-sided risk will be required for those that have not earned at least one PBP in the first four PPs, or their participation will be terminated.

Additional details about OCM, including previous evaluation reports, are available on the CMS website.

1.2. OCM Evaluation

While the OCM evaluation measures the impact of the Model on Medicare spending, quality of care, clinician perceptions, and patient care experiences, this report focuses on updating payment-related impacts. We do not anticipate large changes in a single PP, so this report serves to concisely round out experience prior to the PHE. We examine Medicare payments to practices that volunteered to participate in OCM and compare changes over time in this group with changes in a comparison group that was carefully matched to Model participants in the baseline period, prior to the start of the model. This difference-in-differences (DID) evaluation approach measures whether changes over the course of the Model are different in the OCM group than in the comparison group. This report focuses on all cancer episode types combined, and for several key outcome measures also presents separate results for the group of higher-risk episodes, the group of lower-risk episodes, and specific cancer episode types.

This report focuses on six-month episodes that began during the first six PPs (July 1, 2016 through July 1, 2019), all of which had ended by December 31, 2019. This report updates our ***Evaluation Report for PP1–PP5*** by adding one additional performance period. It is essentially an addendum to the previous report and contains results for payment-related impacts. Information in this report about net impacts of OCM on Medicare payments reflects MEOS and PBP information for PP1 through PP5. We have added only one performance period of episodes to this report because subsequent episodes initiating in PP7 were affected by the COVID-19 Public Health Emergency, which began in early 2020. Along with the direct effect of COVID infection on health outcomes and mortality, COVID may also have important spillovers to broader patterns of care and treatment as stay-at-home orders and strains to the healthcare system resulted in deferral of care, particularly elective procedures. At the time of this report, it was too early to determine whether COVID itself and the broader impacts of a PHE would have a differential effect on

[6] For more about how CMS handles pooling arrangements in OCM, see: https://innovation.cms.gov/Files/x/ocm-pp3beyond-pymmeth.pdf

outcome measures and if so, how best to address such effects. Thus, the evaluation findings in this report pertain to episodes that were all completed prior to COVID.

Summary of Key Highlights from the Previous Report and the Current Report

Relevant Key Highlights from the Previous Evaluation Report for PP1-PP5	Key Highlights from this Report with the Addition of PP6
OCM led to a small reduction in total episode payments (TEP) of $297 (p<0.05), representing 1% of the baseline mean. • TEP increased steeply in both OCM and comparison episodes during the baseline and intervention periods, but slightly less so for OCM. • Reductions in TEP were concentrated in higher-risk episodes (-$503; p<0.01), especially lung cancer, lymphoma, colorectal cancer, and high-risk breast cancer episodes. • In contrast, OCM led to increased TEP for lower-risk cancers by $151 (p<0.05).	**With the addition of PP6, OCM led to a nearly identical cumulative reductions in TEP (-$298, p<0.05) as in the previous report.** • Reductions in TEP were still concentrated in higher-risk episodes (-$487; p<0.05), for the same four cancer episode types. • OCM led to increased TEP for lower-risk episodes by $130 (p<0.1). • The impact on TEP in PP6 alone, however, departed from previous patterns, and was no longer statistically significant at the p<0.1 level. This change was likely due to an emerging difference in the immunotherapy payment trends for OCM and comparison lung cancer episodes: in PP6, OCM payments continued to increase while payments for comparisons began to plateau
OCM resulted in net losses for Medicare of $316.5M from PP1 through PP4, after accounting for model enhanced payments (MEOS and PBP).	**With the addition of PP5, OCM led to $377.1M in net losses for Medicare from PP1 through PP5. PP5 net losses were lower than PP4 net losses.**
The impact on TEP was due to reductions in Part A and Part B payments. OCM had no impact on Part D payments, overall or in higher or lower risk episodes. • The small impact on Part A payments was not due to acute care hospitalizations. Although OCM practices reported that they focused on reducing preventable ED visits that may have resulted in hospitalization in order to decrease spending, they were unable to lessen hospitalizations more than comparison practices. • OCM reduced payments for Part B non-chemotherapy drugs by $145 (p<0.01), specifically for supportive care drugs used to treat side effects of toxic chemotherapy. OCM had no impact on Part B chemotherapy drug spending. These findings align with qualitative evidence suggesting that OCM practices focused on cost-conscious supportive care but did not try to influence oncologists' decisions about drugs used to treat cancer.	**As in the previous report, with the addition of PP6 OCM led to an overall reduction in Part A and Part B payments. OCM continued to have no impact on Part D payments.** • OCM had no impact on Part A payments for acute care hospitalizations, post-acute care, or hospice services. • As in the previous report, OCM reduced Part B non-chemotherapy drug payments (-$161, p<0.01). OCM continued to have no overall impact on Part B chemotherapy payments or payments for most other Part B services such as evaluation and management visits and radiation therapy services. OCM led to a slight reduction in payments for imaging services (p<0.01).

1.3. Organization of This Report

Chapter 2 describes the evaluation data and methods. Chapter 3 contains evaluation findings through the six PPs related to Medicare TEP. Chapter 4 describes the net impact of OCM on Medicare spending including MEOS and PBP, and Chapter 5 describes impacts on Medicare coverage part (Part A, B, and D payments) and individual payment components. Technical appendixes contain additional information about methods and results that may be of interest.

2. Data and Methods

This chapter summarizes the data, measures, and methods used to evaluate OCM. Additional detail can be found in **Appendix A (Methods)**.

2.1. Secondary Data and Purposes

This report contains information from the following sources:

- Medicare FFS Parts A and B Claims and Part D Prescription Drug Event Data: to construct measures of health care payments and analyze changes in spending
- Other administrative CMS data including beneficiary enrollment and coverage information, beneficiary characteristics, and beneficiary alignment to other CMS initiatives: to control for any beneficiary differences between OCM and comparison practices and support subgroup analyses
- Area Health Resource files and CMS Health Professional Shortage Area: to control for local differences between markets of OCM and comparison practices
- Proprietary Office-Based Physician File[7] and academic medical school affiliation:[8] to control for ownership/affiliation and size differences between OCM and comparison practices

2.2. Claims-Based Outcome Measures

We used Medicare claims data to compute changes in payments, at the episode level (not the practice level). The main measure of Model impacts on payments is TEP, which is composed of standardized Parts A&B Medicare payments, and Part D Medicare payments.[9] We measure impacts on payments by Medicare Coverage Part (Part A, Part B, and Part D) and also assess changes in important payment components:

- Part A payments for acute care hospitalizations, post-acute care services,[10] and hospice care
- Part B payments for physician evaluation and management (E&M) visits, radiation therapy, imaging and laboratory testing, chemotherapy drugs, and non-chemotherapy drugs (such as supportive care drugs)

Total Episode Payments: TEP includes payments for all care, cancer-related and otherwise, and reflects all services received by the beneficiary during their episode, whether the care was delivered by clinicians at their attributed practice or not. TEP excludes the MEOS payments.

2.3. Subgroup Analyses

Costs, clinical status and severity, treatments, and potential for savings can vary considerably by type of cancer. Therefore, we conducted analyses by subgroups of episodes, where subgroups were created based on cancer episode risk. We categorized episodes as lower-risk if their primary cancer type consisted of low-risk breast cancer, low-intensity prostate cancer, or low-risk bladder cancer.[11] All other cancer types, including the group of non-reconciliation eligible cancers, were categorized as higher-risk episodes. For

---

7 http://www.skainfo.com/databases/physician-data

8 Welch, P and Bindman, AB. Town and gown differences among the largest medical groups in the US. *Journal of Academic Medicine* July 2016;91(7):1007–14.

9 Part D payments comprise low-income cost-sharing and reinsurance payments as reflected on Part D Prescription Drug Events.

10 Post-acute care includes care provided by home health agencies, skilled nursing facilities, inpatient rehabilitation facilities, and long-term care hospitals.

11 Low-risk breast cancer and low-intensity prostate cancer are treated only with hormonal therapies; low-risk bladder cancer is treated with intra-vesicular therapies (local therapies instilled into the bladder).

some payment outcome measures, we also report impacts for each of the top 10 most common (based on episode volume) cancer types: low-risk breast cancer, high-risk breast cancer, low-intensity prostate cancer, lung cancer, lymphoma, colorectal cancer, multiple myeloma, non-reconciliation eligible cancers, high-intensity prostate cancer, and chronic leukemia.

2.4. Analytic Methods

We followed the OCM program methodology to construct six-month episodes and attribute each episode to a single practice with at least one oncologist.[12] We defined episodes based on beneficiary eligibility[13] and qualifying trigger events (e.g., chemotherapy); and each episode was attributed to the practice that provided the plurality of E&M visits for cancer. The main evaluation methods are briefly described below. We indicate when outcomes are statistically significant at levels of $p<0.10$, $p<0.05$ and $p<0.01$.

2.4.1 Comparison Group Selection

As described in detail in the ***Evaluation Baseline Report*** and ***Evaluation Report for PP1*** (and accompanying appendixes), we selected a comparison group of non-OCM practices[14] and episodes for their patients with traditional FFS Medicare. These comparison practices and episodes were similar to the OCM practices and episodes during the baseline period, before OCM had begun. The comparison group represents what would have occurred in the absence of OCM and allows us to identify the impact of the Model using a difference-in-differences (DID) framework (see Section 2.4.4 below). Using propensity score matching, we selected 534 oncology practices that had similar characteristics to the OCM practices in the baseline period, based on eligibility to participate in OCM, historic patterns of E&M billing, and observable episode, practice, market, and beneficiary characteristics.

2.4.2 Intent-to-Treat Design

Practices that ended OCM participation before the end of PP6 were included in the analysis, in line with our intent-to-treat design for the OCM evaluation. This intent-to-treat design avoids biases that ensue when impact is measured only for those that remain in the Model for its full duration and are consequently more likely to have successfully implemented the Model. Furthermore, an intent-to-treat approach captures the extent to which key components of OCM, such as enhanced services, information sharing, and patient education, continue after Model termination. By the end of PP6, 26 practices included in our sample had terminated OCM participation. These 26 practices represented only 4.6 percent of OCM episodes in the intervention period, and it is unlikely that the retention of terminated practices materially influenced the Model impacts presented in this report.

---

[12] https://innovation.cms.gov/Files/x/ocm-cancercodelists.pdf, accessed on June 17, 2019.

[13] In order for a beneficiary's episode to be included in the sample, the beneficiary had to meet the following eligibility criteria for all six months of their episode (or until their death if they died during the episode): Enrolled in Medicare Parts A and B, did not receive the End Stage Renal Disease benefit, had Medicare as the primary payer, and was not covered under Medicare Advantage. In addition, the beneficiary had to have at least one qualifying E&M visit with a cancer diagnosis during the episode period. Part D episodes are included for beneficiaries enrolled in Part D for the entire six-month episode.

[14] For evaluation purposes, a comparison practice is defined as claims submitted under a single Tax Identification Number.

2.4.3 Cumulative Analysis Based on Current Programmatic Definitions

CMS made important programmatic changes to improve OCM during the period this report covers. Most notably, CMS improved how episodes are attributed to the responsible physician group practice, by only attributing episodes to practices that had at least one oncologist submitting claims. CMS also made the distinction between higher-risk and lower-risk prostate, breast, and bladder cancer episodes. CMS applied these changes starting in PP3.[15] For evaluation purposes, we applied these program rules retroactively to the baseline period and initial PPs, to ensure consistency in methods across periods and support the analysis of trends over time. For this and other minor technical reasons, the episodes we used to measure impacts differ slightly from the episodes CMS used to determine PBP and MEOS payments. However, we used the CMS program OCM episode counts when calculating net savings/losses for Medicare.

Episodes by Performance Periods Used in This Report

Period (Episodes Initiating)	Number of Episodes	
	OCM	COMP
PP		
Baseline-3 (7/2/14–1/1/15)	113,552	134,074
Baseline-2 (1/2/15–7/1/15)	117,335	138,560
Baseline-1 (7/2/15–1/1/16)	114,994	132,971
Hold-Out Period (1/2/16–6/30/16)	-	-
PP1 (7/1/16–1/1/17)	126,654	145,234
PP2 (1/2/17–7/1/17)	128,238	146,648
PP3 (7/2/17–1/1/18)	124,327	138,790
PP4 (1/2/18–7/1/18)	132,814	145,987
PP5 (7/2/18–1/1/19)	129,418	140,333
PP6 (1/2/19-7/1/19)	137,418	147,758
All Periods		
All Episodes	1,124,750	1,270,355

Source: Medicare claims 2014–2019.
Notes: COMP: comparison episodes. OCM: OCM episodes. PP: performance period.

2.4.4 DID Impact Analyses

We used DID regression analyses to estimate the impacts of OCM, controlling for observable factors unrelated to OCM that could influence outcomes. DID is a statistical technique that measures the change in an outcome between the baseline period and the intervention period (in this case, among OCM episodes), relative to the change in a comparison group (in this case, comparison episodes) during the same time period.

The baseline period includes all six-month episodes for three pre-Model performance periods: specifically, episodes that began between July 2, 2014 and January 1, 2016, the last of which had ended by June 30, 2016. We employed a six-month hold-out period from January 2, 2016 through June 30, 2016 for which episodes were omitted from the evaluation to ensure no overlap between baseline and intervention episodes. The intervention period examined in this report includes six performance periods of six-month episodes: specifically, episodes that began between July 1, 2016 and July 1, 2019, all of which had ended by December 31, 2019.

DID impact estimates are presented along with upper and lower confidence intervals (at the 90 percent level) to show the degree of certainty about each result. Narrow confidence intervals indicate more-precise estimates. A confidence interval that does not encompass zero is a statistically significant result and is also shown with asterisks indicating the level of significance (*10 percent, **5 percent, ***1 percent).

RELATED SECTIONS

Appendix A contains additional information about model specifications used in DID analyses, sensitivity tests, and the calculation of Medicare payments and net impact inclusive of MEOS and PBP.

[15] The revised OCM methodology is available at: https://innovation.cms.gov/Files/x/ocm-pp3beyond-pymmeth.pdf

We conducted sensitivity analyses for selected key outcome measures. Sensitivity tests examined whether impact estimates changed when we varied model specifications, the time period measured, or the practice or episode samples used (see **Appendix A**).

2.4.5 Estimating Net Impact on Medicare Spending

OCM's overall net impact on Medicare spending is the sum of changes in TEP, MEOS payments, and the PBP payments paid by Medicare to practices during PP1 through PP5.[16] To compute the estimated gross reduction in TEP, we first calculated the episode-level impact on TEP using our DID model. We multiplied this per-episode TEP impact by the number of episodes CMS attributed to OCM practices. To compute the net change in Medicare payments, we added total MEOS and PBP payments to our estimate of gross changes in TEP.

For PP3 through PP5, we also calculated the impact on Medicare spending (excluding PBP) separately for lower-risk episodes and higher-risk episodes. To compute savings/losses for lower-risk episodes, we aggregated their MEOS payments and added the estimated gross reduction in TEP. We completed the same calculation of savings/losses for higher-risk episodes. We did not include PBP payments in these calculations, because PBP is paid at the practice level, not at the episode level.

[16] At the time of this report, first true-up reconciliation results with MEOS and PBP payments were available for the first five PPs, but not the sixth.

3. Is OCM Successful in Lowering Total Episode Payments?

The cost of cancer treatment in the United States continues to rise, with a projected expenditure of $246 billion by 2030. [17] TEP for OCM and comparison episodes also increased over time, from an average of $28,500 during the baseline period, to an average of $34,000 during the intervention period (from PP1 through PP6). This steep increase in TEP was primarily due to growth in spending for Part B chemotherapy drugs and for oral Part D drugs.

We conducted a DID analysis to assess the impact of OCM on TEP. The DID estimates the model impact as the differential change in average TEP between the baseline and intervention periods for OCM episodes, relative to the change in TEP for comparison episodes. We also explored whether the OCM impact differed by cancer episode risk group or by individual cancer episode type. In this chapter, we present how the addition of PP6 data affects our findings from the ***Evaluation Report for PP1–PP5,*** and whether PP6 shows departure from patterns in previous periods.

Key Findings with the Addition of PP6

- **On average, OCM reduced TEP by $298 relative to comparisons (p<0.05) during PP1-PP6.**
  - The impact was small, representing approximately 1 percent of the baseline value. TEP increased steeply in both OCM and comparison episodes, but slightly less so for OCM (see **Section 3.1**).
  - From PP2-PP5 there was a consistent pattern of significant relative reductions in TEP due to OCM in each PP, but in PP6 the relative reduction was no longer statistically significant (see **Section 3.2**).
  - For lung cancer, there were significant relative reductions in earlier periods, but not in PP6. This may reflect emerging differences in immunotherapy payments for lung cancer, which increased more in OCM episodes during PP6 than in comparison episodes.
- **The reduction in TEP was concentrated in higher-risk episodes for which OCM reduced TEP by $487 (p<0.05) per episode.**
  - Four common higher-risk cancer episodes drove the reduction in TEP: lung cancer, lymphoma, colorectal cancer, and high-risk breast cancer. These same cancer episodes drove the TEP reduction in the previous report for PP1–PP5.
- **For lower-risk episodes, OCM led to a $130 increase in TEP, relative to comparison episodes (p<0.1).** OCM resulted in a similar increase in TEP for higher-risk episodes in the previous report for PP1-PP5.

3.1. Is OCM Reducing TEP? Does OCM's Impact Differ by Episode Risk Group or Cancer Episode Type?

In the ***Evaluation Report for PP1–PP5***, we showed that, on average, OCM led to a small relative reduction in TEP, concentrated among higher-risk episodes. With the addition of only one more PP of data in this report (PP6), the cumulative impacts are very similar to those in the previous report. **Exhibit 1**

[17] Mariotto, AB, Enewold, L, Zhao, J, Zeruto, CA, & Yabroff, KR. (2020). Medical Care Costs Associated with Cancer Survivorship in the United States. *Cancer epidemiology, biomarkers & prevention: a publication of the American Association for Cancer Research, cosponsored by the American Society of Preventive Oncology*, *29*(7), 1304–1312. https://doi.org/10.1158/1055-9965.EPI-19-1534

shows the cumulative impact of OCM on TEP during PP1–PP6 for all episodes, and separately for higher- and lower-risk episodes.

Exhibit 1: OCM Reduced TEP for Higher-Risk Episodes but Increased TEP for Lower-Risk Episodes (PP1-PP6)

OCM Impact on TEP Was Small, Averaging 1% of Baseline

Episode Group	PP1–PP6 OCM Impact on TEP Relative to Comparison Group	Size of Impact
All episodes	↓ $298 reduction (p<0.05)	3
Higher-risk episodes	↓ $487 reduction (p<0.05)	1.2% of baseline
Lower-risk episodes	↑ $130 increase (p<0.01)	1.8% of baseline

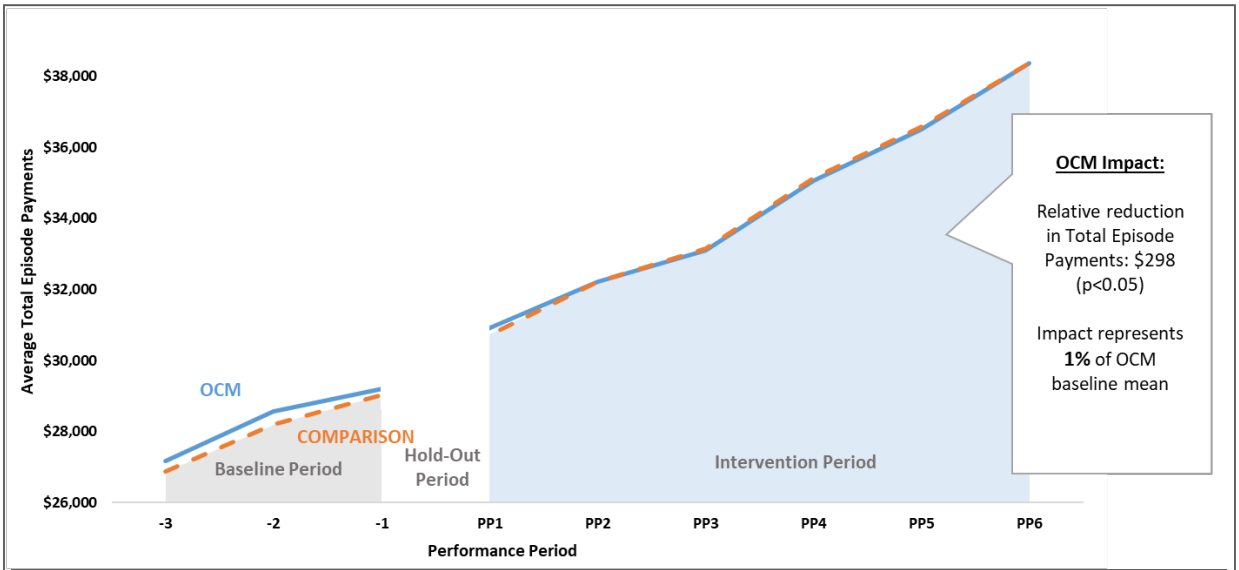
Source: Medicare claims 2014–2019.

Averaged across all episodes, OCM led to a small relative cumulative reduction in TEP from PP1 to PP6.

On average, during PP1–PP6, OCM led to a $298 reduction in TEP, relative to in comparison episodes (p<0.05), representing 1 percent of the mean OCM baseline TEP of $28,760. While TEP increased by nearly 20 percent from the baseline to the intervention period in both OCM and comparison episodes (**Exhibit 2**), there was a slightly smaller increase in OCM episodes (18.4 percent) than in comparison episodes (19.6 percent). For more details on the OCM relative reduction in TEP, see **Appendix B)**. This small impact is nearly identical to the impact presented in the previous ***Evaluation Report for PP1–PP5***.

Exhibit 2: OCM Led to a $298 Relative Reduction in TEP per Episode

TEP Rose by Nearly 20 Percent from the Baseline to Intervention Period, but by 1 Percent Less among OCM Episodes



Practice Type	Average Total Episode Payments								
	-3	-2	-1	PP1	PP2	PP3	PP4	PP5	PP6
OCM	$27,172	$28,559	$29,196	$30,909	$32,217	$33,097	$35,057	$36,500	$38,376
COMPARISON	$26,871	$28,190	$29,023	$30,724	$32,227	$33,145	$35,127	$36,589	$38,385

Source: Medicare claims 2014–2019.

Cumulatively across PP1–PP6, OCM led to a small reduction in TEP for higher-risk episodes and a small increase in TEP for lower-risk episodes.

We assessed OCM's impact on TEP for lower-risk and higher-risk episodes separately. Adding one more PP of data did not alter patterns in the cumulative impacts estimates for the higher- and lower-risk episodes shown in the ***Evaluation Report for PP1–PP5***. For higher-risk episodes, OCM reduced TEP by $487 ($p<0.05$) relative to comparison episodes during PP1–PP6, representing approximately 1 percent of the higher-risk OCM baseline mean of $40,024 for higher-risk episodes. Conversely, for lower-risk episodes, TEP increased slightly more in OCM episodes than in comparison episodes ($130; $p<0.05$), representing approximately 2 percent of the OCM baseline mean for lower-risk episodes of $7,239 (**Exhibit 3**).

Treatment for higher-risk cancer episodes tends to be intensive and costly, requiring expensive drugs that often cause severe side effects. These intensive cancer treatments may be for curative or palliative purposes, and patients require close monitoring to mitigate severe side effects. About two-thirds of OCM and comparison episodes are considered to be higher-risk. For lower-risk cancer episodes (low-risk breast cancer episodes, low-intensity prostate cancer episodes, low-risk bladder cancer episodes), representing about one third of total episodes, medical treatments are much less intensive and costly, and there are fewer side effects. Lower-risk episodes typically have less need for office visits or symptom management.[18]

For both OCM and comparison **higher-risk episodes**, TEP averaged $40,000 in the baseline and almost $48,000 during PP1–PP6.

For both OCM and comparison **lower-risk episodes**, TEP increased slightly from an average of $7,300 in the baseline to about $7,600 during PP1–PP6.

Exhibit 3: OCM Reduced TEP for Higher-Risk Episodes but Increased TEP for Lower-Risk Episodes

Impacts Were Small, Ranging from 1 to 2 Percent of Mean Baseline Values

Episode Type	Number of Episodes		OCM		COMPARISON		Cumulative Impact Estimates Through PP6			
	OCM	COMP	Baseline Mean	Int. Mean	Baseline Mean	Int. Mean	DID	90% LCL	90% UCL	Percent Change
Higher-risk episodes	750,239	824,895	$40,024	$47,875	$39,504	$47,843	-$487**	-$807	-$167	-1.2%
Lower-risk episodes	374,511	445,460	$7,239	$7,597	$7,337	$7,564	$130*	$20	$240	1.8%

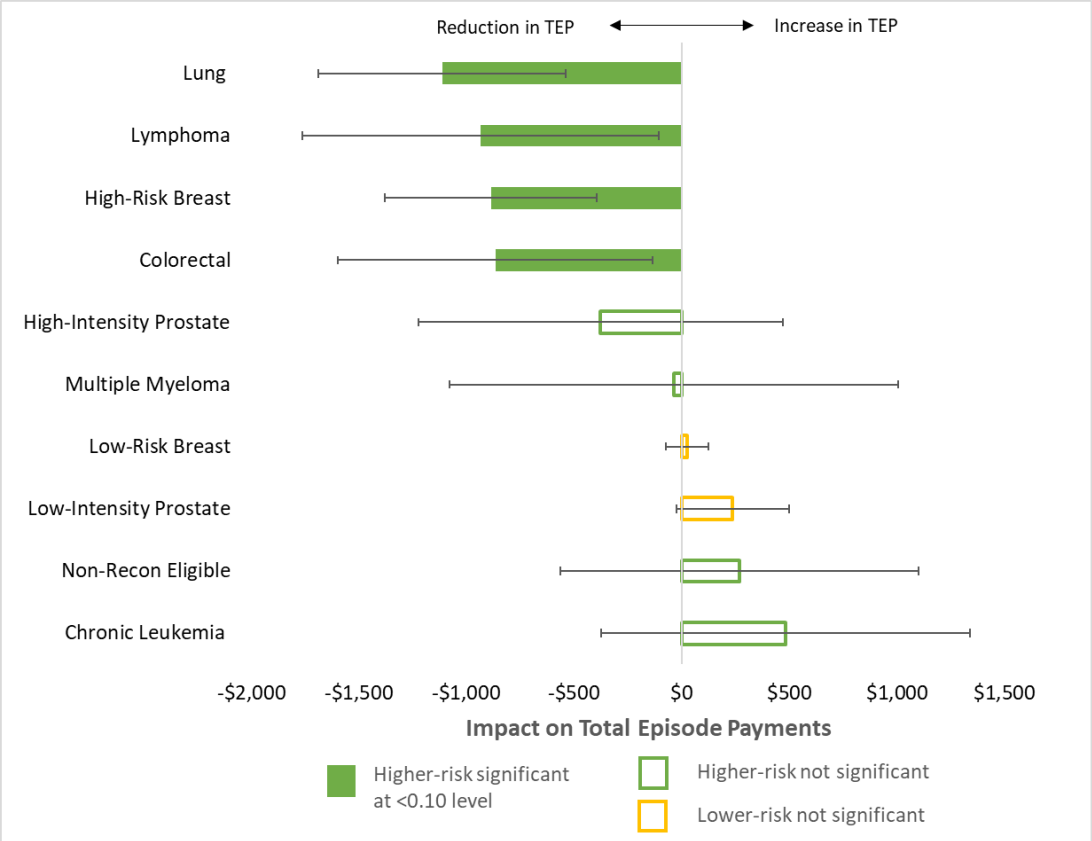
Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: DID: difference-in-differences. OCM: OCM intervention group. COMP: comparison group. Int.: intervention period. LCL: lower confidence limit. UCL: upper confidence limit.

OCM reduced TEP for four higher-risk cancer episode types across PP1-PP6.

We examined OCM's impact on the nine cancer episode types with the highest episode volume, as well as a group of miscellaneous non-reconciliation-eligible cancers. As was shown in the ***Evaluation Report for PP1–PP5***, the higher-risk cancer types that had the largest episode volume—high-risk breast cancer, lung cancer, lymphoma, and colorectal/small intestine cancer—were the key drivers of the relative reduction in TEP due to OCM (**Exhibit 4**).

[18] A patient's disease trajectory may include multiple episodes, some categorized as higher-risk and some categorized as lower-risk. For example, after surgery some breast cancer patients might start with intensive chemotherapy treatment for several months (comprising a higher-risk episode), followed by 5–10 years of hormonal therapy (lower-risk episodes); if there is a recurrence, these patients might have another higher-risk episode of intensive treatment.

Exhibit 4: OCM Significantly Reduced TEP in Lung Cancer, High-Risk Breast Cancer, Lymphoma, and Colorectal Cancer Episodes, cumulatively through PP6



Cancer Episode Type	Impact	% Episodes	OCM Baseline Mean	Cancer Type	Impact	% Episodes	OCM Baseline Mean
Lung	-1,112 ***	9.2%	$39,934	Multiple Myeloma	-$36	5.7%	$53,713
Lymphoma	-$934 *	5.7%	$43,634	Low-Risk Breast †	$27	23.2%	$5,376
High-Risk Breast	-$885 ***	9.7%	$35,631	Low-Intensity Prostate†	$237	10.0%	$11,352
Colorectal	-$865 *	5.3%	$36,021	Non-Recon Eligible	$271	5.4%	$37,600
High-Intensity Prostate	-$376	3.9%	$42,178	Chronic Leukemia	$483	3.3%	$44,217

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: DID: difference-in-differences. † Indicates lower-risk cancer episode types

Episodes for high-risk breast cancer, lung cancer, lymphoma, and colorectal/small intestine cancer collectively represented more than 45 percent of the volume in the higher-risk category, and the average OCM baseline TEP exceeded $35,000 for these four cancer episode types (**Exhibit 5**). The cumulative relative reduction in TEP ranged from $865 ($p<0.1$) per episode for colorectal/small intestine cancer to $1,112 ($p<0.01$) per episode for lung cancer episodes. The reductions ranged from 2 to 3 percent for each of the four episode types, which was more than enough to offset average per-episode billed MEOS payments.[19] For instance, the $1,112 relative reduction in TEP for lung cancer episodes was about 1.5 times the average per-episode billed MEOS payments of $735 for lung cancer episodes.

RELATED SECTIONS

Section 5 describes payment components that contributed to TEP reductions, for each type of cancer episode.

Exhibit 5: TEP Cumulative Reductions for High-Risk Breast, Lung, Lymphoma, and Colorectal Cancer Were Greater than the Billed MEOS, PP1 – PP6

Cancer Type	Percentage of All Episodes	% Higher-Risk Episodes	OCM Baseline Mean	DID	Percent Change	Averaged Billed MEOS	TEP Reduction Greater Than Billed MEOS?
High-risk breast cancer	9.7%	14.7%	$35,631	-$885***	-2.5%	$793	Yes
Lung cancer	9.2%	13.9%	$39,934	-$1,112***	-2.8%	$735	Yes
Lymphoma	5.7%	8.7%	$43,634	-$934*	-2.1%	$780	Yes
Colorectal/small intestine cancer	5.3%	8.1%	$36,021	-$865*	-2.4%	$761	Yes

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: DID: difference-in-differences. OCM: OCM intervention group.

3.2. Does OCM's Impact on TEP Vary by Performance Period?

We assessed OCM impacts for each performance period separately, to understand whether the impact of the model differed over time as OCM practice transformation efforts evolved. For example, smaller impacts in the early intervention PPs and larger impacts in later PPs would be consistent with an initial ramp-up period during which OCM practices were implementing care process improvements. There may also be a limit to the efficiencies that OCM practices are able to realize over time, or a lessening in intensity of efforts to further reduce costs.

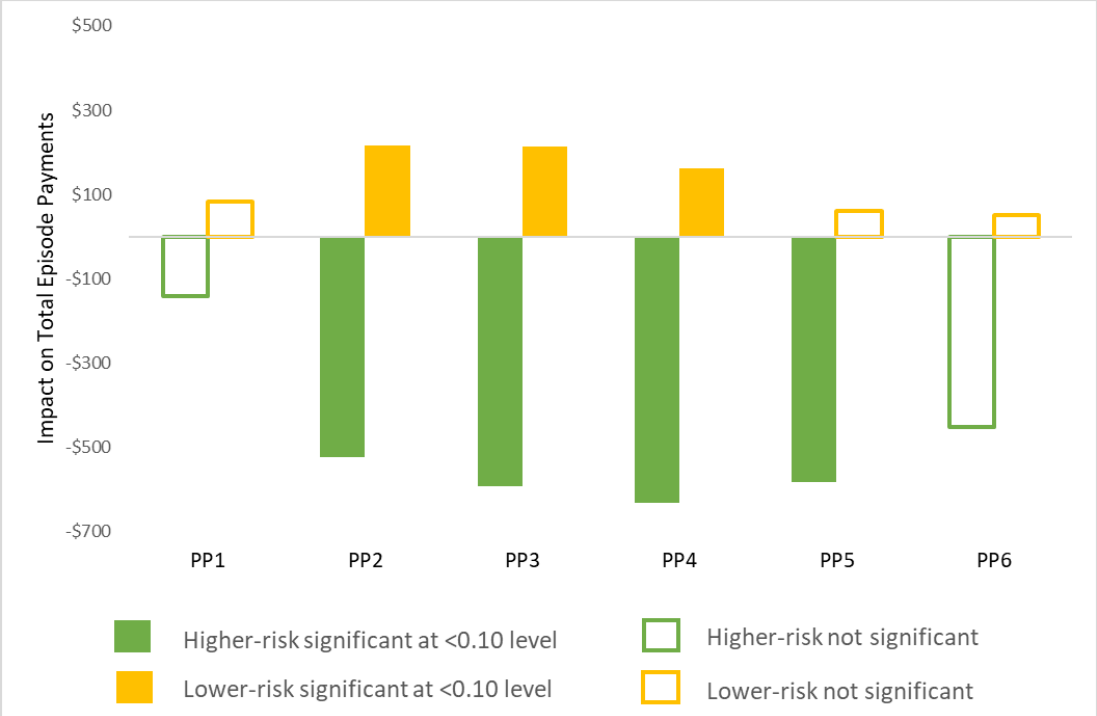
Between PP2 and PP5, the reduction in TEP stabilized at about 1 percent of the OCM baseline value, suggesting that OCM practices implemented changes to reduce spending early in the Model and maintained a reduction of about $300 to $400 per episode over time (**Exhibit 6**). In PP6, however, the relative reduction in overall TEP was no longer statistically significant, deviating from the pattern in prior PPs. The confidence interval around the PP6 estimate became wider and the absolute magnitude of the PP6 impact was the smallest observed since PP2.

For higher-risk episodes, the relative reduction in TEP during PP2–PP5 averaged between $500 and $600 per episode, but it declined to about $450 in PP6. For lower-risk episodes the relative increase in TEP varied across performance periods and was largest in PP2 and PP3.

[19] Average MEOS payments were calculated using PP1–PP5 first-true up reconciliation data, because MEOS amounts were not available for PP6 at the time this report was written. For high-risk breast cancer, average billed MEOS was calculated using PP3–PP5 data, because high- and low-risk breast cancer were not distinguished in OCM program data prior to PP3.

Exhibit 6: In each PP, from PP2 to PP5, OCM Consistently Reduced TEP for Higher-Risk Episodes but Not Lower-Risk Episodes

OCM Impact in Higher-Risk Episodes Was No Longer Statistically Significant in PP6



Episode Type	Impact on Total Episode Payments					
	PP1	PP2	PP3	PP4	PP5	PP6
All	-$86	-$297 **	-$332 **	-$375 **	-$389 *	-$309
Higher-Risk	-$141	-$523 **	-$594 ***	-$632 **	-$582 **	-$452
Lower-Risk	$82	$215 *	$213 **	$161 *	$60	$50

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: PP: Performance period.

Sensitivity analyses demonstrated that the loss of statistical significance for higher-risk episodes in PP6 was not driven by the presence of high payments outliers that reduced the precision of the PP6 impact estimate. Rather, the departure was primarily concentrated in lung cancer episodes, and to a lesser extent, lymphoma and colorectal cancer (**Exhibit 7**) episodes. Specifically, for lung cancer episodes, the relative per-episode reductions in TEP for PP2–PP5 were statistically significant and exceeded $1,000, reaching a peak of almost $2,000 in PP5. In PP6, however, the relative reduction in TEP was just $400, and was no longer statistically significant. A descriptive analysis suggests that payments for Part B immunotherapies differed for OCM and comparison episodes in recent periods, with immunotherapy payments continuing to increase for OCM episodes, but leveling off for comparison episodes. This differential trend is likely responsible for the lessening OCM TEP impact in PP6 for lung cancer episodes.

RELATED SECTIONS

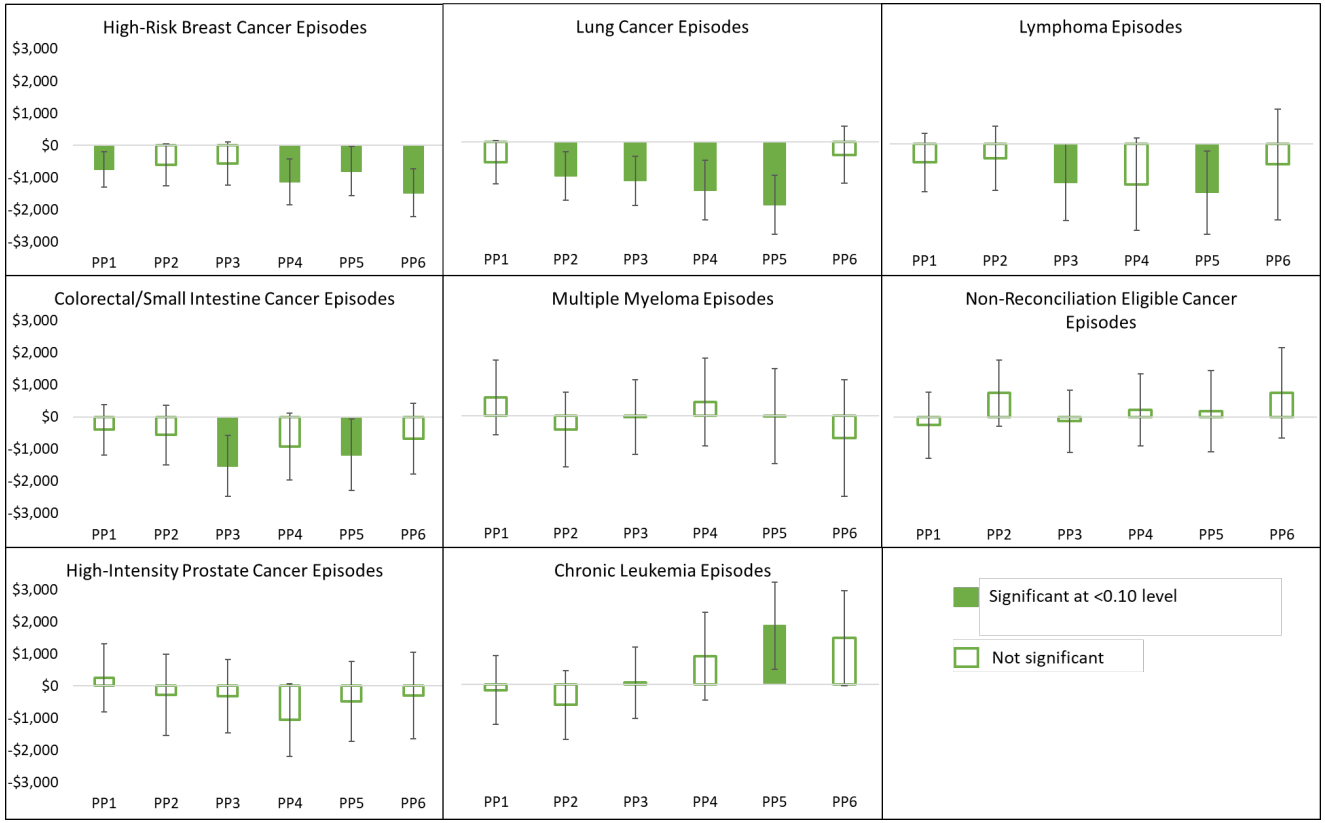
Section 5.3 provides more detail about the emerging trend in different Part B immunotherapy payments for lung cancer episodes.

Although the TEP impact estimates for lymphoma and colorectal cancer lost statistical significance between PP5 and PP6, TEP estimates for these two cancers have exhibited considerable period-by-period volatility, and we cannot definitively point to the change between PP5 and PP6 as a departure from an existing pattern. On the other hand, starting in PP2, relative reductions in TEP for lung cancer were growing in absolute magnitude and were consistently statistically

significant until PP6, where we saw a distinct shift in the impact from the previous pattern. For this reason, we focus on the lung cancer finding, but still acknowledge that estimates are noisy and it is difficult to draw strong conclusions based on a single performance period.

Exhibit 7: Impact for Lung Cancer Episodes Departed from Previous Patterns in Performance Period 6

No Other Notable Changes in Period-by-Period Impact Patterns



Source: Medicare claims 2014–2019.
Notes: Bars show DID Impact estimates on TEP for higher-risk episodes, by cancer type. PP: Performance period.

4. Is OCM Generating Net Savings for Medicare?

OCM led to a relative reduction in TEP, but has failed to generate net savings for Medicare. TEP does not account for the monthly enhanced oncology service payments (referred to as MEOS) or for performance-based payments (PBPs). For the Model to result in savings for Medicare, MEOS and PBP payments must not exceed the relative reduction in TEP. In the ***Evaluation Report for PP1–PP5***, we found that MEOS and PBP payments exceeded TEP reductions, and OCM resulted in an estimated $315.6M in cumulative net losses to Medicare from PP1 through PP4.

In this report, we updated the calculation of net savings or losses to Medicare with the addition of PP5[20] reconciliation data. For PP3 through PP5, we also calculated the impact of OCM—including MEOS but not PBP—separately for higher-risk episodes and lower-risk episodes, to understand whether savings or losses to Medicare differed for those two categories of episodes.[21]

Key Findings

- From PP1 through PP5, OCM led to cumulative net Medicare losses of $377.1M. Net losses were largest in PP1 ($100.9M), and smallest in PP5 ($60.8M) (see **Section 4.1**).
- As shown in the previous report, OCM led to losses for both higher-risk and lower-risk episodes, but losses were greater for lower-risk episodes. (see **Section 4.2**).

OCM resulted in net losses to Medicare in each PP (PP1–PP5).

Net savings/losses are the sum of three components: the relative reduction in gross payments (due to the relative reduction in TEP), MEOS payments, and PBPs. Although net losses per period declined over time, changes in the payment components were inconsistent (**Exhibit 8**).

- Gross payment reductions increased over time. Gross payment reductions of about $40M in PP2 increased to about $50M in PP4 and in PP5.
- MEOS payments were fairly consistent, averaging $89M to $93M per period (after PP1).
- PBP amounts[22] varied: PBP was highest in PP4 ($33.3M) but declined in PP5 ($22.2M). This decline in PBP, and a slight decline in MEOS payments, led to net losses in PP5 that were $16.6M less than the net losses in PP4.

PBPs were greater in PP4 than in PP3 or PP5 because more practices received a PBP in PP4, and the PBPs were larger, on average, than in other periods.

In every PP except PP1, the gross payment reductions (from relative reductions in TEP) were sufficient to cover PBP payments but were not ever enough to cover MEOS payments.

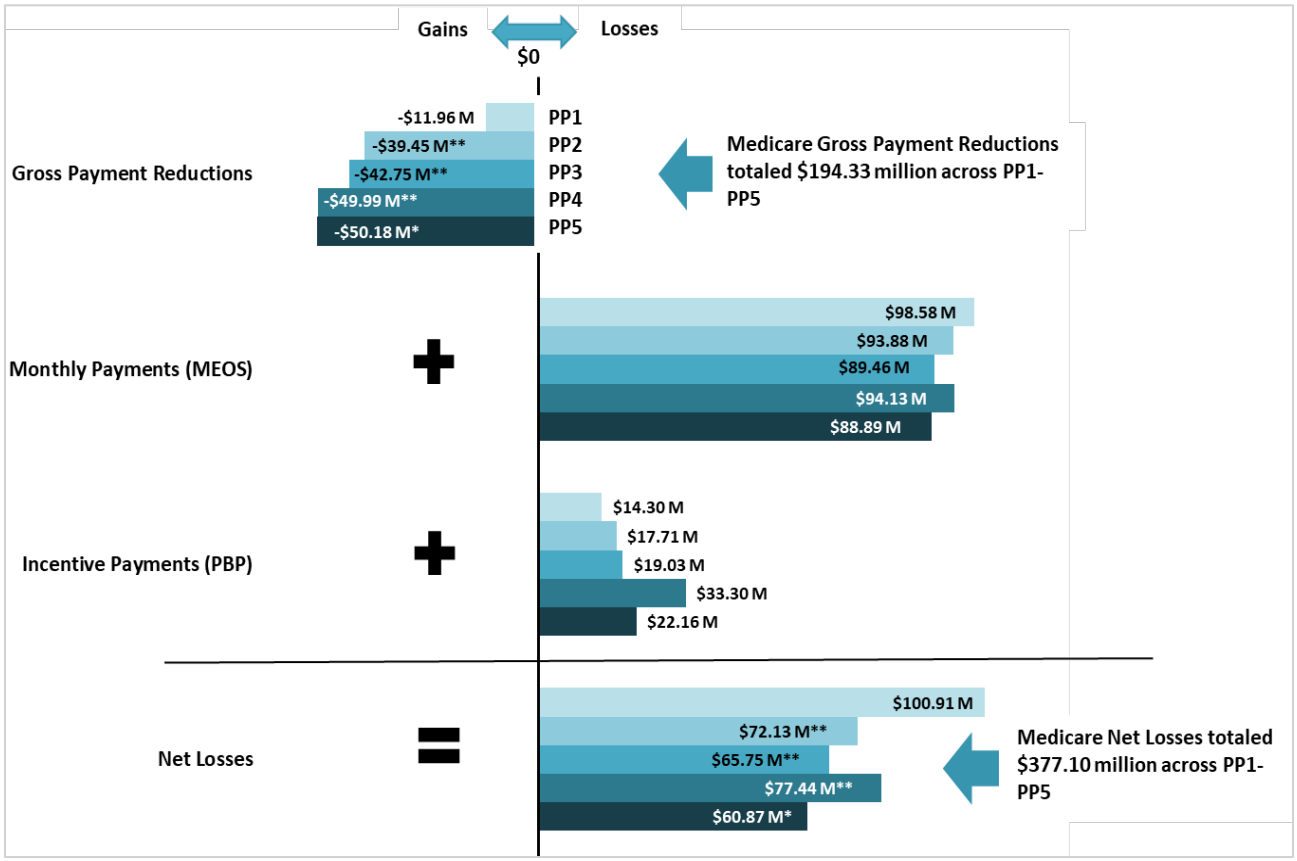
---

[20] At the time of this report, first true-up reconciliation results were not available for PP6. Thus, the gross results presented in the prior chapter cover PPs 1 through 6 while the net results presented in this chapter only cover PPs 1 through 5.

[21] Since PBP is paid to practices and not defined for each episode, we did not include PBP in the savings/losses estimates for higher- and lower-risk episodes.

[22] PBPs are paid when a practice meets cost and quality thresholds. The methodology CMS uses to calculate PBPs is an actuarially based projection and is distinct from the difference-in-difference approach we used to evaluate the Model impact on TEP (gross payment reductions). For more information, please see the OCM PBP Methodology Report.

Exhibit 8: OCM Resulted in Net Losses to Medicare Totaling $377.1M Over Five Performance Periods



Asterisks denote statistically significant impact estimates at *p<0.10 and**p<0.05.
Source: Medicare claims 2014–2019. OCM first true-up reconciliation reports, PP1–PP5.
Notes: MEOS: Monthly Enhanced Oncology Services payment. PBP: performance-based payments. PP: performance period.

OCM led to Medicare losses for both higher-risk and lower-risk episodes; losses were greater for lower-risk episodes.

TEP (without MEOS) averaged about $7,600 for lower-risk episodes (roughly one-third of episodes), and about $48,000 for higher-risk episodes (the remaining two-thirds of episodes). OCM practices can submit claims for the same amount of MEOS ($160 per month) for both categories of episodes. It is more challenging to reduce TEP enough to cover MEOS for the lower-risk episodes, where MEOS payments on average could be nearly 8 percent of TEP,[23] than for higher-risk episodes, where MEOS payments on average could be only 1.5 percent of TEP.[24]

We examined MEOS payments and the impact of OCM on TEP, separately for higher-risk and lower-risk episodes. We did not include PBP paid to practices in this analysis because PBPs are not episode-level payments and cannot be readily assigned to higher-risk versus lower-risk episodes. We focused on PP3 through PP5 because lower- and higher-risk episodes were consistently defined starting in PP3.[25]

[23] From PP3 through PP5, billed MEOS averaged $624 per lower-risk episode.

[24] From PP3 through PP5, billed MEOS averaged $731 per higher-risk episode.

[25] CMS did not distinguish between higher-risk and lower-risk breast, prostate, and bladder cancer episodes until PP3, so it was not possible to assign MEOS to higher- and lower-risk episodes until PP3.

From PP3 through PP5, OCM resulted in losses to Medicare for both higher-risk and lower-risk episodes. The total dollar, and per-episode losses were larger for lower-risk episodes. Excluding PBPs, Medicare losses ranged from about $28M to $35M for lower-risk episodes, and from about $10M to $12M for higher-risk episodes (**Exhibit 9**).

- For higher-risk episodes, the change in gross payments due to reductions in TEP in PP3-5 were almost enough to offset MEOS payments. Again, excluding PBP, this would imply that higher-risk episodes generated smaller losses for Medicare in PP3–PP5, (ranging from $108 to $141 in per-episode losses).
- In contrast, for lower-risk episodes, the relative increase in gross payments due to TEP in PP3-5, combined with MEOS payments, generated substantial losses for Medicare. Medicare losses for lower-risk episodes declined from $834 per episode in PP3 to $675 per episode in PP5, because gross payment increases due to TEP got smaller over time.

Exhibit 9: OCM Resulted in Larger Per-Episode Losses for Lower-Risk Episodes Compared to Higher-Risk

Episode Losses are Calculated by Adding MEOS (but not PBP) to Gross Impacts on TEP

Cancer Type Risk Group	Gross Impact on TEP	MEOS Payments	Total Cost to Medicare: (Change in TEP + MEOS)	Number of Episodes	Per episode cost to Medicare = (change in TEP + MEOS) / (# episodes)
PP3					
Lower-risk episodes	$8,816,599	$25,644,224	$34,460,823	41,344	$834
Higher-risk episodes	-$51,860,222	$63,820,574	$11,960,352	87,380	$137
PP4					
Lower-risk episodes	$6,984,203	$27,658,538	$34,642,740	43,454	$797
Higher-risk episodes	-$56,760,735	$66,475,986	$9,715,251	89,748	$108
PP5					
Lower-risk episodes	$2,469,566	$25,529,140	$27,998,706	41,470	$675
Higher-risk episodes	-$50,971,139	$63,364,754	$12,393,616	87,628	$141

Source: Medicare claims 2014–2019. OCM first true-up reconciliation data. MEOS: Monthly Enhanced Oncology Services payment. PP: performance period. TEP: total episode payments.

5. Does OCM Impact Vary by Medicare Coverage Part and Payment Component?

5.1. On Which Medicare Coverage Parts and Payment Components Is OCM Having the Most Impact?

TEP is composed of payments for hospital inpatient and outpatient services, and for drugs (both chemotherapy and non-chemotherapy), reimbursed through Medicare Part A, Part B, and Part D.[26] Part A includes payments for inpatient care at acute care hospitals (ACHs), hospice care, and post-acute care. Part B includes payments for infused and injected drugs (e.g., chemotherapy drugs, supportive care drugs), physician services (for inpatient and outpatient care), radiation therapy, imaging, other outpatient services, and durable medical equipment. Part D payments are generally for oral prescription drugs.[27] We investigated the impact of OCM separately for each Medicare coverage part, to understand the drivers behind the relative reduction in TEP

Key Findings

- The OCM impact on TEP was driven by small reductions in Part A and Part B payments (see Section 5.1).
- OCM reduced Part B episode payments by $182 per episode relative to comparisons, primarily for non-chemotherapy drugs. Overall, OCM had no impact on Part B chemotherapy spending or on most other Part B components.
- Although there was a relative reduction in Part A payments of $104 per episode, OCM had no statistically significant impact on payments for any individual measure of ACH hospitalizations or post-acute care.
- OCM had no impact on Part D payments.
- OCM led to relative reductions in Part A and Part B payments for higher-risk episodes but relative increases in Part B payments for lower-risk episodes (see Section 5.2).
- **OCM led to a shift to lower cost supportive care drugs.** Among the four common cancer episode types that had relative reductions in TEP, three had payment reductions concentrated in Part B non-chemotherapy drugs, such as supportive care drugs used to mitigate side effects of chemotherapy (see **Section 5.3**).

Between the baseline and PP1–PP6, TEP increased by 18.4 percent for OCM episodes and 19.6 percent for comparison episodes. The cost of cancer-related drugs was the main driver of TEP growth: spending on Part B chemotherapy drugs rose from an average of about $7,700 in the baseline to $10,700 in PP1–PP6, and Part D drug spending grew from about $5,600 to $7,700[28] (**Exhibit 10)**. The share of TEP represented by Part B chemotherapy drug payments rose from 26.5 percent to 31 percent, and the share of TEP represented by Part D drugs increased from 20 to 23 percent. During PP1–PP6, spending on Part B chemotherapy drugs and Part D drugs collectively accounted for more than half of TEP. As discussed

[26] MEOS payments are not included in the calculation of TEP.

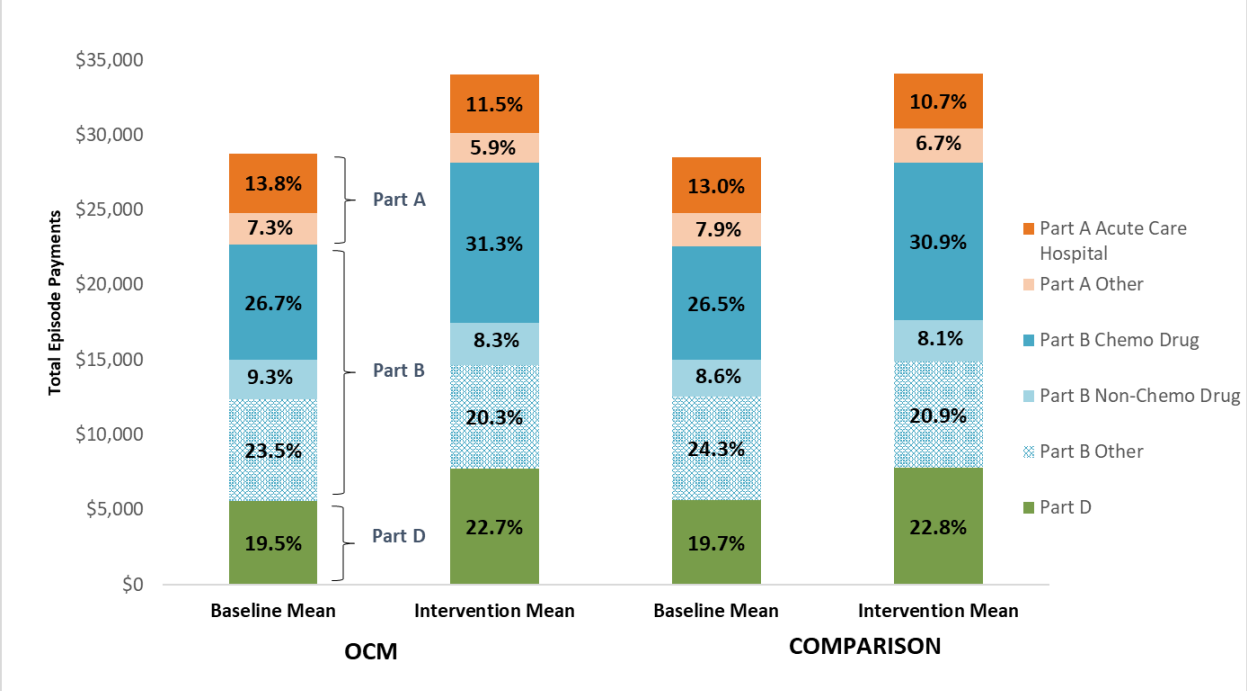
[27] For more information about Part A, B, and D coverage, see: https://www.medicare.gov/what-medicare-covers/what-part-a-covers/medicare-part-a-coverage-hospital-care.

[28] Per-episode average across all episodes, not limited to episodes for beneficiaries enrolled in Part D for all months.

below, OCM episode payments for Part B chemotherapy drugs and Part D drugs did not decline relative to comparison episodes. Rather, the small relative reduction in TEP was due to other smaller components such as payments for Part B non-chemotherapy drugs.

The relative share of TEP represented by payments to inpatient acute, post-acute, and hospice facilities (i.e., Part A) declined, but this was due to growth in other types of payments, not because of declining payments for individual Part A services, which remained relatively flat.

Exhibit 10: Part B Chemotherapy Drugs and Part D Drugs had the Largest Increases as a Share of Total Episode Payments



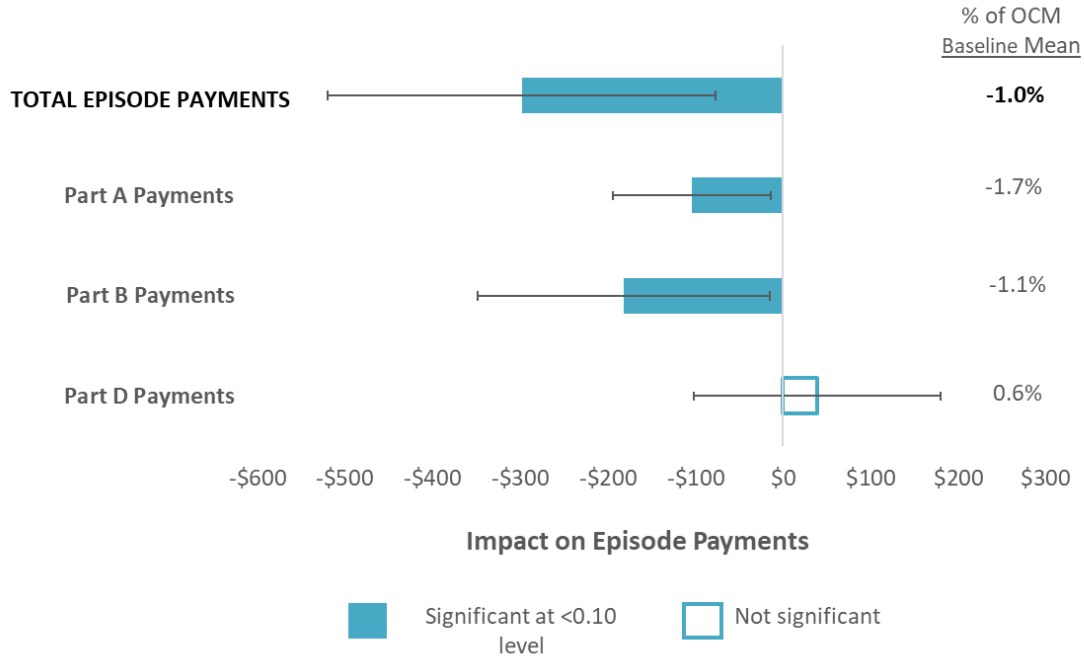
Payment Component	OCM		COMPARISON	
	Baseline Mean	Intervention Mean	Baseline Mean	Intervention Mean
Total Episode Payments	$28,760	$34,048	$28,482	$34,069
Part A Acute Care Hosp.	$3,961	$3,921	$3,707	$3,630
Part A Other	$2,109	$2,003	$2,239	$2,275
Part B Chemo Drug	$7,674	$10,660	$7,547	$10,524
Part B Non-Chemo Drug	$2,672	$2,815	$2,450	$2,754
Part B Other	$6,750	$6,906	$6,931	$7,118
Part D	$5,594	$7,743	$5,608	$7,768

Source: Medicare claims 2014–2019.
Notes: Part D payments are calculated as the sum of low-income cost-sharing and reinsurance amounts, as reflected in Part D Prescription Drug Events. Intervention: intervention period, PP1–6. OCM: OCM intervention group Exhibit is based on all episodes. When limiting to beneficiaries enrolled in Part D, Part D payments made up 23 percent of total episode payments for OCM episodes in the baseline period and 27 percent of total episode payments for OCM episodes in the intervention period.

OCM led to a relative reduction in Part A payments and Part B payments but had no impact on Part D payments.

As described in **Section 3.1**, during PP1–PP6, OCM led to a small relative reduction in TEP of $298. This impact on TEP was due to relative reductions in Part A and Part B payments, which were statistically significant at $p<0.10$ but small compared to mean baseline values (1.7 and 1.1 percent, respectively). **Exhibit 11** shows OCM impacts, broken out by Medicare coverage part.

Exhibit 11: OCM Led to Relative Reductions in TEP, Driven by Part A and Part B Payments



Payment Component	Impact	OCM Baseline Mean
Total Episode Payments	-$298 **	$28,760
Part A Payments	-$104 *	$6,070
Part B Payments	-$182 *	$17,096
Part D Payments	$39	$6,679

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: DID: difference-in-differences. TEP: Total Episode Payments. OCM: OCM intervention group.

Part A payments declined slightly more in OCM episodes than in comparison episodes.

Part A payments averaged $6,070 for OCM episodes in the baseline period (accounting for 21 percent of TEP), and declined, on average, by $146 per episode during PP1–PP6. Part A payments for comparison episodes averaged $5,946 in the baseline period and declined by $42 per episode. Thus, OCM reduced Part A payments by $104 (p<0.10) relative to comparison episodes. This relative reduction represents a change of 1.7 percent of the OCM baseline mean.

The reduction in Part A payments was not concentrated in payments for ACH hospitalizations, which were the largest component of Part A spending at 60 percent. Although ACH payments declined slightly in OCM episodes, the same was true in comparison episodes (Exhibit 10). OCM practices previously reported during case studies that they focused on decreasing preventable hospitalizations as a means for reducing TEP; however, it does not appear that they were able to realize meaningful reductions below what was achieved by comparison practices. OCM had no impact on Part A payments for post-acute care, which includes payments for care received at skilled nursing facilities, inpatient rehabilitation facilities, home health agencies, and long-term care hospitals.

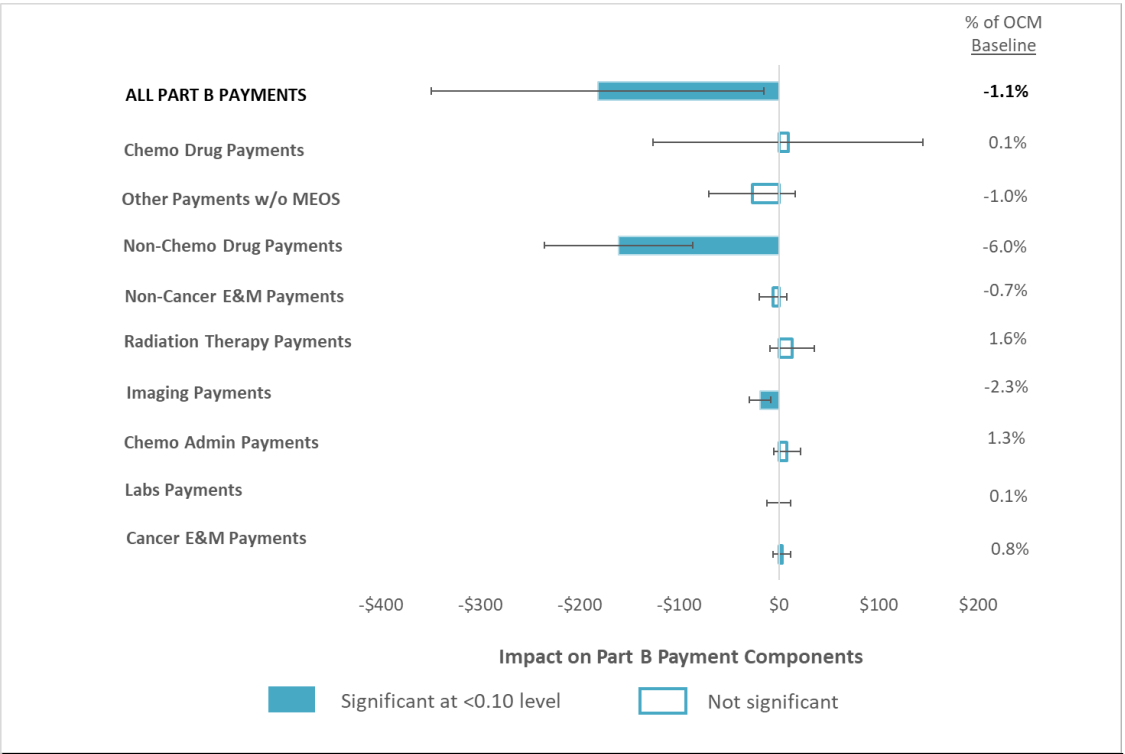
OCM reduced Part B payments, primarily for non-chemotherapy drugs.

OCM led to a small relative reduction in Part B payments per episode (-$182; p<0.1). Part B payments averaged $17,096 in OCM episodes during the baseline period and accounted for 60 percent of TEP. During PP1–PP6, Part B payments increased to $20,381 for OCM episodes; Part B payments increased

for comparison episodes also, but the increase in OCM episodes was $182 less (**Exhibit 12).** While this relative reduction due to OCM was statistically significant (p<0.10), it was small, representing approximately 1 percent of the mean baseline value.

We examined the impact of OCM on each of the underlying payment components of Part B spending during PP1–PP6 (**Exhibit 12**). Consistent with the findings in the ***Evaluation Report for PP1–PP5***, most of the reduction in Part B payments was for Part B non-chemotherapy drugs. OCM had no impact on any other component of Part B spending, with the exception of a small relative reduction in payments for imaging services.

Exhibit 12: OCM Led to a Relative Reduction in Part B Payments, Mainly Due to Non-Chemotherapy Drug Spending



Payment Component	Impact	OCM Baseline Mean	Payment Component	Impact	OCM Baseline Mean
All Part B Payments	-$182 *	$17,096	Radiation Therapy Payments	$13	$817
Chemo Payments	$9	$7,674	Imaging Payments	-$19 ***	$814
Other Payments w/o MEOS	-$27	$2,721	Chemo Admin Payments	$8	$629
Non-Chemo Drug Payments	-$161 ***	$2,672	Labs Payments	$0	$451
Non-Cancer E&M Payments	-$6	$898	Cancer E&M Payments	$3	$389

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: DID: difference-in-differences. OCM: OCM intervention group. MEOS: Monthly Enhanced Oncology Services payments.

Part B Non-Chemotherapy Payments

OCM reduced spending for Part B non-chemotherapy drugs by $161 per episode (p<0.01), relative to comparison episodes, representing 6 percent of the baseline value. Part B non-chemotherapy drugs payments in OCM episodes increased from $2,672 in the baseline period to $2,815 in PP1–6 (**Exhibit 13**). These payments increased for comparison episodes as well, but the increase was $161 less in OCM

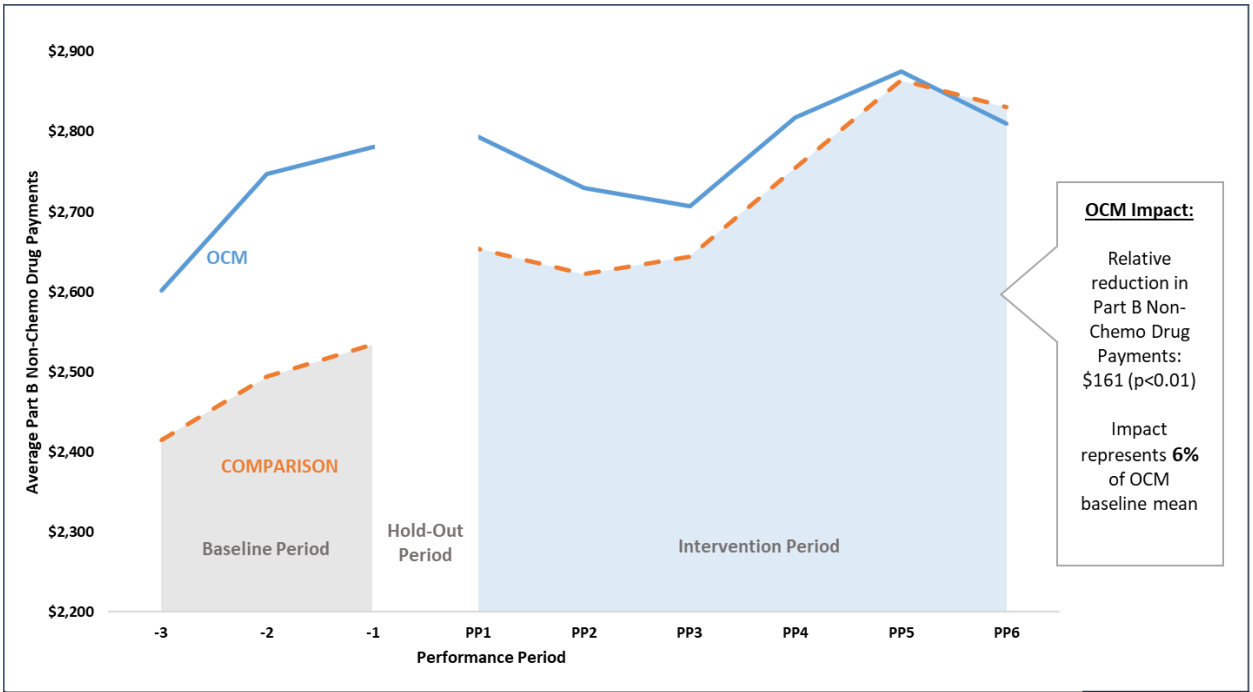
episodes. Overall, Part B payments for non-chemotherapy drugs represented only 8 to 9 percent of TEP and about 14 to 15 percent of Part B payments. Thus, although OCM practices were able to achieve a clinically meaningful reduction in Part B non-chemotherapy drug spending, the reduction was small when considering overall episode payments that averaged more than $28,000 during the baseline.

In the ***Evaluation Report for PP1–PP5***, we showed that OCM led to a relative reduction in spending on supportive care drugs, which are a subset of Part B non-chemotherapy drugs. The relative reduction in Part B supportive care drug spending was consistent with clinical analyses that showed patterns of higher-value use of drugs used to prevent neutropenia and cancer-related bone fractures during OCM episodes. These findings were also consistent with previous evidence from case studies where practices reported more cost-conscious decision making in prescribing supportive care drugs.

About 85 percent of Part B non-chemotherapy drug payments are **for supportive care drugs** (7% of TEP) used to mitigate and treat the side effects of chemotherapy. These drugs include antiemetics (to prevent nausea), white blood cell growth factors (to prevent fever and neutropenia), and bone-modifying agents (to

Exhibit 13: OCM Reduced Part B Non-Chemotherapy Drug Spending Relative to Comparisons

Higher Baseline Spending in OCM Episodes Converged to Comparison Levels in PP5 and PP6



Practice Type	Average Part B Non-Chemotherapy Drug Payments								
	-3	-2	-1	PP1	PP2	PP3	PP4	PP5	PP6
OCM	$2,602	$2,747	$2,781	$2,794	$2,730	$2,707	$2,818	$2,875	$2,810
COMPARISON	$2,415	$2,494	$2,534	$2,654	$2,622	$2,644	$2,755	$2,864	$2,830

Source: Medicare claims 2014–2019.
Notes: DID: difference-in-differences. OCM: OCM intervention group.

Part B Chemotherapy Payments

OCM had no overall impact on Part B payments for chemotherapy drugs, one of the largest payment components of TEP. Part B payments for chemotherapy drugs accounted for about 29 percent of TEP in OCM and comparison episodes, or about half of Part B payments. Part B chemotherapy drug payments averaged $7,674 for OCM episodes at baseline and rose by 39 percent to an average of $10,660 per episode during PP1–PP6. The increase for comparison episodes was similar, suggesting that the Model

did not affect chemotherapy treatments and regimens. As discussed in the ***Evaluation Report for PP1–PP5***, oncologists and other leaders in the practices we visited during case studies felt that cost should not influence decisions about which chemotherapy or immunotherapy drugs to use in treating cancer, unless there is a clear therapeutically equivalent and less costly treatment option. Furthermore, oncology practices derive considerable revenue from many high-cost chemotherapy and immunotherapy drugs, and Model incentives may be insufficient to motivate participating practices to invest time and resources in care delivery reforms that target value-based changes in the use of profitable systemic therapies.

Other Part B Payments

Other Part B services and treatments such as radiation therapy, imaging, laboratory tests, and E&M visits cumulatively accounted for 23 percent of TEP and 35 percent of Part B payments. OCM had no impact on payments for E&M visits (cancer or non-cancer related), radiation therapy, chemotherapy administration or laboratory tests. OCM led to a small relative reduction in payments for imaging services ($19; p<0.01) such as computed tomography or magnetic resonance imaging, which are used to stage tumors and to evaluate response to treatment. Payments for imaging services, which accounted for 3 percent of TEP, rose slightly less in OCM episodes than in comparisons.

OCM continues to have no impact on Part D payments.

OCM had no impact on Part D payments through PP6. Part D payments made up 23 percent of TEP in the baseline period, and increased by nearly 40 percent in the intervention period (rising from $6,679 to $9,323 among OCM episodes). Comparison episodes exhibited a similar pattern.[29] This result is consistent with findings in the ***Evaluation Report for PP1–PP5***.

High-intensity prostate cancer was the only common cancer episode type for which OCM reduced Part D payments relative to comparison episodes (by $630; p<0.10). This is very similar to what we reported in the ***Evaluation Report PP1–PP5***, and most of the impact was concentrated in the early PPs of the model (PP1 and PP2).

5.2. Which Payment Components Drove the Reduction in TEP for Higher-Risk Episodes and the Increase in TEP for Lower-Risk Episodes?

As discussed in **Section 3.1**, OCM's impact on TEP varied by cancer episode type, with relative reductions for higher-risk episodes, but relative increases for lower-risk episodes. In this section, we examine impacts by Medicare coverage part and payment component to understand the drivers of the TEP impacts by episode type. Since higher- and lower-risk episodes have such different treatments and costs, it is important to first examine how the composition of TEP differs for the two episode types. Differences in the sources of payments may have implications for the potential to reduce TEP. **Exhibit 14** shows the proportion of TEP represented by key payment components for higher- and lower-risk episodes during the baseline and intervention periods.

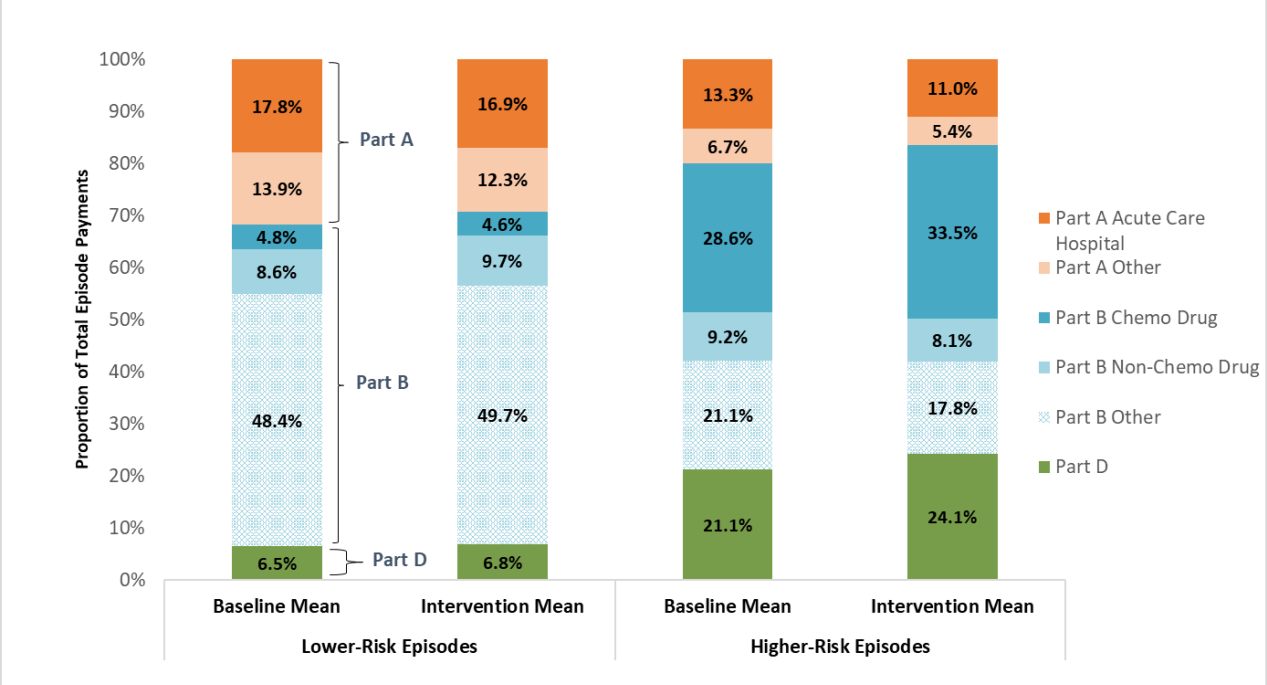
- Part A payments comprised a larger share of TEP for lower-risk episodes (30 percent) than for higher-risk episodes (15–20 percent). ACH payments, in particular, made up about 17 percent of TEP for lower-risk episodes versus about 11 percent of TEP for higher-risk episodes.
- While Part B payments represented a similar share of TEP for higher- and lower-risk episodes (60 percent), the underlying Part B payment components varied greatly. For example, during the baseline period, Part B chemotherapy payments represented less than 5 percent of TEP for lower-risk episodes, but nearly 30 percent of TEP for higher-risk episodes. While the share of Part B non-chemotherapy drug payments was similar for the two episode types, the make-up of the drugs is very

[29] As a sensitivity analysis, we examined OCM's impact on Part D gross drug costs, which includes payments from all payers (i.e., beneficiary, Part D plan, Medicare, third party payer). OCM also had no impact on this measure of Part D gross drug costs.

different: most non-chemotherapy drug spending for higher-risk episodes is for supportive care drugs, while supportive care drugs are rarely used for lower-risk episodes.

- Part D payments as a proportion of TEP also varied greatly. Part D payments represented only 7 percent of TEP for lower-risk episodes, but almost one-quarter of TEP in higher-risk episodes.

Exhibit 14: The Composition of TEP Was Very Different for Lower-Risk and Higher-Risk Episodes



Payment Component	Lower-Risk Episodes		Higher-Risk Episodes	
	Baseline Mean	Intervention Mean	Baseline Mean	Intervention Mean
Total Episode Payments	$7,239	$7,597	$40,024	$47,875
Part A Acute Care Hosp.	$1,289	$1,286	$5,336	$5,288
Part A Other	$1,005	$936	$2,682	$2,566
Part B Chemo Drug	$351	$352	$11,439	$16,035
Part B Non-Chemo Drug	$621	$735	$3,683	$3,883
Part B Other	$3,502	$3,773	$8,428	$8,542
Part D	$471	$515	$8,456	$11,561

Source: Medicare claims 2014–2019.
Notes: Part D payments are calculated as the sum of low-income cost-sharing and reinsurance amounts, as reflected in Part D Prescription Drug Events. Exhibit is based on all episodes. When limiting to beneficiaries enrolled in Part D, Part D payments made up 7 percent of TEP for lower-risk OCM episodes in the baseline and intervention periods. For higher-risk OCM episodes, Part D payments made up 26 percent of TEP in the baseline and 30 percent of TEP in the intervention period when limiting to beneficiaries enrolled in Part D.

OCM led to a small relative reduction in Part A and Part B payments for higher-risk episodes.

For higher-risk episodes, OCM led to a $185 relative reduction in Part A payments per episode ($p<0.05$; 2.3 percent of baseline) and a $294 relative reduction in Part B payments ($p<0.05$; 1.2 percent of baseline). There was also a relative reduction in Part B non-chemotherapy drug payments for higher-risk episodes ($256; $p<0.01$), which represented nearly 7 percent of the baseline value. The impact of OCM on Part B non-chemotherapy drug payments grew over time, reaching $366 per episode ($p<0.01$) in PP6, representing nearly 10 percent of the baseline value. However, OCM had no impact on Part B chemotherapy drug spending or Part D episode payments for higher-risk episodes (**Exhibit 15).**

For lower-risk episodes, OCM resulted in a small relative increase in Part B payments.

For lower-risk episodes, OCM led to a $130 increase in TEP. This increase was primarily due to Part B payments, which increased by $81 more in OCM episodes ($p<0.10$) than in comparison episodes (**Exhibit 15**). Since the great majority of Part B payments in lower-risk episodes were not related to drugs, other services were responsible for this small relative increase in Part B payments.

Exhibit 15: OCM Reduced Part A&B Payments for Higher-Risk Episodes but Increased Part B Payments for Lower-Risk Episodes[a]

Payment Category	OCM		COMP		Impact Estimates Through PP6			
	Baseline Mean	Int. Mean	Baseline Mean	Int. Mean	DID	90% LCL	90% UCL	Percent Change
Higher-Risk Episodes								
TEP	$40,024	$47,875	$39,504	$47,843	-$487**	-$807	-$167	-1.2%
Part A payments	$8,018	$7,854	$7,848	$7,869	-$185**	-$312	-$59	-2.3%
Part B payments	$23,550	$28,460	$23,336	$28,540	-$294**	-$534	-$54	-1.2%
Part D payments	$10,526	$14,514	$10,406	$14,328	$66	-$138	$269	0.6%
Lower-Risk Episodes								
TEP	$7,239	$7,597	$7,337	$7,564	$130*	$20	$240	1.8%
Part A payments	$2,294	$2,222	$2,247	$2,144	$32	-$44	$107	1.4%
Part B payments	$4,474	$4,860	$4,597	$4,901	$81*	$10	$152	1.8%
Part D payments	$528	$578	$550	$581	$19	-$17	$55	3.6%

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: [a] Part A, Part B, and Part D mean payments do not sum to TEP because mean Part D payments apply only to episodes for beneficiaries enrolled in Part D for all months. COMP: comparison group. DID: difference-in-differences. Int.: intervention period, PP1–PP6. LCL: lower confidence limit. OCM: OCM intervention group. PP: performance period. TEP: total episode payments. UCL: upper confidence limit.

The differential OCM impact by higher- and lower-risk episode type may be due to differences in the types of treatments and services for the two categories of episodes. For higher-risk episodes, there was a significant ($p<0.01$) OCM impact on payments for Part B non-chemotherapy drugs, the vast majority of which are supportive care drugs (85 percent). While the relative share of spending for Part B non-chemotherapy drugs was similar for higher-risk and lower-risk episodes (about 8 percent of TEP), for lower-risk episodes, supportive care drugs are rarely necessary because treatments have fewer toxicities. For example, hormonal therapy for low-risk breast cancer does not cause nausea or neutropenia, and neither antiemetics nor white blood cell growth factors are necessary. On the other hand, treatment for high-risk breast cancer, lung cancer, and other cancers (higher-risk episodes) often involves toxic treatments that do cause such problems, necessitating supportive care drugs. For lower-risk episodes, Part B non-chemotherapy drugs are likely unrelated to cancer and are thus not within the purview of oncologists (e.g., infused medications for rheumatologic conditions). We previously showed that OCM practices moved toward more value-oriented supportive care regimens, but that shift was only relevant for higher-risk episodes, not for lower-risk episodes. The need for other treatments and services, such as radiation therapy, imaging, and hospitalizations, may also differ for higher-risk versus lower-risk episodes, as may the potential to reduce payments.

5.3. Which Payment Components Were Responsible for TEP Reductions in High-Risk Breast, Lung, Colorectal, and Lymphoma Episodes?

Section 3.1 demonstrated that cumulatively across PP1-PP6, OCM led to statistically significant reductions in TEP for four higher-risk episode types—high-risk breast cancer, lung cancer, colorectal cancer, and lymphoma—which together represented more than 45 percent of higher-risk episodes. For each of these four higher-risk episode types, the relative reductions in TEP were large enough to offset average MEOS payments. This section describes the payment components that were largely responsible

for the cumulative relative reduction in TEP across PP1-PP6 for these four types of cancer episodes. Consistent with the patterns described in the ***Evaluation Report for PP1–PP5***, for three of these four episode types the main driver was a relative reduction in Part B payments.

For high-risk breast cancer episodes, the relative reduction in TEP was almost entirely due to reductions in Part B chemotherapy and non-chemotherapy drug spending.

High-risk breast cancer episodes comprised about 10 percent of all episodes and 15 percent of higher-risk episodes. In both OCM and comparison episodes for high-risk breast cancer, TEP increased by more than $5,000 from the baseline through PP1–PP6. The increase in TEP was less for OCM episodes, resulting in a relative reduction of $885 ($p<0.01$), representing a change of 2.5 percent of the mean OCM baseline value of $35,631 (**Exhibit 16**). This relative reduction in TEP was sufficient to offset the average billed MEOS payments of $793 for high-risk breast cancer episodes.[30]

The relative reduction in TEP for high-risk breast cancer episodes was almost entirely due to Part B payments. Although Part B payments increased for both OCM and comparison episodes, they increased less so for OCM, resulting in a relative reduction of $861 ($p<0.01$) due to OCM. OCM led to relative payment reductions for both Part B chemotherapy drugs ($502; $p<0.05$) and non-chemotherapy drugs ($292; $p<0.01$).

A descriptive analysis of specific drugs suggests that relative reductions in **Part B chemotherapy payments** for high-risk breast cancer were evident for many chemotherapy drugs and were not concentrated in just a few drugs.

Notably, high-risk breast cancer episodes were the only common type of cancer episodes for which OCM led to a relative reduction in Part B chemotherapy spending. OCM reduced Part B chemotherapy payments in high-risk breast cancer episodes by $502 relative to comparison episodes ($p<0.05$). This change represents 3.5 percent of the baseline mean of $13,057 for Part B chemotherapy payments for high-risk breast cancer episodes. It is possible that practices were identifying opportunities for substituting lower-cost regimens for adjuvant treatment of breast cancer[31]; however, when we examined episode-initiating chemotherapy regimens through PP5, we did not find evidence for differences in OCM vs. comparison episodes.

OCM had no impact on overall Part A payments in high-risk breast cancer episodes, but there was a relative increase in Part A payments to ACHs. While Part A ACH payments decreased for both OCM and comparison high-risk breast cancer episodes, they decreased by $139 less for OCM episodes ($p<0.10$), representing 4.7 percent of the baseline value of $2,995. (See **Appendix B** for more information on Part A ACH payments.)

[30] Average billed MEOS for high-risk breast cancer was based on PP3–PP5 first true-up reconciliation data. High-risk and low-risk breast cancer were not differentiated in the PP1 and PP2 reconciliation data.

[31] Giordano SH, Niu J, Chavez-MacGergor M, Zhia H, Zorzi D, Shih Y-CT, Smith BD, Shen C. Estimating regimen-specific costs of chemotherapy for breast cancer: observational cohort study. Cancer 2016; 122: 3447-3455.

Exhibit 16: OCM Reduced TEP and Part B Payments in High-Risk Breast Cancer Episodes

High-Risk Breast Cancer	OCM		COMP		Impact Estimates			
	Baseline Mean	Int. Mean	Baseline Mean	Int. Mean	DID	90% LCL	90% UCL	Percent Change
TEP	$35,631	$41,710	$34,526	$41,490	-$885***	-$1,377	-$393	-2.5%
Part A payments	$4,986	$4,769	$4,938	$4,656	$66	-$107	$239	1.3%
Part B payments	$24,886	$27,610	$24,221	$27,807	-$861***	-$1,273	-$450	-3.5%
Part D payments	$7,048	$11,614	$6,639	$11,212	-$8	-$311	$296	-0.1%

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: COMP: comparison group. DID: difference-in-differences. Int.: intervention period, PP1–PP6. LCL: lower confidence limit. OCM: OCM intervention group. TEP: total episode payments. UCL: upper confidence limit.

For lung cancer episodes, almost half of the relative reduction in TEP was concentrated in Part B payments.

Lung cancer episodes accounted for nearly 9 percent of all OCM episodes, and 14 percent of higher-risk episodes. On average, TEP for lung cancer episodes rose by more than $10,000 between the baseline period and intervention periods, with the increase almost entirely due to growth in Part B payments. OCM reduced TEP by $1,112 relative to comparison episodes (p<0.01), representing 2.8 percent of the mean OCM baseline value of $39,934 (**Exhibit 17**). This relative reduction in TEP was sufficient to cover the average MEOS payment of $735 for lung cancer episodes.

The relative reduction in TEP for lung cancer episodes was concentrated in Part B payments, which rose by $697 less in OCM episodes than in comparison episodes (p<0.05). The relative reduction in Part B payments was due, in part, to Part B non-chemotherapy drug spending, which decreased by $300 more in OCM episodes than comparison episodes (p<0.05; see **Appendix B** for results for TEP results for specific cancer episode types).

Exhibit 17: OCM Reduced TEP and Part B Payments in Lung Cancer Episodes

Lung Cancer	OCM		COMP		Impact Estimates			
	Baseline Mean	Int. Mean	Baseline Mean	Int. Mean	DID	90% LCL	90% UCL	Percent Change
TEP	$39,934	$53,197	$39,270	$53,644	-$1,112***	-$1,686	-$538	-2.8%
Part A payments	$9,410	$9,078	$9,119	$8,990	-$204	-$445	$37	-2.2%
Part B payments	$27,166	$39,215	$26,787	$39,534	-$697**	-$1,257	-$138	-2.6%
Part D payments	$4,375	$6,464	$4,419	$6,732	-$223	-$671	$224	-5.1%

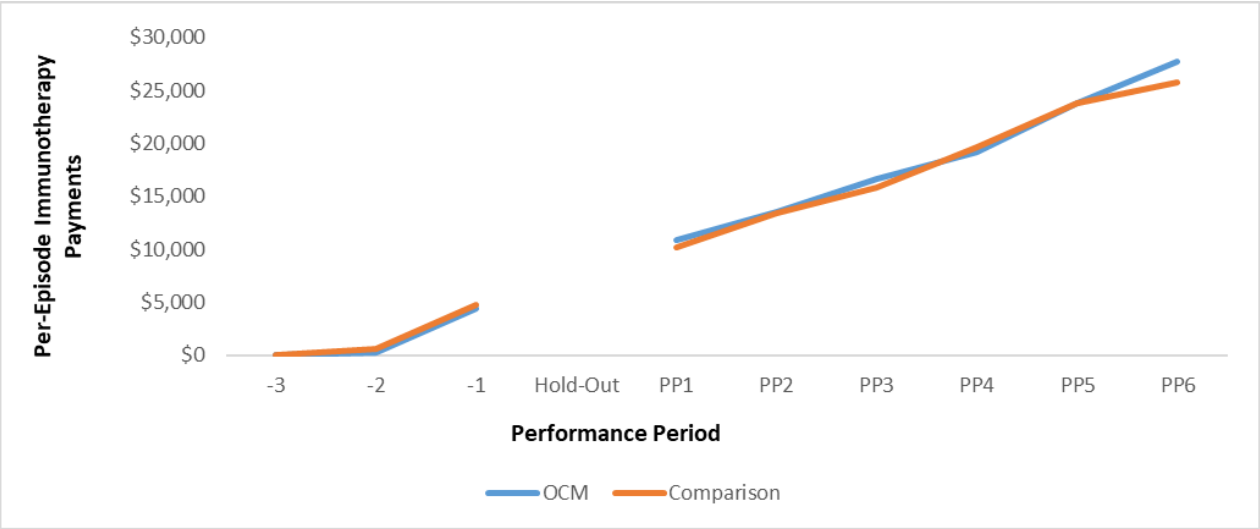
Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.
Source: Medicare claims 2014–2019.
Notes: COMP: comparison group. DID: difference-in-differences. Int.: intervention period, PP1–PP6. LCL: lower confidence limit. OCM: OCM intervention group. TEP: total episode payments. UCL: upper confidence limit.

By PP6, **payments for immunotherapy drugs** represented 80 percent of Part B chemotherapy spending for OCM lung cancer episodes, an increase of 15 percent from the baseline.

As mentioned in **Section 3.2**, for lung cancer episodes, the relative reductions in TEP for PP2–PP5 were statistically significant at p<0.05 or p<0.10, ranging from $1,000 to almost $2,000 in PP5; however, in PP6, the reduction in TEP declined to just under $400 and was no longer statistically significant. This shift in the PP6 TEP impact for lung cancer episodes reflects a notable change in the Part B payment pattern in PP6, and specifically, payments for Part B chemotherapy drugs. From case studies, we learned that many practices were rapidly increasing the use of efficacious but costly immunotherapy drugs. We therefore conducted a descriptive analysis (**Exhibit 18**), which showed that prior to PP6, the trend in Part B immunotherapy payments was very similar for OCM and comparison episodes. However, in PP6,

payments for immunotherapy drugs began to slow for comparison episodes and continued to rise for OCM episodes. Immunotherapy payments for OCM episodes (unadjusted) averaged almost $2,000 more than for comparison episodes in PP6, which was more than sufficient to explain the decline in the TEP impact in PP6. The immunotherapy drug pembrolizumab, which had seven new Food and Drug Administration approvals between August 2018 and June 2019, including approvals for use in the first line of therapy and thus likely relevant for a large number of episodes, was a likely a driver of the differential trend in immunotherapy payments emerging in PP6.

Exhibit 18: Trends in Part B Immunotherapy Payments for Lung Cancer Episodes Diverged in PP6



Practice Type	Average Per-Episode Immunotherapy Payments								
	-3	-2	-1	PP1	PP2	PP3	PP4	PP5	PP6
OCM	$13	$301	$4,394	$10,860	$13,576	$16,608	$19,225	$23,763	$27,708
Comparison	$20	$602	$4,759	$10,184	$13,368	$15,886	$19,681	$23,768	$25,792

Source: Medicare claims 2014–2019.
Notes: COMP: comparison group. OCM: OCM intervention group. Trends in payments are not risk-adjusted.

The relative reduction in TEP for colorectal cancer episodes was also due to Part B payments.

Colorectal/small intestine cancer episodes represented about 5 percent of all episodes and 8 percent of higher-risk episodes. OCM reduced TEP for colorectal cancer episodes by $865 relative to comparisons ($p<0.10$), which represented 2.4 percent of the mean OCM baseline value of $36,021 (**Exhibit 19**). As with episodes for lung cancer and high-risk breast cancer, the impact of OCM was mainly in Part B payments. For colorectal cancer episodes, OCM led to a $867 reduction relative to in comparison episodes ($p<0.05$). This was mainly due to a relative reduction of $556 ($p<0.05$) in Part B non-chemotherapy drug payments, which declined in OCM episodes but increased in comparison episodes (see **Appendix B** for more detail).

The ***Evaluation Report for PP1–PP5*** showed a similar reduction in Part B non-chemotherapy drug payments for colorectal cancer episodes. The reduction was not concentrated in supportive care drugs. Rather, the primary driver was likely the drug **levoleucovorin**, which is given to augment or amplify chemotherapeutic effects and is neither a chemotherapy drug nor a supportive care drug.

Exhibit 19: OCM Reduced TEP and Part B Payments in Colorectal Cancer Episodes

Colorectal/Small Intestine Cancer	OCM		COMP		Impact Estimates			
	Baseline Mean	Int. Mean	Baseline Mean	Int. Mean	DID	90% LCL	90% UCL	Percent Change
TEP	$36,021	$36,330	$35,054	$36,228	-$865*	-$1,596	-$134	-2.4%
Part B payments	$25,956	$25,967	$25,171	$26,049	-$867**	-$1,447	-$286	-3.3%
Part D payments	$2,591	$2,986	$2,509	$2,766	$138	-$91	$367	5.3%

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.

Source: Medicare claims 2014–2019.

Notes: COMP: comparison group. DID: difference-in-differences. Int.: intervention period, PP1–PP6. LCL: lower confidence limit. OCM: OCM intervention group. TEP: total episode payments. UCL: upper confidence limit. Part A payments are not included in this table because the impact estimate could not be reliably reported due to failure of the parallel trends assumption.

OCM led to a relative reduction in TEP for lymphoma episodes.

About 6 percent of all episodes, and 9 percent of higher-risk episodes, were for lymphoma. For lymphoma episodes, OCM reduced TEP by $934 relative to comparison episodes ($p<0.10$), representing 2.1 percent of the OCM baseline mean value of $43,634 (**Exhibit 20**). The relative reduction in TEP was not due to any single payment component. There were small relative reductions in Part A, Part B, and Part D payments, which together yielded the statistically significant relative reduction in TEP.

Exhibit 20: No Single Payment Component Drove the TEP Impact for Lymphoma Episodes

Lymphoma	OCM		COMP		Impact Estimates			
	Baseline Mean	Int. Mean	Baseline Mean	Int. Mean	DID	90% LCL	90% UCL	Percent Change
TEP	$43,634	$49,214	$44,249	$50,763	-$934*	-$1,763	-$105	-2.1%
Part A payments	$7,633	$7,652	$7,522	$7,908	-$367	-$842	$107	-4.8%
Part B payments	$30,958	$35,821	$31,606	$36,709	-$240	-$803	$323	-0.8%
Part D payments	$6,662	$7,638	$6,799	$8,135	-$360	-$854	$134	-5.4%

Asterisks denote statistically significant impact estimates at *p<0.10, **p<0.05, and ***p<0.01.

Source: Medicare claims 2014–2019.

Notes: COMP: comparison group. DID: difference-in-differences. Int.: intervention period, PP1–PP6. LCL: lower confidence limit. OCM: OCM intervention group. TEP: total episode payments. UCL: upper confidence limit.

6. Conclusions

This report presents evaluation findings related to payments, through the sixth of 11 PPs, for OCM, and is an addendum to our previous ***Evaluation Report for PP1–PP5***. This addendum reflects evaluation impact results for periods prior to the COVID-19 public health emergency.

TEP rose steeply in both OCM and comparison episodes, from about $28,500 before OCM began, to an average of $34,000 during PP1–PP6. Against that backdrop of rapidly rising average payments, OCM reduced TEP by $298 relative to TEP in comparison episodes (1 percent). Among higher-risk episodes, which made up about two-thirds of all episodes and averaged about $48,000 during PP1–PP6, OCM reduced TEP by $487 relative to in comparison episodes. Treatment during higher-risk episodes often involves many costly components (e.g., costly drugs, advanced imaging, surgery, radiation therapy), some of which may be amenable to reductions or lower-cost alternatives. The relative payment reductions for higher-risk episodes were partially offset, however, by relative payment increases for lower-risk episodes. For lower-risk episodes, which made up about one-third of all episodes and averaged about $7,600, TEP increased by $130 more for OCM episodes than for comparisons. Treatment during lower-risk episodes mainly involves long-term hormonal therapy with periodic prescription refills or infrequent injections, and there are likely fewer opportunities to reduce Medicare payments.

In PP6, OCM's impact on TEP deviated from that in previous periods. In PP6, there was a smaller relative reduction in TEP than in the past, particularly for higher-risk episodes, and the estimated impact was no longer statistically significant. This may be because immunotherapy payments in PP6 continued to increase in OCM lung cancer episodes but began to plateau in comparison episodes. Additional periods of data are required to understand if this change will become a sustained pattern that could mute the already small overall impact on TEP.

After adding MEOS and PBP to the relative changes in TEP, the bottom line was net losses to Medicare of $61M to $100M in each of the first five PPs. Net losses were lowest in PP5 at $61 million, having declined by nearly $17 million from net losses in PP4. The decline was primarily due to PBP amounts paid to practices, which were highest in PP4 and declined in PP5.

OCM had limited impact on most Part A and Part B service-line payments. OCM had the greatest impact in reducing payments for Part B services, especially for three types of higher-risk episodes (high-risk breast cancer, lung cancer, and colorectal cancer episodes), where the relative reductions in TEP were more than enough to cover MEOS payments. Although Part B payments for chemotherapy drugs averaged about $7,700 per OCM episode at baseline and increased to more than $10,600 (out of the total $34,000), OCM had no significant overall impact on Part B payments for chemotherapy drugs. Rather, there was a relative reduction in payments for Part B non-chemotherapy drugs (-$161, 6 percent). Many non-chemotherapy drugs, particularly for higher-risk episodes, are supportive care drugs used to manage symptoms from chemotherapy toxicity. These Part B impacts are consistent with the previous ***Evaluation Report for PP1–PP5***, in which clinical analyses and case studies showed that participating practices focused more on value-based use of costly supportive care drugs, and less on trying to influence oncologists' decision making about selection of chemotherapy regimens.

OCM had no impact on Part A payments to ACHs or on payments for post-acute care or hospice care. Additionally, OCM had no impact on payments for Part B outpatient services such as radiation therapy or E&M visits, but it led to a very small relative reduction in payments for imaging services. OCM also had no overall impact on Part D payments per episode.

We added only one performance period of episodes to this report because episodes initiating subsequently in PP7 were affected by the COVID-19 Public Health Emergency that began in early 2020. With the inclusion of one additional PP of data, the cumulative impact of OCM estimated in this report is very

similar to that reported in the previous ***Evaluation Report for PP1–PP5***. Through PP6, OCM led to a small reduction in TEP, but the reduction was more than offset by spending on MEOS and PBP, resulting in significant net losses for Medicare. Cumulatively through PP6, OCM continued to result in modest reductions in TEP for higher-risk cancer episodes and per episode increases in TEP for lower-risk cancers. However, when we looked only at PP6, the reduction in TEP was no longer statistically significant, and this is driven by a smaller per-episode savings among higher risk cancers, smaller per episode losses in lower risk cancers, and a high degree of noise in the PP6 estimates. This is a change from prior periods, PP2-PP5, where the reduction in TEP was relatively stable in magnitude and statistically significant at $p<0.05$ for most periods. Additional periods of data will be needed to understand if the PP6 shift becomes a sustained pattern that would temper the cumulative impact of the model. These additional periods of episodes will overlap with the COVID-19 timeframe, so it will be necessary to account for the effect of COVID on outcomes measures.

Acronyms

ACH	Acute Care Hospital
ACP	Advance Care Planning; Advance Care Plan
AHRF	Area Health Resources Files
AMC	Academic medical center
APM	Alternative Payment Model
CMS	Centers for Medicare & Medicaid Services
DID	Difference-In-Differences
E&M	Evaluation and Management
ED	Emergency Department
HCC	Hierarchical Condition Category
IDR	Integrated Data Repository
IP	Inpatient
ITT	Intent-To-Treat
LCL	Lower Confidence Limit
MEOS	Monthly Enhanced Oncology Service
OCM	Oncology Care Model
PAC	Post-Acute Care
PBP	Performance-Based Payment
PDE	Prescription Drug Event
PHE	Public Health Emergency
PP	Performance Period
TEP	Total Episode Payment
UCL	Upper Confidence Limit

Glossary

Advanced Alternative Payment Model	A subset of Alternative Payment Models (APMs) that let physician practices earn payments for taking on downside risk related to patient outcomes. Practices that participate in an Advanced APM are eligible for up to a 5 percent incentive payment beginning in 2019, and are excluded from the MIPS reporting requirements and payment adjustment.
Alternative Payment Model (APM)	A payment approach that rewards providers or practices with incentive payments for providing high-quality and cost-efficient care.
Antiemetic	Medication to prevent or reduce nausea and vomiting.
Baseline period	The analytic time period during which outcomes are assessed prior the implementation of OCM, covering episodes that initiate July 1, 2014 to January 1, 2016.
Cancer bundle	The cancer bundle represents the primary cancer a beneficiary has during their episode. An episode is assigned a cancer type using the plurality of diagnoses on E&M services in the carrier file that occurred during the episode, per OCM program rules. The 21 reconciliation-eligible cancer types in the original OCM methodology are then expanded to 24, with breast cancer divided into low- versus high-risk, prostate cancer divided into low- versus high-intensity, and bladder cancer divided into low- versus high-risk. The 25th bundle is for all non-reconciliation-eligible cancer types combined.
Chemotherapy (chemo)	For OCM purposes, CMS defines chemotherapy as systemic therapies including cytotoxic chemotherapy, hormonal therapy, biologic therapy, immunotherapy, and combinations of these therapies.
Comparison practice	A non-OCM oncology practice (identified by its Taxpayer Identification Number, or TIN) selected to be in the evaluation comparison group. The evaluation team found selected comparison practices to be statistically similar to participating OCM practices according to propensity score matching methods.
Difference-in-differences (DID)	A statistical technique that quantifies the impact of an intervention by comparing changes in outcomes of treatment cases (i.e., OCM episodes) to changes in outcomes in a matched comparison group (i.e., comparison episodes), from before to after Model implementation.
Enhanced oncology services	OCM practices are required to make the following enhanced services available to beneficiaries with traditional Medicare insurance: 24/7 patient access to an appropriate clinician who has real-time access to patient's medical records; 2) core functions of patient navigation; 3) a documented Care Plan that contains the 13 components recommended by the Institute of Medicine; and 4) therapies consistent with nationally recognized clinical guidelines (and explain deviations).

Episodes (for OCM)	A six-month period of care that is triggered by receipt of chemotherapy with at least one cancer-related E&M service occurring within six months of the initial chemotherapy. Episodes initiate upon the date of service for an initial Part B chemotherapy drug claim with a corresponding cancer diagnosis on the claim, or upon the fill date for an initial Part D chemotherapy drug claim with a corresponding Part B claim for cancer on the date of, or in the 59 days preceding, the drug claim. If treatment continues for a beneficiary after the six-month episode, a new episode begins when the episode criteria are met again (i.e., a Part B chemotherapy infusion or Part D chemotherapy prescription within 59 days after a Part B claim for cancer, followed by a cancer E&M within six months).
Evaluation and Management (E&M)	The billing code for a specific type of patient visit with a physician or advanced practice provider, which includes at minimum the following components: 1) history; 2) examination; and 3) medical decision making. An E&M service with a cancer diagnosis on the same claim line on a carrier claim is required to identify an OCM episode as well as assign the cancer bundle to the episode.
Growth factors	Proteins that help the body produce white blood cells. They are also called hematopoietic, meaning blood-forming, colony-stimulating factors. White blood cells help fight infection and can be destroyed during some types of cancer treatment. Growth factors can be administered to cancer patients, to prevent neutropenia and infection.
Health system or integrated health system	An organization that includes at least one hospital, and at least one group of physicians who are connected with each other and with the hospital through common ownership or joint management and combine their activities to deliver comprehensive health care services.
Hierarchical condition category (HCC)	CMS HCC flags are used to calculate risk scores that adjusts capitation payments to Medicare Advantage health care plans for the health expenditure risk of their enrollees. HCC scores use clinical diagnoses and comorbidities (i.e., severity of illness) from the previous year to predict costs in the coming year. Source: Evaluation of the CMS-HCC Risk Adjustment Model Final Report, available at: https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Risk-Adjustors-Items/Evaluation2011
Higher-risk episodes	Includes 22 of the 25 defined cancer bundles, and excludes the following: low-risk breast cancer, low-intensity prostate cancer, and low-risk bladder cancer.
Hold-out period	The six-month period prior to the implementation of OCM during which the evaluation does not include episodes in order to prevent overlap between baseline and intervention episodes.
Home health care	Medical care provided in a patient's home. Home health care can include skilled nursing care, physical therapy, occupational therapy, intravenous drug therapy, and non-medical home aide services.

Hormone therapy	A type of therapy that adds, blocks, or removes hormones. Hormones can cause certain cancers (such as prostate and breast cancer) to grow. To slow or stop the growth of cancer, synthetic hormones or other drugs may be given to block the body's natural hormones. Also called endocrine therapy, hormonal therapy, and hormone treatment.
Hospice care	End-of-life care provided by a team of health care professionals and volunteers. The goal of hospice care is to help people who are dying have peace, comfort, and dignity. Hospice care is covered by Medicare when a patient is terminally ill and expected to live for six months or less. Patients must stop active treatment for their terminal condition to receive Medicare-covered hospice services. Hospice care can take place at home, at a hospice center, in a hospital, or in a skilled nursing facility.
Imaging	A type of test that makes detailed pictures of areas inside the body. Imaging tests use different forms of energy, such as x-rays (high-energy radiation), ultrasound (high-energy sound waves), radio waves, and radioactive substances to help diagnose or treat cancer, and to monitor for cancer recurrence. Examples of imaging tests are computed tomography, ultrasonography, magnetic resonance imaging, and nuclear medicine tests.
Immunotherapy	A type of therapy that uses substances to stimulate or suppress the immune system to help the body fight cancer.
Inpatient care	Inpatient care is medical treatment administered to a patient who has been formally admitted to a hospital or other health care facility.
Intent-to-treat (ITT)	A method for analyzing results in a prospective study where all participants are included in the statistical analysis and analyzed according to the group they were originally assigned (intervention or comparison), regardless of what treatment (if any) they received. In the OCM evaluation, ITT analysis includes all originally participating practices, including those that terminate participation.
Intervention period	The analytic time period during which outcomes are assessed while the OCM intervention is in effect. For this report, the intervention period covers episodes that initiate in PP1, PP2, and PP3.
Long-term care (LTC)	A variety of services designed to meet a person's health or personal care needs when they can no longer perform everyday activities on their own. LTC is provided in different places by different caregivers, depending on a person's needs. It can be provided at home by unpaid family members and friends, or in a facility such as a nursing home.
Lower-risk episodes	Includes low-risk breast cancer, low-intensity prostate cancer, and low-risk bladder cancer.
Medicare beneficiary	A person enrolled in Medicare insurance, whether traditional Medicare or a Medicare Advantage plan.

Monthly Enhanced Oncology Service (MEOS) payment	Payment intended to support care redesign and enhanced oncology services (see definition for enhanced oncology services). MEOS and PBPs are the financial incentives in OCM. OCM practices may bill Medicare a $160 per beneficiary fee for each month of a six-month episode, unless the beneficiary enters hospice care or dies. MEOS payments billed for beneficiaries who do not meet all episode eligibility criteria (e.g., those who switch to Medicare Advantage during the episode) will be recouped since no episode will be identified for these beneficiaries.
Multi-specialty practice	Includes physicians certified in different specialties, for example, oncologists, cardiologists, surgeons, and pediatricians.
National provider identifier	A unique identification number assigned to health care providers in the United States, used for administrative and financial transactions, such as submitting claims to Medicare for payment of services rendered to Medicare beneficiaries.
Non-reconciliation-eligible cancer	Types of cancer identified by CMS to be rare. OCM episodes for these cancer types are not included in PBPs, although practices may submit claims for MEOS payment during treatment episodes for these types of cancer.
OCM practice	An oncology practice that is participating in the Oncology Care Model. OCM practices compose the evaluation treatment group.
Office-Based Physician File	This proprietary data source of physician data contains information about every practice site in the United States where care is provided by medical professionals. It includes the ownership, size and address of the practice site, and a list of individual providers working at the practice site, along with their health system and hospital affiliations.
Oncologist	A physician who treats cancer and provides medical care for people with cancer.
Oncology	A branch of medicine that specializes in the diagnosis and treatment of cancer.
Oral chemotherapy	Treatment with drugs given by mouth to kill cancer cells or stop them from dividing.
Outpatient care	Care provided to a patient who has not been admitted to a hospital or other inpatient facility.
Part A	Medicare Part A is insurance coverage for inpatient care in a hospital, skilled nursing facility, inpatient rehabilitation facility, or long-term care hospital, as well as hospice care and home health care.
Part B	Medicare Part B is insurance coverage for outpatient/medical care, including medically necessary physician and other professional services and therapies, preventive services, and professionally administered prescription drugs such as chemotherapy infusions.

Part D	Medicare Part D is optional insurance coverage to help Medicare beneficiaries pay for self-administered prescription drugs. Medicare Part D plans are offered by private insurance companies.
Performance period (PP)	OCM episodes are organized into six-month performance periods. At each participating practice, all episodes that begin during a performance period are reconciled together. For example, Performance Period 1 (PP1) includes OCM-defined six-month treatment episodes that began between July 1, 2016, and January 1, 2017, the last of which ended by June 30, 2017.
Performance-based payment (PBP)	A practice participating in OCM may be eligible to receive a proportion of reductions in Medicare episode payments as compared with its historic benchmarks (less a discount retained by CMS). The PBP is calculated retrospectively for each PP, based on the practice's reductions in Medicare payments below a target price, adjusted for quality. The combination of these PBPs, along with monthly per-patient payments for enhanced oncology services (the MEOS payment), form the financial and quality incentives in OCM.
Post-acute care (PAC)	Includes rehabilitation or palliative services that beneficiaries receive after, or in some cases instead of, hospital care. Depending on the intensity of care the patient requires, PAC may be provided in a skilled nursing facility or in a patient's home by a home health agency.
Practice	Physician group or business entity that provides cancer care to patients, defined for OCM purposes by the unique TIN that the physicians use to submit claims for Medicare payment. Practices can be independently owned, health-system/hospital owned, or part of an academic medical center.
Propensity score matching	Propensity score matching is used to select a comparison group that is statistically similar to an intervention/treatment group. Propensity scores can be used to reduce or eliminate selection bias in observational studies by balancing observed covariates (the characteristics of participants' practices, markets and attributed episodes) between treatment and comparison groups. The goal is to approximate a random experiment, eliminating many of the problems that come with observational data analysis.
Radiation oncology	One of the three primary specialties in oncology, the other two being surgical and medical oncology, involved in the treatment of cancer. Radiation can be given as a curative modality, either alone or in combination with surgery and/or chemotherapy. It may also be palliative, to relieve symptoms (e.g., pain from bone metastases) in patients with incurable cancer.
Radiation therapy	The use of high-energy radiation from x-rays, gamma rays, neutrons, protons, and other sources to kill cancer cells or shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy) or from radioactive material placed in the body near cancer cells (internal radiation therapy or brachytherapy). Also called irradiation and radiotherapy.

Regimen	A treatment plan that specifies the drug, dosage, schedule, and duration of treatment. A treatment regimen for a specific patient may include chemotherapy drugs as well as supportive therapy drugs such as white cell growth factors or antiemetics.
Skilled nursing facility (SNF)	An inpatient nursing facility where medical professionals provide skilled nursing. Medicare Part A covers up to 100 days of care in an SNF each benefit period.
Supportive therapy	Medications that are used to ameliorate chemotherapy-related side effects that may occur during cancer treatments. Common types of supportive therapies include anti-nausea medications, blood cell growth factors, and bone-stabilizing medications.
Total Episode Payments (TEP)	The total gross Medicare Part A, B and D payment for all cancer and non-cancer care for a patient during a six-month OCM-defined episode. Part A and B payments are standardized to remove geographic differences in labor costs and to exclude payments to providers that support larger Medicare program goals such as disproportionate share payments. Part D payments are not standardized and are calculated as the sum of low-income cost-sharing and reinsurance. TEP does not include MEOS payments.
Toxicity	The extent to which treatment is poisonous or harmful, or causes side effects.
Two-sided risk	Participating OCM practices may voluntarily adopt two-sided risk, in which Medicare payments above the target are recouped by CMS. Accepting two-sided risk meets the Quality Payment Program's criteria for being an Advanced APM. Practices will be required to move to two-sided risk (or their participation will be terminated) if, as of the initial reconciliation of the fourth performance period (estimated fall 2019), they have not yet achieved a PBP for at least one of the first four performance periods. Practices that have achieved a PBP in one of the first four performance periods may choose to stay in the model under one-sided risk.
Value-based payment models	Payment models that reward health care providers with incentive payments for the quality of care they provide to patients. These models are part of CMS's larger quality strategy to reform how health care is delivered and paid for.