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CMS Bundled Payments for Care Improvement Advanced Model

Fifth Annual Evaluation Report

Prepared for: **Centers for Medicare & Medicaid Services**

Submitted by: **The Lewin Group, Inc., with our partners Abt Associates, GDIT, and Telligen**

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Executive Summary

A. Introduction

Medicare beneficiaries who are admitted to the hospital or have an outpatient procedure can experience fragmented or uncoordinated care after discharge. Handoffs between unaffiliated providers, a lack of established communication channels between providers, and various other factors make it challenging to optimize a patient's recovery. Many providers have a desire to invest in practice innovation and care redesign but may not have the information or support needed to do so. Value-based care initiatives within the Medicare fee-for-service (FFS) payment system can help motivate these changes by explicitly incentivizing coordination between inpatient and post-acute care (PAC) providers and providing data or other resources to facilitate care transformation.

The Center for Medicare and Medicaid Innovation within the Centers for Medicare & Medicaid Services (CMS) has designed and implemented voluntary and mandatory bundled payment models to improve care for Medicare FFS beneficiaries who are hospitalized or undergo an outpatient procedure and then transition to another care setting or are discharged directly home. In general, the bundled payment model makes a participant organization accountable for the quality and total cost of care for Medicare beneficiaries during an episode of care that includes hospitalizations and select hospital outpatient procedures as well as the following 90-day period, known as the post-discharge period. If the participant organization successfully reduces expenditures for its Medicare FFS patients below a "target price," it will receive a financial payment from CMS. However, if the participant cannot bring down costs under the target price, it has to submit a repayment to CMS. This financial accountability encourages physicians and hospitals to work with providers across care settings to improve care transitions for Medicare FFS beneficiaries, support successful recoveries, and reduce unnecessary PAC facility stays.

The Bundled Payments for Care Improvement Advanced (BPCI Advanced) Model is a CMS Innovation Center voluntary bundled payment model that tests whether linking payments for the multiple services beneficiaries receive during an episode of care leads to improved quality of care and lower costs for Medicare. BPCI Advanced builds on a predecessor model, the Bundled Payments for Care Improvement (BPCI) Initiative, which began in 2013 and concluded in 2018. Ultimately, the evaluation of the BPCI Initiative suggested that holding providers financially accountable for episodes of care may successfully reduce payments without compromising the quality of care. Lessons learned from BPCI were incorporated into the BPCI Advanced Model, which began in 2018 and is scheduled to conclude in 2025. BPCI Advanced is an Advanced Alternative Payment Model under the Quality Payment Program. Acute care hospitals and physician group practices (PGPs) can elect to join the model as "episode initiators," meaning they can trigger the episode of care.

The BPCI Advanced Model has two categories of participants: *convener participants* and *non-convener participants*. A non-convener participant is a hospital or PGP that bears financial risk only for its own performance. A convener participant (convener) is an organization that holds financial risk on behalf of hospitals, PGPs, or both and provides guidance or services to help its episode initiators succeed in the model. A convener participant is most commonly a health system or value-based care consultant organization. Hospitals and PGPs that participate in the model under a convener are referred to as *downstream episode initiators*.

Participants could join the model in Model Year 1 (beginning October 2018), Model Year 3 (beginning January 2020), or Model Year 7 (beginning January 2024). For the first 3 years of the model, participants were accountable for quality and spending performance based on their individual selections of one or more clinical conditions (referred to as *clinical episodes*), such as congestive heart failure or stroke. Beginning in Model Year 4, CMS grouped clinical episodes into eight broader *clinical episode service line groups* (CESLGs) and required participants to choose from among the eight CESLGs instead of selecting individual clinical episodes. Hospitals and PGPs were accountable for each clinical episode within the CESLGs they selected unless they did not meet the minimum hospital baseline volume criterion for a clinical episode.

The Innovation Center is funding an independent evaluation to determine whether the model is achieving its objective to decrease costs while maintaining or improving quality. The evaluation team produces annual evaluation reports summarizing model impacts and provider and beneficiary experience in the model. This report is the fifth annual report submitted by the evaluation team and focuses on Model Year 4 (Calendar Year 2021). In this evaluation report, we provide estimates of the impact of the model on total payments, utilization, and quality of care (readmission and mortality rates) as measured using Medicare claims data, as well as estimates of Medicare program savings in Model Year 4. The report also provides estimates of the differences in patient-reported functional status, care experiences, and satisfaction with overall care between BPCI Advanced and comparison respondents in Model Year 4 and Model Year 5 (Calendar Year 2022) as reported in a beneficiary survey. In addition, we examine the reach of the model, the characteristics of model participants, and the care redesign activities that hospitals and PGPs report implementing in response to the model that may be contributing to broader care transformation in terms of beneficiary and provider experience. Finally, we describe how BPCI Advanced relates to Medicare Accountable Care Organizations (ACOs) with regard to model overlap and provider experiences participating in both programs. The chapters describing the model's reach, impacts, and patient-reported outcomes include separate analyses for beneficiaries from underserved populations, including Black or African American beneficiaries, Hispanic beneficiaries, and beneficiaries who are dually eligible for Medicare and Medicaid. Throughout the report, episodes for hospitals and PGPs are examined separately because the two providers may have different responses to the model. Understanding these differences and how they relate to outcomes has important implications for the design of future value-based care models or episode-based payment models.

This report presents results for the first year after significant changes to the BPCI Advanced Model were implemented. In addition to requiring participants to select CESLGs instead of individual clinical episodes, CMS made notable changes to the BPCI Advanced pricing methodology, including adding a retrospective trend adjustment. Starting in Model Year 4, a retrospective trend adjustment is applied to final target prices to account for unanticipated, systematic factors occurring during the performance period that cannot be predicted using a prospective pricing methodology. The changes to clinical episode selection and the pricing methodology were made to strengthen the model, including its likelihood of achieving Medicare program savings. This report focuses on how participants responded to these Model Year 4 changes and whether the model achieved its desired savings target. It is important to note that the COVID-19 public health emergency (PHE) was in effect in Model Year 4. We include controls for COVID-19 in the regressions that estimate the results presented in this report, but the COVID-19 PHE had large, geographically varied effects on the health care system that may not be adequately captured, including impacts on quality measurement, PAC provider access, and telehealth.

B. Summary of Results

1. What Are the Characteristics of BPCI Advanced Providers and Organizations That Chose to Participate in the Model in Model Year 4?

- The number of unique participants declined 37.2% from Model Year 3 (2020) to Model Year 4 (2021), but the average number of clinical episodes in which a given episode initiator was actively participating nearly doubled for hospitals and more than doubled for physician group practices.
- The distribution of participants in terms of geographic, organizational, and patient characteristics remained stable from Model Year 3 to Model Year 4.

In Model Year 4 (2021), the BPCI Advanced Model had 438 unique participants, a 37.2% decrease from Model Year 3 (2020). The decline in model participation coincided with the significant changes to the model implemented by CMS in Model Year 4. An analysis of reconciliation payments showed that participants that exited the model had lower average reconciliation payments from CMS compared with participants that chose to remain in the model, indicating that the inability to earn reconciliation payments was associated with model attrition. According to participants, the most concerning model design changes in Model Year 4 were the shift to CESLGs and the retrospective trend adjustment, which made it harder to predict financial performance in the model but increased the accuracy of target prices. Hospitals and PGPs were concerned with having to take on clinical episodes that they would not have otherwise selected, some of which were urgent episodes whose outcomes were harder to control compared with planned episodes. Despite these significant model design changes, approximately two-thirds of model participants decided to continue to participate in BPCI Advanced in Model Year 4, and they took on accountability for an expanded patient population, effectively doubling the number of clinical episodes for which they were responsible. Participants elected to remain in the model, even if they were not financially successful, to obtain experience with bundled payments in anticipation of a future mandatory bundled payment model. Anticipation of a mandatory model may have mitigated a larger decline in participation after the Model Year 4 changes.

The distribution of participants in terms of geographic, organizational, and patient characteristics remained stable from Model Year 3 to Model Year 4. When participants selected CESLGs in Model Year 4, PGPs were more likely than hospitals to select surgical CESLGs, a similar trend to prior years, when hospitals and PGPs selected individual clinical episodes. Most episode initiators (about 69%) participated under a convener, similar to Model Year 3. Many episode initiators relied on conveners, consultants, and other organizations for support with participation decisions and care redesign efforts. Although the number of organizations participating in Model Year 4 declined, with the shift to CESLGs, the average number of clinical episodes in which a given episode initiator was actively participating nearly doubled for hospitals and more than doubled for PGPs. Therefore, hospitals and PGPs that stayed in the model were ultimately accountable for more clinical episodes than they were in previous model years.

2. What Is the Reach of BPCI Advanced in Model Year 4?

- In Model Year 4 (2021), about one in five eligible U.S. hospitals participated in BPCI Advanced, more than one in four eligible U.S. clinicians triggered a BPCI Advanced episode, and about one in five hospitalizations or outpatient procedures were under BPCI Advanced.
- The BPCI Advanced Model's reach to underserved populations was greater in medical episodes than surgical episodes, reflecting differences in representation among hospital discharges and outpatient procedures nationwide.

In Model Year 4, about one in five (21.7%) eligible hospitals participated in BPCI Advanced. This was a decrease from the first 3 years of the model, when about one in three (33.4%) hospitals participated in at least one clinical episode in BPCI Advanced. This drop reflects the overall decrease in participation in the model between Model Year 3 and Model Year 4. Similarly, the percentage of hospitalizations or outpatient procedures covered by the model decreased slightly from earlier model years, dropping from 23.3% in Model Years 1 and 2 to 18.9% in Model Year 4. The model reached about one in four eligible medical discharges and one in 10 eligible surgical discharges in Model Year 4, which reflects the higher participation in medical clinical episodes among participants compared with surgical clinical episodes. One in four (28.5%) clinicians with eligible discharges triggered a BPCI Advanced episode in Model Year 4, which was slightly higher than in earlier model years.

The reach of BPCI Advanced to underserved populations did not substantially change in Model Year 4 compared with prior model years. Similar to previous years, the representation of Black or African American beneficiaries, Hispanic beneficiaries, and dually eligible beneficiaries was greater across medical episodes than across surgical episodes. On a broader level, the representation of Black or African American beneficiaries and dually eligible beneficiaries decreased in the overall Medicare FFS population between Model Years 1 through 3 and Model Year 4. The share of Black or African American beneficiaries in the overall Medicare FFS populations declined from 9.3% in Model Years 1 through 3 to 8.6% in Model Year 4. The share of dually eligible beneficiaries in the overall Medicare FFS population declined from 17.6% to 16.4%. There was no change in the share of Hispanic beneficiaries.

3. How Do BPCI Advanced Participants Approach Care Transformation?

- Hospitals and physician group practices implemented care redesign activities that transformed care across four domains: culture, structure, process, and relationships.
- Participants reported that negative outcomes could be avoided more easily for planned procedures, compared with urgent episodes, which may help explain why participants could achieve more reductions in expenditures with surgical episodes than medical episodes.

To receive a reconciliation payment in BPCI Advanced, participants need to keep episode expenditures below the target price while maintaining or improving the quality of care. The BPCI Advanced Model does not prescribe ways to reduce expenditures or improve care; thus, participants have the flexibility to redesign care as they see fit. As mentioned in prior annual evaluation reports, BPCI Advanced participants have achieved savings by reducing discharges to

PAC facilities and discharging patients directly home when medically appropriate. Most participants focused their care redesign efforts on the PAC period because that is where they saw the biggest opportunity to reduce costs. There was qualitative evidence that BPCI Advanced care redesign resulted in care transformation, which can be defined as substantive changes to culture, structure, processes, and relationships. Care transformation occurs when care redesign activities implemented for one patient population become engrained culturally and operationally as best practices and are applied to all patients.

Interviews with conveners, hospitals, and PGPs suggest that the most significant ways in which the BPCI Advanced Model contributed to care transformation were by changing patient and provider expectations about discharge destination and fostering new relationships between providers in the inpatient, outpatient, and PAC settings. According to participants, the model has resulted in enhanced provider awareness of costs, utilization, and quality of care in the acute care and PAC settings. Process changes made in response to the model include regularly reviewing data, standardizing care pathways, screening for and addressing medical and social risk factors that could impede recovery, monitoring patients in the post-discharge period, and increasing attention to connecting patients to primary care providers. Although participants reported that BPCI Advanced was not the only driver for changes to patient care and coordination in recent years, they said that participation in the model was accelerating care transformation by giving providers actionable performance data and encouraging partnerships between providers in the acute and post-acute settings.

Participants reported that negative outcomes could be avoided more easily for planned procedures, such as joint replacements, compared with urgent medical and surgical episodes, such as sepsis, renal failure, or urinary tract infection, when patients can be more medically complex and cannot be stratified based on risk level or optimized prior to admission. These findings may help explain why participants achieved more reductions in expenditures with surgical episodes than medical episodes.

4. What Was the Impact of BPCI Advanced on Per-Episode Payments, Utilization, and Quality During Model Year 4 (January 1, 2021, Through December 31, 2021)?

- The BPCI Advanced Model reduced total episode payments relative to the comparison group by $930 per episode, or 3.5% of the baseline mean, in Model Year 4 (2021). Reductions in total episode payments were driven by changes in post-acute care use and spending.
- Overall, quality of care was varied in Model Year 4.

Similar to prior years, in Model Year 4, participants reduced total episode payments relative to the comparison group. For the clinical episodes evaluated, the BPCI Advanced Model reduced average standardized episode payments by $930 per episode, or 3.5% of the baseline mean, relative to the comparison group. As in past years, reductions in per-episode payments were twice as large for surgical episodes compared with medical episodes. The BPCI Advanced Model reduced average standardized payments by $680 per episode (or 2.7% of the baseline mean) for medical episodes and by $1,939 per episode (or 6.3% of the baseline mean) for surgical episodes. Both hospitals and PGPs reduced per-episode payments for medical and surgical episodes relative to comparison hospitals and PGPs. Hospitals reduced spending on medical episodes by $670 per episode, or 2.6%, while PGPs reduced per-episode payments for medical episodes by $747, or 3.0%. Hospitals

reduced spending on surgical episodes by $1,736 per episode, or 5.3%, while PGPs reduced per-episode payments by $2,112, or 7.6%. Below, we summarize results for net Medicare savings, which account for reconciliation payments made and received by CMS.

As in prior years, reductions in payments to PAC providers during the 90-day post-discharge period were a large driver of the declines in total episode payments, especially among surgical episodes. During Model Year 4, the BPCI Advanced Model reduced per-episode skilled nursing facility (SNF) payments by $481, or 9.9% of the baseline mean SNF payment. The BPCI Advanced Model reduced per-episode inpatient rehabilitation facility (IRF) payments by $258, or 25.4% of the baseline mean IRF payment, relative to the comparison group. The decrease in medical episode spending was driven by reductions in SNF payments, whereas the decrease in surgical episode spending was driven by reductions in IRF payments, similar to prior years. Both hospitals and PGPs reduced the share of episodes first discharged into an institutional PAC setting and the number of SNF days among beneficiaries with at least 1 day in a SNF.

We also report the impact of the model on two claims-based quality measures: hospital readmission rate and mortality rate. We did not detect an effect on the readmission rate during the 90-day post-discharge period for beneficiaries with surgical episodes in Model Year 4. For medical episodes, however, there was an increase in the readmission rate for BPCI Advanced beneficiaries relative to the comparison group in Model Year 4, although it was not statistically significant at the 10% level ($p = 0.13$). This finding was notably different from Model Year 3 results. In Model Year 3, the estimated impact of BPCI Advanced on the readmission rate was negative and statistically significant, suggesting the model reduced the readmission rate. The COVID-19 public health emergency may have affected quality measures in both Model Year 3 and Model Year 4. Model Year 4 mortality rate findings were similar to those in Model Year 3 in that we found no consistent evidence that BPCI Advanced affected the mortality rate.

The model did have statistically significant impacts on quality for certain subpopulations in Model Year 4, although some of these results differed from Model Year 3. Model Year 4 results indicated there was a statistically significant increase in the readmission rate for Hispanic beneficiaries (this finding was also observed in Model Year 3). For dually eligible beneficiaries with medical episodes, there was also a statistically significant increase in the readmission rate during Model Year 4, as well as a statistically significant decline in the mortality rate (these findings were not observed in Model Year 3). In the BPCI Advanced Model, participants may discharge more patients directly home when medically feasible, and increased readmission rates could indicate that some beneficiaries are having more difficulty recovering at home. Alternatively, the reduced inpatient mortality rate suggests that more beneficiaries survived during the anchor stay than if the model had not existed. If the surviving beneficiaries had higher patient acuity, they may have been more likely to be readmitted. If the risk adjustment did not adequately capture changes in patient acuity, it may appear as if BPCI Advanced was associated with a higher readmission rate.

5. Were There Differences in Patient-Reported Functional Status, Care Experiences, and Overall Satisfaction With Care Under BPCI Advanced in Model Years 4 and 5 (January 1, 2021, Through December 31, 2022)?

- We did not find a consistent relationship between BPCI Advanced and patients' functional status, care experiences, and satisfaction with care in Model Years 4 (2021) and 5 (2022).
- In subgroup analyses, findings were varied, with favorable and unfavorable results for beneficiaries with dual eligibility, Black or African American beneficiaries, and Hispanic beneficiaries.

For Model Years 4 and 5, we did not find consistent differences in patient-reported functional status, care experience, or satisfaction between BPCI Advanced survey respondents and the comparison group when examined in aggregate. In analyses conducted by type of episode initiator (hospital or PGP) and type of episode (medical or surgical), there were some favorable and some unfavorable results. In analyses focused on underserved populations, we found that dually eligible BPCI Advanced respondents with hospital-initiated episodes were less likely to report favorable changes in functional status relative to dually eligible comparison respondents. The cross-sectional design of the survey limits the interpretation of this finding as causal; however, it raises a concern that the model may have an unfavorable impact on functional recovery for beneficiaries with dual eligibility. Additional considerations limit interpretation of the findings, including the wide variety of clinical episodes that are measured with a single survey instrument and the substantial heterogeneity of patient acuity within clinical episodes, which is difficult to adequately account for with the data available.

6. Did BPCI Advanced Result in Savings to Medicare During Model Year 4 (January 1, 2021, Through December 31, 2021)?

- During Model Year 4 (2021), the BPCI Advanced Model resulted in an estimated net savings to the Medicare program for the first time since the model's inception.
- The net savings in Model Year 4 ($464.7 million) offset the combined losses in the first 3 model years ($179.5 million).

Net savings to Medicare were estimated by using the total reduction in payments, highlighted above, and accounting for reconciliation payments made and received by CMS. To improve the model's ability to achieve savings, CMS made significant changes to the design of the model in Model Year 4 that affected target prices and thus reconciliation payments. These changes resulted in BPCI Advanced achieving Medicare program savings for the first time since the model began in 2018. In Model Year 4, BPCI Advanced resulted in net savings of an estimated $464.7 million, which may have ranged from $376.6 million to $552.8 million based on a 90% confidence interval. Net savings to Medicare represented 3.4% of Medicare payments under the counterfactual (what Medicare payments would have been if the BPCI Advanced Model had not occurred). Medical episodes comprised the majority of episodes and, thus, accounted for most of the net savings due to the model. The model resulted in an estimated net savings of $306.0 million for medical episodes and $147.1 million for surgical episodes. Per-episode net savings were larger for surgical episodes than medical

episodes ($1,624 vs. $762 per-episode net savings). Both hospital- and PGP-initiated episodes had net savings.

BPCI Advanced net savings in Model Year 4 ($464.7 million in savings) were larger than the losses in Model Years 1 through 3 combined ($179.5 million in losses). The net savings in Model Year 4 imply that, with the retrospective adjustment of peer group trends, the BPCI Advanced Model can set target prices that financially incentivize hospitals and PGPs to invest in meaningful changes to care delivery to improve transitions of care. This is important because if target prices are set too high, participants can be financially successful in the model even without making changes and may not invest in new structures and processes. If target prices are set too low, and the model is voluntary, participants may leave the model or choose not to participate. We will continue to estimate Medicare savings to identify whether savings shift as participation changes over time.

7. What Is the Nature of the Overlap Between BPCI Advanced and CMS Accountable Care Organization Models?

- About one in five BPCI Advanced episode initiators participated in a Medicare Shared Savings Program Accountable Care Organization (ACO) in Model Year 4 (2021).
- About two in three beneficiaries who received care under the BPCI Advanced Model were not attributed to a Medicare ACO in Model Year 4.

Medicare Accountable Care Organization (ACO) initiatives are widely adopted Alternative Payment Models serving Medicare FFS beneficiaries. Both BPCI Advanced and Medicare ACO initiatives aim to reduce expenditures while maintaining or improving the quality of care and health outcomes for Medicare beneficiaries. Whereas the BPCI Advanced Model motivates participants to reduce expenditures and improve quality during a patient's hospital stay and the 90-day post-discharge period, Medicare ACO initiatives are population based and motivate participants to reduce the total cost of care for attributed beneficiaries over an annual timeframe. Thus, ACOs have a broader focus than BPCI Advanced in that ACOs aim to keep patients healthy over the course of a year. Hospital or PGP participation in both value-based care initiatives could create the potential for an additive effect on beneficiary outcomes from the increased focus on the full continuum of care for the patient across multiple care settings.

As the Innovation Center seeks to better integrate primary and specialty care, understanding the overlap between BPCI Advanced and Medicare ACO initiatives could inform the potential integration of bundles within Medicare ACO initiatives. About 18% of BPCI Advanced episode initiators participated in a Medicare Shared Savings Program ACO in Model Year 4.[1] In key informant interviews, some hospitals and PGPs reported advantages to being part of both BPCI Advanced and a Medicare ACO. However, others felt that the initiatives did not align and expressed frustration that BPCI Advanced excludes episodes for beneficiaries attributed to certain Medicare ACOs from reconciliation. When asked about a future landscape where these value-based care initiatives might be merged, most PGPs were open to bundles being incorporated within

[1] For the descriptive analysis of provider overlap between BPCI Advanced and ACO initiatives, this report presents findings for overlap with the Medicare Shared Savings Program and Next Generation ACO Model only, with a focus on the Shared Savings Program.

ACOs if specialists were engaged and financially rewarded for good outcomes and attribution issues were solved.

An analysis of BPCI Advanced episodes of care showed that two-thirds of beneficiaries who received care under the BPCI Advanced Model in 2021 were not attributed to any of the Medicare ACO initiatives evaluated,[2] suggesting an opportunity exists for BPCI Advanced to connect beneficiaries to ACOs. BPCI Advanced beneficiaries who were not attributed to one of the Medicare ACOs assessed were more likely to be dually eligible for Medicare and Medicaid, more likely to be Black or African American, and more likely to be Hispanic when compared with BPCI Advanced beneficiaries who were attributed to a Medicare ACO. A larger portion of BPCI Advanced beneficiaries not in an ACO lived in rural areas and had slightly higher medical complexity, as measured by rates of dementia, compared with BPCI Advanced beneficiaries with ACO attribution. These differences between beneficiaries with and without attribution to Medicare ACOs were observed across both medical and surgical episodes, but the differences were larger among medical episodes. Beneficiaries are attributed to ACOs through visits with primary care providers, whereas BPCI Advanced beneficiary episodes are triggered by an inpatient hospitalization or outpatient procedure. Our results indicate that BPCI Advanced may be reaching a higher percentage of beneficiaries who may be underserved and beneficiaries with greater medical needs compared with BPCI Advanced beneficiaries attributed to Medicare ACOs, which may reflect that beneficiaries from underserved populations may not have received services from primary care providers that are part of ACOs to the same extent as other Medicare beneficiaries.

C. Discussion

1. What Are the Model Year 4 Findings?

In Model Year 4, the BPCI Advanced Model resulted in Medicare program savings for the first time since the model began in 2018. Savings were achieved not only for surgical episodes but for medical episodes as well. These savings resulted from significant changes to the model in Model Year 4, including a shift from allowing participants to select individual clinical episodes to requiring them to choose broader CESLGs. There were also changes to the target price methodology, including a retrospective trend adjustment. CMS made these changes after the BPCI Advanced Model resulted in net losses to Medicare in Model Years 1 through 3, which raised concerns that target prices may have been set too high, particularly for medical episodes.

Although there was a 37.2% drop in unique participants from Model Year 3, the participants that voluntarily remained in the model assumed accountability for a broader set of clinical episodes. The average number of clinical episodes in which a given episode initiator was actively participating in Model Year 4 nearly doubled for hospitals and more than doubled for PGPs, resulting in broader participation in the model among the remaining participants. Some participants that elected to continue in the model beyond Model Year 4 despite owing reconciliation payments to CMS may have anticipated a mandatory bundled payment model and remained in the model to gain experience.

[2] The descriptive analysis of beneficiary overlap between BPCI Advanced and Medicare ACOs includes the following ACO programs and models: the Medicare Shared Savings Program, Comprehensive End-Stage Renal Disease Care Model, Next Generation ACO Model, Vermont All-Payer ACO Model, and Global and Professional Direct Contracting Model.

Similar to prior model years, participants lowered episode payments by reducing the share of discharges to PAC facilities and payments to these facilities. Not only were initial discharges to PAC facilities reduced, but the length of stay SNFs also decreased as participants worked with PAC partners to reduce unnecessarily long SNF stays. Hospitals and PGPs reported creating preferred SNF and home health agency networks and working closely with those providers on care protocols. Hospitals and PGPs also reported holding weekly or monthly calls to discuss patient outcomes and review performance data. These partnerships between inpatient providers and PAC facilities are one example of care transformation resulting from the model.

According to hospitals and PGPs, controlling costs is easier for planned episodes than for unplanned episodes. Many surgical procedures included in BPCI Advanced can be planned. In addition, participants reported that controlling costs for medical episodes can be difficult due to challenges managing patients' comorbidities. These factors may explain why participants could achieve greater reductions in episode spending for surgical versus medical episodes. Despite the challenges with medical episodes, participants were able to continue to reduce episode payments for medical episodes in Model Year 4. External factors that can influence the ability of hospitals and PGPs to achieve savings include the number of PAC facilities in the market, patient mix, and socioeconomic conditions in each community.

This report also evaluates the impact of the model on quality outcomes, including hospital readmission rates. In Model Year 4, BPCI Advanced did not have a statistically significant impact on the readmission rate for episodes pooled across all clinical episodes evaluated relative to the comparison group. This finding is not consistent with results from Model Year 3, when the readmission rate declined for medical and surgical episodes and the decrease was statistically significant in the overall sample.

BPCI Advanced did not have a statistically significant impact on the mortality rate for episodes relative to the comparison group when data were pooled across all clinical episodes in Model Year 4. Although the model had little to no impact on the mortality rate, we observed a pattern of reductions in mortality for PGP medical episodes, similar to Model Year 3 results.

The model did have statistically significant impacts on quality for some subpopulations in Model Year 4. For Hispanic beneficiaries with medical episodes, there was a statistically significant increase in the readmission rate. For dually eligible beneficiaries with medical episodes, there was an increase in the readmission rate and a decline in the mortality rate, both of which were statistically significant.

The beneficiary survey showed a varied relationship between the model and patient-reported outcomes for BPCI Advanced beneficiaries in Model Years 4 and 5. A notable unfavorable result was that dually eligible BPCI Advanced respondents with hospital-initiated episodes were less likely to report favorable changes in functional status relative to dually eligible comparison respondents. However, the cross-sectional survey has important limitations that limit the interpretation of this finding, and the wide variety of clinical episodes and substantial heterogeneity of patient acuity within clinical episodes means risk adjustment may not be adequate. Furthermore, if hospital participants successfully reduced inpatient mortality rates for dually eligible beneficiaries, more beneficiaries would have survived during the anchor stay than if the model had not existed, and these patients could have higher acuity. If the surviving beneficiaries had less

favorable changes in functional status, and if the risk adjustment did not adequately capture patient acuity, it may appear as if BPCI Advanced was associated with unfavorable changes in functional status. It will be important to continue to monitor these patient-reported outcomes and care experiences among subgroups in future model years and under future bundled payment models.

2. What Do These Findings Mean for CMS Objectives?

Looking ahead, CMS has a goal of having 100% of traditional Medicare FFS beneficiaries in accountable care relationships by 2030. Beneficiaries will experience accountable care relationships mostly through advanced primary care and ACO models. Capturing participant experiences in both BPCI Advanced and ACO models can help inform how bundles can be incorporated into ACOs in the coming years. During interviews with model participants that were also participating in Medicare ACOs, some hospitals and PGPs reported advantages to being in both initiatives, including having data covering beneficiary care across all care settings, which could facilitate improvements in patient care. Others expressed frustration with how BPCI Advanced excludes episodes for beneficiaries attributed to certain Medicare ACOs from reconciliation and felt that CMS needed to address these overlap policies. In the April 2024 proposed rule updating Medicare payments and policies for inpatient hospitals and long-term care hospitals, CMS proposes the mandatory Transforming Episode Accountability Model (TEAM), which builds on prior bundled payment models, including BPCI Advanced and the Comprehensive Care for Joint Replacement Model.[3,4] TEAM supports CMS goals of driving accountable care through 30-day episodes and integrating specialty and primary care by requiring hospitals to refer patients with an eligible surgery to primary care following their hospitalization or procedure. In addition, CMS indicated that beneficiaries who receive eligible care from a hospital selected to participate in TEAM may be in an episode regardless of ACO attribution.

To understand how the findings from this report relate to CMS priorities, the BPCI Advanced Model can be analyzed in terms of progress toward achieving the five strategic objectives outlined in the Innovation Center strategy refresh published in 2021. The five strategic objectives are (1) driving accountable care, (2) advancing health equity, (3) supporting innovation, (4) addressing affordability, and (5) partnering to achieve system transformation. Measuring progress toward achieving these goals will help the Innovation Center analyze the impact of BPCI Advanced on broader health system transformation.

a. Driving Accountable Care

The BPCI Advanced Model has connected millions of beneficiaries to value-based care. In Model Year 4, the model reached one in five eligible U.S. hospitals and one in four eligible clinicians across the country. Participants also reported increasingly connecting patients with primary care providers, which is another example of accountable care. In the coming year, the evaluation team

[3] Centers for Medicare & Medicaid Services. (2024). *CMS Proposes New Policies to Support Underserved Communities, Ease Drug Shortages, and Promote Patient Safety.* https://www.hhs.gov/about/news/2024/04/10/cms-proposes-new-policies-support-underserved-communities-ease-drug-shortages-promote-patient-safety.html

[4] Centers for Medicare & Medicaid Services. (2024). *Transforming Episode Accountability Model (TEAM).* https://www.cms.gov/priorities/innovation/innovation-models/team-model

plans to conduct analyses to see whether the Medicare claims data support findings from primary data collection indicating that BPCI Advanced participants are increasing referrals to primary care.

b. Advancing Health Equity

The evaluation's reach analyses show that the BPCI Advanced Model beneficiaries are generally representative of beneficiaries from underserved populations, including Black or African American beneficiaries, Hispanic beneficiaries, and dually eligible beneficiaries. The representation of underserved populations among BPCI Advanced medical episodes was higher than the representation of these populations in the overall FFS population, whereas the representation of underserved populations among BPCI Advanced surgical episodes was lower than in the overall FFS population. Because two out of three episodes in the model are medical, including medical stays as a trigger for beneficiary attribution in future value-based payment models may support CMS' goal to expand its reach to beneficiaries from underserved populations.

During interviews and site visits with model participants, hospitals and PGPs reported connecting patients with health-related social needs, such as food insecurity or lack of transportation, with social workers and community resources. Some hospitals and PGPs said the model provided the incentives and the funding (through reconciliation payments) to directly address beneficiary social needs. To the extent that hospitals and PGPs are increasing screenings for health-related social risk factors and connecting underserved patients with resources, BPCI Advanced helps further health equity.

An examination of model outcomes suggests the model may have had favorable and unfavorable impacts on underserved populations. For example, in Model Year 4, we found a statistically significant decline in the mortality rate among medical episodes for dually eligible beneficiaries relative to the comparison group. However, we observed larger increases in the readmission rate for dually eligible beneficiaries and Hispanic beneficiaries with medical episodes relative to comparison beneficiaries. The beneficiary survey also found that dually eligible BPCI Advanced respondents with hospital-initiated episodes were less likely to report favorable changes in functional status relative to dually eligible comparison group respondents. These findings indicate that the BPCI Advanced Model may have been more beneficial for dually eligible beneficiaries with medical episodes in terms of mortality rates. Results from other measures of quality, including readmission rates and functional status, indicate that the model was associated with unfavorable outcomes. However, these apparent unfavorable findings may be due to higher patient acuity among BPCI Advanced beneficiaries as participants reduced mortality rates, resulting in more beneficiaries surviving the inpatient hospitalization. If this higher patient acuity was not adequately controlled for in the risk adjustment, it may appear that BPCI Advanced was associated with unfavorable outcomes.

The results of our analysis of overlap between BPCI Advanced and ACO initiatives also have health equity implications. Our findings suggest that the BPCI Advanced Model reached beneficiaries from underserved populations who were beyond the reach of ACOs, potentially due to differences in underlying patterns of utilization of hospital and primary care services among subpopulations. We found that BPCI Advanced beneficiaries who were not attributed to one of the Medicare ACOs examined were more likely to be from an underserved population than BPCI Advanced beneficiaries who were attributed to a Medicare ACO. These differences in attribution

to different initiatives may be important to consider as CMS continues to prioritize health equity in its models.

c. Supporting Innovation

The model supports innovation by encouraging new investments in technology, including enhancements to electronic medical records, care management tools and platforms, and remote patient monitoring technology. Participants also reported making care more patient centered and increasing conversations with patients, families, and caregivers about care plans and end-of-life care when necessary. However, distilling care transformation activities that have resulted directly from the model is difficult when multiple models coexist. The evaluation team is planning interviews with non-participant providers to understand the care redesign initiatives that may be unique to BPCI Advanced participants. We will include the results in future evaluation reports.

d. Addressing Affordability

The model has successfully reduced total episode payments year over year as well as reduced discharges to PAC facilities and shortened stays. The model has also enhanced provider awareness of costs, utilization, and quality of care in acute and PAC settings.

e. Partnering to Achieve System Transformation

The BPCI Advanced Model has contributed to new partnerships between providers across care settings. The increased coordination between inpatient providers and PAC providers is a notable example of care transformation achieved under the model. Hospitals and PGPs collaborated with PAC providers on steps such as care protocols and discharge planning to limit length of stay and frequency of services. However, if patients are recovering more at home instead of PAC facilities, the burden on families and caregivers may increase. It is important to continue to assess beneficiary outcomes and to consider feedback from patients, caregivers, and families.

I. Introduction

The Bundled Payments for Care Improvement Advanced (BPCI Advanced) Model is a voluntary Advanced Alternative Payment Model (APM) designed to test whether linking Medicare payments for an episode of care can reduce Medicare expenditures while improving or maintaining quality of care. The Center for Medicare and Medicaid Innovation in the Centers for Medicare & Medicaid Services (CMS) launched BPCI Advanced in October 2018, and the model will continue through December 2025.[5]

In 2021, after the BPCI Advanced Model had begun, the CMS Innovation Center introduced a strategy refresh, with a vision to create an equitable health system that provides high-quality, affordable, person-centered care.[6] To drive this system transformation, CMS aims for all traditional Medicare fee-for-service (FFS) beneficiaries to be in accountable care relationships by 2030, whereby primary care physicians and Accountable Care Organizations (ACOs) are accountable for patients' quality and total cost of care. Health equity was not specifically incorporated into the BPCI Advanced Model design, but it is now embedded in all parts of the Innovation Center's new models, by engaging providers that have not previously participated in value-based care and by ensuring that model design features do not inadvertently exclude certain populations of beneficiaries, particularly in rural areas and underserved communities. The Innovation Center promotes person-centered care through data sharing, dissemination of best practices, and peer-based learning and evaluates progress using patient-reported outcomes. The Innovation Center addresses affordability by reducing the price of health care services, waiving cost sharing for high-value services, and providing incentives to reduce waste that drives up patient costs.

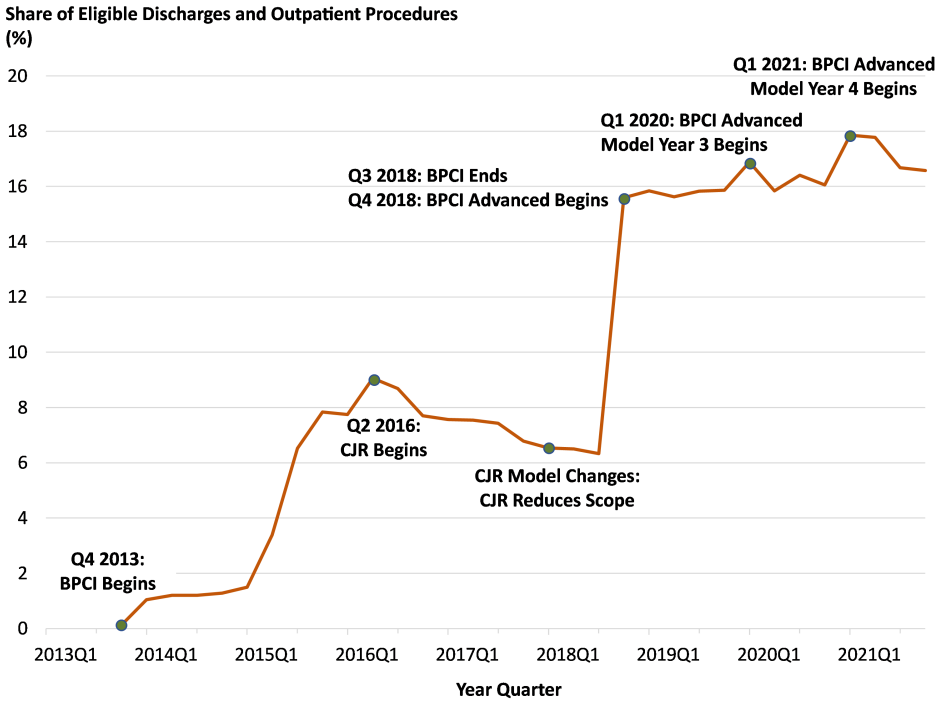
The Lewin Group, with partners Abt Associates, Inc., GDIT, and Telligen, was contracted by CMS to conduct an independent evaluation of the impact of the BPCI Advanced Model. In line with the Innovation Center's strategic vision, this fifth evaluation report assesses the impact of the model on beneficiary outcomes and health system transformation with a focus on performance in Model Year 4 (2021). We describe the BPCI Advanced participants and episode initiators and their participation decisions, including their choice of clinical episode service line groups (CESLGs). We evaluate the reach of the model to hospitals, clinicians, and beneficiaries. We present the impact of the model on payments, utilization, and quality of care for Medicare FFS beneficiaries in Model Year 4. We also present differences in patient-reported functional status and care experiences for Medicare FFS beneficiaries in Model Years 4 and 5. The reach, impact, and patient-reported outcome chapters include separate analyses for beneficiaries from underserved populations. In addition, we estimate the impact of BPCI Advanced on Medicare program savings in Model Year 4. For the first time, in this evaluation report, we provide a comprehensive evaluation of how the model transformed care for Medicare FFS beneficiaries, and we describe the overlap between BPCI Advanced and Medicare ACOs at the beneficiary and provider levels. Additional information supporting this report is available in the appendices, which include a glossary and clinical episode definitions (**Appendix A and B**), more detailed methods (**Appendix C**), and supplemental results, sample characteristics, and data collection instruments corresponding to the analyses conducted for the evaluation (**Appendix D through P**).

[5] See **Appendix A** for a glossary of terms and abbreviations used in this report.
[6] See https://innovation.cms.gov/strategic-direction for more information.

A. The BPCI Advanced Model

BPCI Advanced is a voluntary episode-based payment model designed to improve care for Medicare FFS beneficiaries. The design of BPCI Advanced draws on lessons learned from the Bundled Payments for Care Improvement (BPCI) Initiative Model 2.[7] BPCI Advanced is preceded by and runs concurrently with the Comprehensive Care for Joint Replacement (CJR) Model. Together, these three bundled payment models have accounted for a growing share of inpatient hospitalizations and outpatient procedures in the United States since 2013, as shown in Exhibit 1. Exhibit 2 presents the share of Medicare FFS major joint replacements of the lower extremity included under these three models over the same period.

Exhibit 1: Share of Medicare FFS Hospital Discharges and Outpatient Procedures Under BPCI, BPCI Advanced, and CJR Among Discharges and Outpatient Procedures That Meet Model Eligibility Criteria, 2013 to 2021

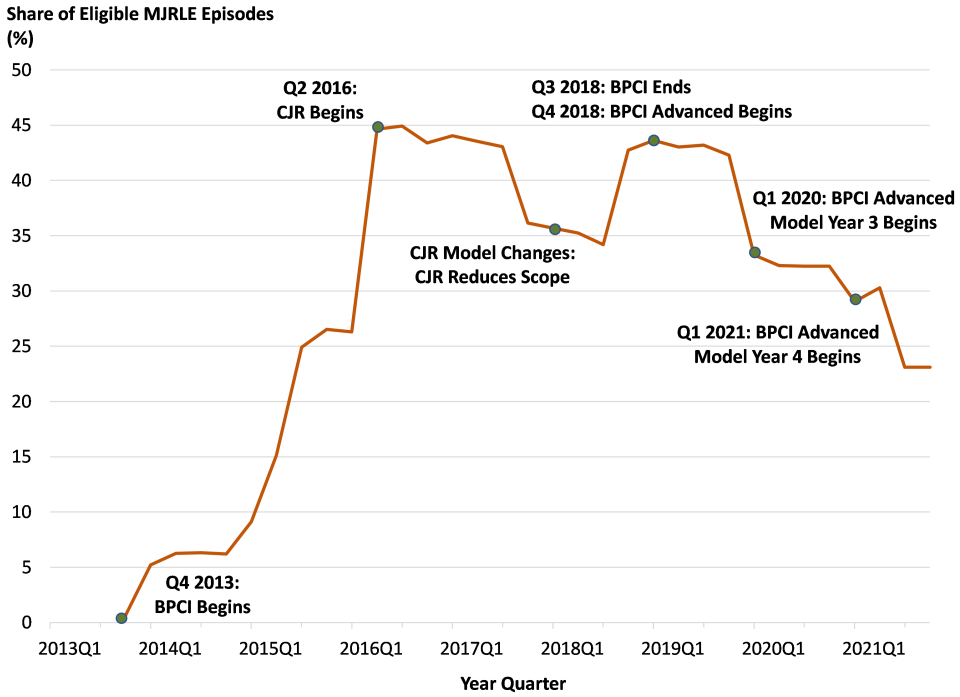


Note: This exhibit uses definitions of clinical episodes and beneficiary eligibility requirements from Model Year 4 of the BPCI Advanced Model. A hospital discharge is defined as a Medicare FFS inpatient stay that met model eligibility requirements, including having a BPCI Advanced MS-DRG and beneficiary inclusion criteria, such as having Medicare Part A and B coverage. An outpatient procedure is a Medicare FFS outpatient procedure that met model eligibility requirements, including being in a hospital outpatient setting and having a BPCI Advanced HCPCS code. The figure includes hospital discharges and outpatient procedures at a small number of hospitals that were not eligible to be in BPCI Advanced, such as critical access hospitals. The figure also includes outpatient total knee arthroplasty (TKA) and total hip arthroplasty (THA) across all time periods these procedures were covered by Medicare, regardless of whether the models specified their inclusion. Medicare allowed coverage of outpatient TKA beginning in January 2018 and outpatient THA beginning in January 2020. BPCI, BPCI Advanced, and CJR discharges and outpatient procedures are those that met all model eligibility requirements and occurred during the time periods the hospital or PGP was participating. CJR = Comprehensive Care for Joint Replacement; FFS = fee-for-service; HCPCS = Healthcare Common Procedure Coding System; MS-DRG = Medicare Severity-Diagnosis Related Group; PGP = physician group practice; Q = quarter.

***Source*:** The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for inpatient stays and outpatient procedures with anchor stay or procedure end dates from January 1, 2013, through December 31, 2021, for (1) hospitals and PGPs in Model 2 of the BPCI Initiative, (2) hospitals and PGPs in BPCI Advanced, and (3) hospitals in CJR.

[7] See the CMS BPCI website for additional information on the initiative and evaluation reports: https://innovation.cms.gov/innovation-models/bundled-payments.

Exhibit 2: Share of Medicare FFS Major Joint Replacement of the Lower Extremity (MJRLE) Hospital Discharges and Outpatient Procedures Under BPCI, BPCI Advanced, and CJR Among Major Joint Replacements of the Lower Extremity That Meet Model Eligibility Criteria, 2013 to 2021



Note: This exhibit uses definitions of major joint replacement of the lower extremity (MJRLE) episodes from Model Year 4 of the BPCI Advanced Model, including Medicare FFS inpatient stays or outpatient procedures that included a BPCI Advanced MJRLE MS-DRG or HCPCS code. The figure includes MJRLE hospital discharges and outpatient procedures at a small number of hospitals that were not eligible to be in BPCI Advanced, such as critical access hospitals. The figure includes outpatient total knee arthroplasty (TKA) and total hip arthroplasty (THA) across all time periods these procedures were covered by Medicare, regardless of whether the models specified their inclusion. Medicare allowed coverage of outpatient TKA beginning in January 2018 and outpatient THA beginning in January 2020. BPCI, BPCI Advanced, and CJR MJRLE discharges and outpatient procedures are those that met all model eligibility requirements and occurred during the time periods the hospital or PGP was participating. CJR = Comprehensive Care for Joint Replacement; FFS = fee-for-service; HCPCS = Healthcare Common Procedure Coding System; MS-DRG = Medicare Severity-Diagnosis Related Group; PGP = physician group practice; Q = quarter.

***Source*:** The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for inpatient stays and outpatient procedures with anchor stay or procedure end dates from January 1, 2013, through December 31, 2021, for (1) hospitals and PGPs in Model 2 of the BPCI Initiative, (2) hospitals and PGPs in BPCI Advanced, and (3) hospitals in CJR.

Several components define the BPCI Advanced Model (Exhibit 3). Participants enter into agreements with CMS to be held accountable for Medicare FFS Part A and B expenditures and quality of care for a beneficiary during an episode of care. The episode of care begins with a hospitalization or hospital outpatient procedure and lasts 90 days after discharge. Only certain medical and surgical hospitalizations and procedures can trigger BPCI Advanced episodes. In Model Years 1 through 3, participants selected from a list of individual clinical episodes for participation. Starting in Model Year 4, participants were required to select groupings of clinical episodes (clinical episode service line groups, or CESLGs). Total FFS payments for a participant's episodes are compared with a target price, and the difference between the payments and price determines whether the participant receives payments from CMS or makes payments to CMS. A participant may receive reconciliation payments

from CMS if the participant's total episode payments are below its target price or may owe reconciliation payments to CMS if total episode payments are above its target price.[8]

Exhibit 3: Key Components of BPCI Advanced

Defining Characteristics of the Model

- BPCI Advanced is a voluntary Advanced Alternative Payment Model.
- Participants are responsible for the total cost and quality of eligible episodes of care, beginning with an initial anchor stay or procedure and lasting for a 90-day period after discharge or completion of the procedure. If episode expenditures are above a target price set by CMS, participants must pay the excess back to CMS. If expenditures are below the target price, participants receive a reconciliation payment from CMS.
- Hospitals and physician group practices can initiate episodes as a participant or under a convener organization that holds the agreement for financial risk with CMS.
- The model includes inpatient stays and outpatient procedures for specific conditions grouped into eight clinical episode service line groups.

Target Prices and Reconciliation

- Preliminary target prices were made available to applicants for use in participation decisions (for example, clinical episode service line group selection).
- Target prices are based on historical payments, patient case mix, peer group historical payments, and a prospective peer group trend factor and are discounted by 3% in Model Year 4 (2021).
- Final target prices reflect a realized peer group trend.
- Reconciliation payments are adjusted for participants' performance on quality and stop-loss or stop-gain limits.

Entry and Withdrawal Rules

- Participants could join the model at the start of Model Year 1 (October 1, 2018), Model Year 3 (January 1, 2020), or Model Year 7 (January 1, 2024).
- Participants can terminate participation in the model with 90-day advance written notice.
- CMS may terminate participants that do not meet the requirements of the participation agreement.

Source: Centers for Medicare & Medicaid Services. (2020). *BPCI Advanced*. https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced; Centers for Medicare & Medicaid Services. (2021). *Model overview fact sheet – Model Year 3 (MY3)*. https://innovation.cms.gov/files/fact-sheet/bpciadvanced-my3-modeloverviewfs.pdf; Centers for Medicare & Medicaid Services. (2019). *Bundled Payments for Care Improvement Advanced amended and restated participation agreement*. Retrieved from the BPCI Advanced Participant Portal; Centers for Medicare & Medicaid Services. (2022). *Model extension and changes for Model Year 6 (2023) fact sheet*. https://innovation.cms.gov/media/document/bpcia-model-ext-and-changes-fs-my6.

1. Participants and Episode Initiators

Each BPCI Advanced participant, which may be a hospital, physician group practice (PGP), or other eligible entity, enters into an agreement with CMS to be held accountable for performance on quality measures and episode payments relative to their target prices for the episodes under their selected CESLGs. Participants are expected to coordinate care across the providers involved in an episode to reduce payments and improve the quality of patient care, for example, by communicating with providers in the patients' post-acute care setting (such as skilled nursing facility or home health providers), conducting follow-up phone calls with patients, and connecting patients with a primary care provider.

[8] See the CMS BPCI Advanced website for additional information on the reconciliation specifications: https://www.cms.gov/priorities/innovation/media/document/bpci-advanced-my4-recon-specs-v3.

BPCI Advanced participants elect to join the model. To help inform their decision to participate, interested organizations received historical data and preliminary target prices to review and assess their potential success in the model within specific clinical episodes.

Participants are either a *convener participant* (convener) or a *non-convener participant*. Conveners are generally health systems, value-based care consultants, ACOs, clinically integrated networks, PGP-led organizations, or health plans. A convener has at least one downstream *episode initiator*, which is a hospital or a PGP.[9] The episode initiator is the hospital or PGP that treats the patient and thus initiates an episode. A convener bears financial risk on behalf of its downstream episode initiators and provides services (such as data analysis, guidance on clinical episode selection, or case management services) to help episode initiators succeed in the model. A non-convener participant is a hospital or PGP episode initiator that bears financial risk only for itself. A convener may have multiple participation agreements with CMS for different downstream episode initiators.

2. BPCI Advanced Episodes

A BPCI Advanced episode begins with a hospitalization or hospital outpatient procedure at a participating hospital or when the attending or operating clinician for the hospitalization or hospital outpatient procedure is a member of a participating PGP. Inpatient episodes start when a Medicare beneficiary is admitted to a hospital (anchor stay), and the resulting Medicare Severity-Diagnosis Related Group (MS-DRG) is in one of the participating episode initiator's selected clinical episodes (in Model Years 1 through 3) or CESLGs (starting in Model Year 4). Outpatient episodes begin when a beneficiary has an outpatient procedure (anchor procedure) in a hospital outpatient setting that is identified by a Healthcare Common Procedure Coding System (HCPCS) code in the participating episode initiator's selected clinical episodes or CESLGs. The episode includes all FFS Medicare-covered items and professional services, with certain exclusions, furnished during the anchor stay (or the anchor procedure) from the day prior to admission (or procedure) through 89 days after discharge (or completion of the procedure).[10]

3. Target Prices and Reconciliation

CMS calculates a target price for each hospital and clinical episode combination. A hospital's target price reflects its historical Medicare FFS episode payments during the baseline period, adjusted for its patient mix and its payments relative to national historical payments, which are updated based on the spending trends of its hospital peers (referred to as the *trend adjustment* or the *peer group trend factor adjustment*). Target prices incorporate a discount, which is intended to save Medicare money.[11] A PGP episode initiator's target price is based on the target price of the hospital where the hospitalization or procedure occurred. Because a PGP may initiate episodes in different hospitals, it may have different target prices for the same clinical episodes, depending on where the episode was initiated.

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[9] In this report, we refer to episode initiators as *hospitals and PGPs* or *BPCI Advanced hospitals and PGPs* for accessibility. We use the term *episode initiator* when we need to distinguish between conveners and episode initiators or between conveners and non-conveners or downstream episode initiators.

[10] The lists of exclusions are available for download from the technical resources on the participant resources page of the BPCI Advanced website at https://innovation.cms.gov/innovation-models/bpci-advanced/participant-resources.

[11] Target prices for all episodes incorporate a 3% discount in Model Years 1 through 5. Beginning in Model Year 6, target prices for medical episodes incorporate a 2% discount, and surgical episodes continue with a 3% discount.

The target price calculation method was designed to support participation from a broad range of hospitals and PGPs by accounting for variation in episode payments and factors that contribute to payment differences that are beyond providers' control. The use of hospital-specific historical payments, adjusted for peer group levels, peer group trends, and patient mix, is to encourage participation from a variety of providers, including those with historically high and those with historically low episode payments.[12] The patient case-mix adjustment accounts for variations in payments due to differences in patient needs.

Under the model, providers and suppliers continue to receive Medicare FFS payments for providing Medicare-covered items and services. At the end of each 6-month performance period, CMS compares Medicare payments during the episode with the target price for each episode initiator for each of its clinical episodes. When the episode payments for a participant, aggregated across all its episode initiators and clinical episodes, are below its target amount, the participant receives a payment in the form of a Net Payment Reconciliation Amount (NPRA) from CMS. When the aggregated episode payments are above the target amount, the participant owes a repayment amount to CMS. The NPRA or repayment amount includes adjustments for the episode initiator's performance on quality and for the stop-loss or stop-gain limits of the BPCI Advanced Model.[13,14] In this report, we refer to the NPRA or repayment amounts collectively as *reconciliation payments*.

The BPCI Advanced Model qualifies as an Advanced APM under the Quality Payment Program, in part because participant performance on quality measures is factored into the determination of reconciliation payments through the Composite Quality Score.[15] In the first 3 model years, CMS assessed participants on seven claims-based quality measures in the Administrative Quality Measures Set. In Model Year 4, participants had the option to be assessed on quality measures from the Administrative Quality Measures Set or a new Alternate Quality Measures Set, which included 23 claims-based and registry-based measures.[16] Quality measure selection occurs at the clinical episode level, and episode initiators may select different quality measure sets for different clinical episodes.

4. Clinical Episodes and Clinical Episode Service Line Groups

BPCI Advanced participants elect to participate in specific clinical episodes or CESLGs, which are groups of related clinical conditions or procedures and are defined by MS-DRGs and HCPCS codes. There are 34 clinical episodes, such as sepsis, congestive heart failure, and major joint replacement of the lower extremity. There are eight CESLGs, or groupings of clinical episodes: *cardiac care*, *cardiac procedures*, *gastrointestinal surgery*, *gastrointestinal care*, *neurological care*, *medical and critical care*, *spinal procedures*, and *orthopedics*. During the first 3 model years

[12] Centers for Medicare & Medicaid Services. (2018, June). *Pricing methodology for clinicians and administrators*. https://innovation.cms.gov/Files/slides/bpciadvanced-wc-pricingmethodology-clinadmin.pdf

[13] The reconciliation amount has a 20% stop loss/gain applied at the episode initiator level.

[14] The Composite Quality Score adjustment amount cannot change the reconciliation payment by more than 10%.

[15] The Advanced APM designation of the BPCI Advanced Model can help incentivize model participation as participants can qualify as a "Qualifying APM Participant" (QP) if they meet certain Medicare patient and payment thresholds. QPs are exempt from Merit-based Incentive Payment System (MIPS) reporting requirements under the Quality Payment Program and are eligible for incentive payments (prior to 2024) or a higher physician fee schedule update (2024 and beyond). For additional information, see https://qpp.cms.gov/apms/overview.

[16] More information about BPCI Advanced quality measures is available at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced/quality-measures.

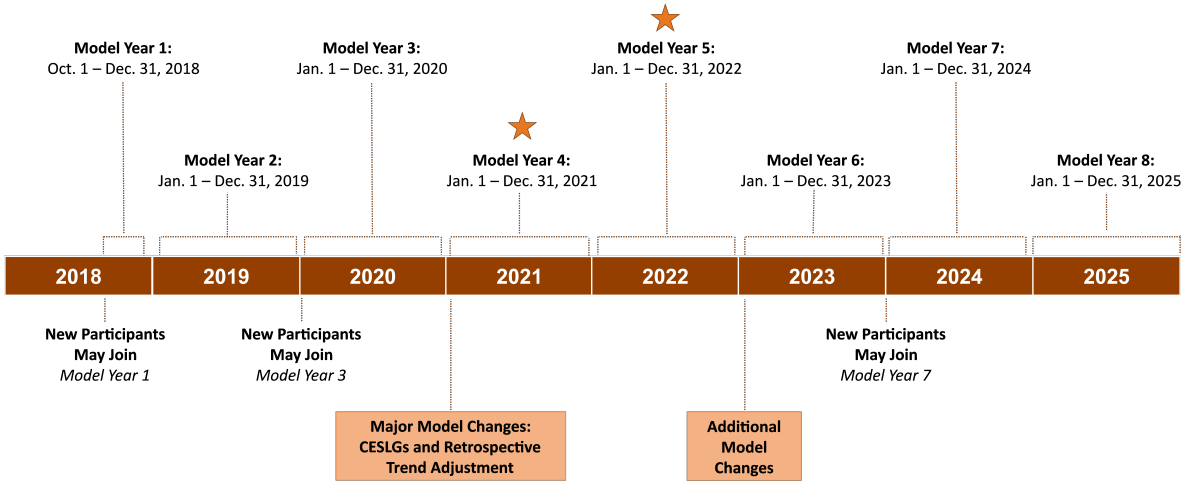
(October 2018 through 2020), participants could select one or more clinical episodes. Beginning in Model Year 4 (2021), participants were required to select one or more CESLGs, instead of individual clinical episodes, and participate in all clinical episodes under the selected CESLGs. See **Appendix B** for a list of the BPCI Advanced clinical episodes, CESLGs, and associated MS-DRGs and HCPCS codes.

5. Model Timeline

The BPCI Advanced Model began October 1, 2018 (Model Year 1) and extends for more than 7 calendar years, ending December 31, 2025 (Model Year 8) (Exhibit 4). Participants and episode initiators had three opportunities to join the model: at the start of Model Year 1 (October 2018), Model Year 3 (January 2020), and Model Year 7 (January 2024).

In response to the COVID-19 public health emergency (PHE), CMS allowed BPCI Advanced participants the option to forgo reconciliation for all episodes in Model Year 3 (2020), while still continuing participation, or to exclude episodes with a COVID-19 diagnosis from reconciliation in Model Year 3. Participants could also continue to be subject to the usual reconciliation process of the BPCI Advanced Model. In Model Year 4, CMS excluded all episodes with a COVID-19 diagnosis from reconciliation, regardless of the amendment chosen in 2020. In Model Year 5 (2022), CMS allowed flexibility once again in response to stakeholder feedback. CMS provided the opportunity for participants to sign an amendment by September 15, 2022, that allowed them to be held financially responsible for all of their Model Year 5 episodes, including those in which the beneficiary was diagnosed with COVID-19 at any time during the episode. Participants could choose not to sign this amendment, thereby excluding their COVID-19 episodes from Model Year 5 reconciliation. Starting in Model Year 6 (2023), participants are accountable for all clinical episodes in which the beneficiary has a COVID-19 diagnosis.

Exhibit 4: BPCI Advanced Timeline Through Model Year 8



Note: The analyses in this evaluation report primarily cover Model Years 4 and 5, denoted with a star in the exhibit. The exhibit highlights major model changes made in Model Year 4, and additional changes to the pricing methodology occurred in Model Year 6 (2023). For example, CMS reduced the discount rate for medical episodes and began holding participants accountable for all clinical episodes in which the beneficiary has a COVID-19 diagnosis. CESLG = clinical episode service line group.

Source: Centers for Medicare & Medicaid Services. (2018). *BPCI Advanced Model timeline.* https://innovation.cms.gov/Files/x/bpci-advanced-timeline.pdf; Centers for Medicare & Medicaid Services. (2022). *Model overview fact sheet – Model Year 6 (2023).* https://www.cms.gov/priorities/innovation/media/document/bpcia-model-overview-fact-sheet-my6

6. Model Changes

Over the course of the BPCI Advanced Model, CMS modified some rules of the model to encourage participation and increase accuracy in target pricing. Of the changes made in Model Year 4 (Exhibit 5), three major modifications influenced our evaluation: (1) CMS required participants to select CESLGs rather than individual clinical episodes, (2) target prices were adjusted during reconciliation using a retrospective trend, and (3) CMS changed the rules around overlapping episodes.

Prior to Model Year 4, participants could choose to be held accountable for selected individual clinical episodes. Shifting to CESLGs in Model Year 4 was intended to encourage participants to broaden care redesign efforts to a wider range of conditions and to limit their ability to participate only in clinical episodes that were most financially advantageous to them.

In previous model years, participants received preliminary and final target prices that were calculated using prospective trend adjustments. In Model Year 4, participants received preliminary target prices calculated using prospective trends and final target prices that were adjusted during reconciliation using retrospective trends. Retrospective trend adjustments (capped at 10%) account for peer group trends that are driven by unanticipated, systematic factors (such as such as payment system reforms) occurring during the performance period that cannot be predicted using a prospective pricing methodology. CMS also removed the PGP offset; an adjustment applied to PGP target prices.

CMS also modified the rules that defined how overlapping episodes were treated in the reconciliation process to create consistency in how episodes were defined in the baseline and performance periods and to improve target price accuracy. Model Year 4 episodes could not overlap with each other in the target price baseline period or in the performance period. Thus, a subsequent episode that would have been triggered during a beneficiary's ongoing episode (within 90 days of discharge from a prior BPCI Advanced eligible inpatient stay or procedure) would be excluded, regardless of whether either episode occurred at a BPCI Advanced participating hospital or PGP. This rule applied both to episodes in the target price baseline period (which were used to calculate target prices) and to those in the performance period (which were used to calculate Medicare episode payments).[17]

[17] In Model Years 1 through 3, baseline period episodes could overlap, regardless of when episodes were triggered or whether they occurred at BPCI Advanced hospitals and PGPs. In addition, performance period episodes could not overlap, and the reconciliation process retained triggering episodes at BPCI Advanced hospitals and PGPs, such that a prior episode at a non-BPCI Advanced hospital was excluded. Starting in Model Year 4, there are a few cases where the initial admission or procedure may not trigger an episode in favor of a subsequent admission or procedure. See the *Clinical Episode Construction Specifications Model Year 4*, available for download at https://www.cms.gov/priorities/innovation/media/document/bpciadvanced-my4-clinical-episode-construction-specs-v2.

Exhibit 5: Notable Changes to the Design of BPCI Advanced From Model Years 1 Through 3 to Model Year 4 That Influenced the Evaluation

Model Design Feature	Model Years 1 Through 3	Model Year 4
Clinical Episode Selection	Participants selected one or more clinical episodes in which to participate.	Participants selected one or more CESLGs in which to participate. Each CESLG contains multiple clinical episodes, and participants are required to participate in each of the clinical episodes included in the CESLG.
Changes to the Target Price Methodology	Preliminary and final target prices are determined using a prospective trend adjustment. CMS included the PGP offset, an adjustment that was applied to PGP target prices based on their historical efficiency.	Preliminary target prices are determined in advance using a prospective trend adjustment, and final target prices are adjusted retrospectively to account for the actual change in payments that occurred. CMS discontinued the PGP offset, meaning that PGPs received the same target price as the hospitals where their episodes were initiated (after adjusting for the PGP's patient mix).
Overlap Rules for Episodes Used in Reconciliation*	Episodes may not overlap in the 90-day episode window. When episodes for a beneficiary overlap in the 90-day window, one episode is retained for reconciliation. When the overlapping episodes are for a BPCI Advanced participating provider, the first becomes the episode retained for reconciliation. When the overlapping episodes are for both a BPCI Advanced participating provider and a non-participating provider, the episode from the BPCI Advanced participant becomes the episode retained for reconciliation, regardless of which occurred first.	Episodes may not overlap within the 90-day episode window. When episodes for a given beneficiary overlap within the 90-day episode window, the first becomes the episode retained for reconciliation, regardless of whether it was for a BPCI Advanced participating provider. Episodes for BPCI Advanced participating providers are included in their reconciliation. Episodes for non-participants are excluded.

***Note*: *** The rules also changed for baseline period episodes. In Model Years 1 through 3, baseline period episodes could overlap regardless of when episodes were triggered or whether they occurred at BPCI Advanced hospitals and PGPs. In Model Year 4, baseline period episodes could not overlap, and they followed the same rules as the performance period. † There are exceptions to this rule for some clinical episodes. When two major joint replacement of the lower extremity episodes overlap, the second episode is retained for reconciliation. When a percutaneous coronary intervention episode overlaps with a subsequent transcatheter aortic valve replacement episode, or the episodes begin on the same day, the transcatheter aortic valve replacement episode is retained for reconciliation. More information is available in the *Clinical Episode Construction Specifications Model Year* 4: https://www.cms.gov/priorities/innovation/media/document/bpciadvanced-my4-clinical-episode-construction-specs-v2.
CESLG = clinical episode service line group; PGP = physician group practice.

Source: Centers for Medicare & Medicaid Services. (n.d.). *BPCI Advanced Model Year 4 fact sheet.* https://www.cms.gov/priorities/innovation/media/document/bcpi-model-overview-fact-sheet-my4; Centers for Medicare & Medicaid Services (2020). *BPCI Advanced clinical episodes to quality measures correlation table – MY4.* https://www.cms.gov/priorities/innovation/media/document/bpci-advanced-clinical-episodes-quality-measures-correlation-table-my4.

CMS made other changes to the definition of certain clinical episodes. Two clinical episodes became multi-setting clinical episodes, including both inpatient and outpatient procedures. The major joint replacement of the lower extremity clinical episode was expanded to be a multi-setting clinical episode in Model Year 3 (2020). Also in Model Year 3, CMS added total knee arthroplasty procedures performed in the hospital outpatient department, and in Model Year 5 (2022), CMS added total hip arthroplasty procedures performed in the hospital outpatient department. The major joint replacement of the upper extremity clinical episode was expanded to be a multi-setting

clinical episode in Model Year 6 by including hospital outpatient total shoulder arthroplasty (TSA) procedures. Over time, CMS has made additional changes to the definition of other clinical episodes, which reflect changes to the Medicare payment system.

B. Evaluation

The fifth evaluation report provides an evaluation of the BPCI Advanced Model with a focus on Model Year 4 (2021). Some participation and survey data also cover Model Year 5 (2022). Seven major research questions provide the framework for this report and are answered in the chapters that follow. We describe the BPCI Advanced Model participants; the model's reach; the model's impact on care transformation; the model's impact on payments, utilization, and quality of care, as well as patient-reported functional status and care experiences; savings to the Medicare program under the model; and the overlap between BPCI Advanced and Medicare ACO models.

1. Research Questions

The seven major research questions that shape this report are listed below.

Research Questions

- What are the characteristics of BPCI Advanced providers and organizations that chose to participate in the model?
- What is the reach of BPCI Advanced?
- What is the impact of BPCI Advanced on care transformation?
- What is the impact of BPCI Advanced on episode payments, utilization, and quality of care in Model Year 4?
- Were there differences in patient-reported functional status, care experiences, and overall satisfaction with care between BPCI Advanced and comparison group respondents under BPCI Advanced in Model Years 4 and 5?
- Did BPCI Advanced result in savings to Medicare during Model Year 4?
- What is the nature of the overlap between BPCI Advanced and Medicare ACO models?

2. Methods

This evaluation relied on multiple primary and secondary data sources. Site visits and key informant interviews (KIIs) with participants provided context for quantitative findings and insights into how episode initiators and conveners approached BPCI Advanced participation, including their approach to care transformation. We also collected information about specific topics of interest within site visits and KIIs, including the impact of changes to the target price methodology and the shift to CESLGs introduced in Model Year 4, participants' care redesign strategies for beneficiaries from underserved populations, and relationships with Medicare ACOs and primary care. In addition, we interviewed 11 beneficiaries treated by BPCI Advanced participants in Model Year 5 to learn about their care experience firsthand. We also conducted a beneficiary survey to explore differences in functional outcomes and patient care experiences

between Medicare FFS beneficiaries cared for by BPCI Advanced providers and similar beneficiaries whose providers did not participate in BPCI Advanced. We used secondary data sources to construct samples, conduct descriptive analyses, and estimate outcomes. Secondary data sources included the CMS BPCI Advanced Database and Provider of Services (POS) files, Medicare FFS claims and enrollment data, the Shared Savings Program Provider-Level Research Identifiable Files (RIF), and the CMS Master Data Management (MDM).

To estimate the impact of the model on beneficiary outcomes, we constructed episodes for 90 days of care for all eligible discharges and eligible procedures across all clinical episodes for all eligible hospitals nationwide. We used claims data to create outcome measures and beneficiary risk factors associated with the outcomes. We estimated the impact of BPCI Advanced on risk-adjusted episode payments, utilization of services, and claims-based quality of care, measured by readmission and mortality rates in Model Year 4 using a difference-in-differences (DiD) approach. We calculated changes in the patient-reported measures from the beneficiary survey as the risk-adjusted differences between BPCI Advanced and comparison respondents during Model Years 4 and 5. We also conducted these analyses for BPCI Advanced Medicare FFS beneficiaries from underserved populations with a sufficient sample size for evaluation, including Black or African American beneficiaries, Hispanic beneficiaries, and beneficiaries with dual eligibility for Medicare and Medicaid.[18]

We evaluated net savings to Medicare due to BPCI Advanced in Model Year 4 as the change in payments to providers minus net reconciliation payments. We estimated savings for clinical episodes with enough volume based on the estimated impact of BPCI Advanced on Medicare FFS episode payments, adjusted by reconciliation payments made to or received from model participants. We calculated net Medicare savings (or losses) for all episodes pooled across the clinical episodes evaluated, for medical and surgical episodes evaluated, for medical and surgical episodes evaluated by episode initiator type, and for each clinical episode for which we calculated impact estimates.

Across all evaluation measures, we examined hospitals and PGPs separately. Hospitals and PGPs have different financial incentives, staffing, and levers under their control to be successful in the model. Thus, hospitals and PGPs may differ in their response to the model and have divergent outcomes. We also examined outcomes separately for medical and surgical episodes. The patient population and corresponding care redesign strategies differ for medical episodes, which are generally unplanned, versus surgical episodes, which may include planned procedures for otherwise healthy patients.

Any evaluation comes with limitations. We collected beneficiary surveys only during the intervention period; therefore, we cannot determine whether differences existed during the baseline period or whether they were due to the model. To estimate the impact of the model on outcomes, we used a DiD design, which is dependent on a comparison group that represents what would have happened to episodes treated by BPCI Advanced hospitals and PGPs if the model had never existed. Various limitations result from the use of our comparison group. For example, we

[18] We identified beneficiaries' race and ethnicity using the Research Triangle Institute (RTI) race code. The RTI race code data are obtained from the Master Beneficiary Summary File (MBSF). Additional information can be found at https://resdac.org/cms-data/variables/research-triangle-institute-rti-race-code.

excluded some participating hospitals from the evaluation because they did not have adequate matches in the comparison group, and we excluded some participating PGPs because they did not have episodes in the baseline. We assessed the impact of BPCI Advanced for a subset of clinical episodes due to limited sample size or difficulty identifying a suitable matched comparison sample. In addition, the analyses presented in this report cover Model Year 4 (2021), a year that was heavily affected by the COVID-19 PHE, which had widespread effects on the entire health system that may not be adequately captured in the data. To analyze the impact of the model on beneficiaries from underserved populations, we used the same matched comparison groups that were constructed to be balanced across the full sample of beneficiaries, and we cannot guarantee that the subgroups were also balanced. See **Appendix C** for more information on our primary and secondary data sources and other methodological details.

Our methodological approaches also have several strengths. The beneficiary survey was designed to be representative of the broader BPCI Advanced population of episodes. We used non-response and sample weights to ensure representativeness, and we over-sampled beneficiaries from subpopulations of interest. Estimates of the impact of the model were robust to a series of sensitivity analyses, indicating they are reliable despite the limitations of a DiD design. Although we could not evaluate all episodes in the model, the clinical episodes included in the analyses represented about 98% of all BPCI Advanced Model Year 4 episodes. Finally, we included both hospital- and PGP-initiated episodes in our analyses of the impact of the model on outcomes and on Medicare program savings, which is unique to these evaluation reports.

II. BPCI Advanced Participants

Understanding the types of participants in the BPCI Advanced Model can help contextualize results and inform the generalizability of findings. The types and characteristics of participants in Model Year 4 (2021) are particularly relevant to interpreting the impact of model design changes in 2021, including the requirement that episode initiators select clinical episode service line groups (CESLGs), rather than individual clinical episodes, and changes to the target price methodology. Results from previous evaluation reports covering Model Years 1 through 3 indicated growing participation in the model among both convener and non-convener participants and relatively equal participation among hospital and physician group practice (PGP) episode initiators. In the first 3 years of the model, most hospitals and PGPs joined the model as downstream episode initiators participating under a convener. Prior evaluation reports found that hospitals were more likely to select medical episodes, whereas PGPs were more likely to choose surgical episodes. Additionally, hospitals that chose to participate in BPCI Advanced had higher historical spending than those that did not participate, and hospital episode initiators were more likely than non-participant hospitals to be large non-profits, be part of health systems, and have previous experience in Accountable Care Organization (ACO) initiatives, such as the Medicare Shared Savings Program, Next Generation, or Pioneer ACO Models, or the BPCI Initiative.

This chapter provides an overview of BPCI Advanced participants in Model Year 4 and summarizes differences in the number and characteristics of participants compared with prior years. The chapter includes an analysis of the relationship between participants' reconciliation payments (Net Payment Reconciliation Amounts or repayment amounts) and decisions to exit or remain in the model. We also summarize how hospital and PGP episode initiators adjusted to the significant design changes in Model Year 4, as well as the ongoing COVID-19 public health emergency (PHE), and the role of conveners, consultants, and other organizations in supporting participation decisions and care redesign efforts. Although many participants reported uncertainty with how the Model Year 4 changes would affect their performance, some elected to remain in the model despite this uncertainty. This chapter explores those participation decisions and evaluates the balance CMS has sought to strike between ensuring that the BPCI Advanced Model achieves savings while incentivizing adequate participation in the model.

For the participant analysis, we used a mixed-methods approach, incorporating both the quantitative and qualitative data sources described below. More information on these data sources can be found in **Appendix C**.

- ***CMS BPCI Advanced Database*** – Information compiled by CMS on BPCI Advanced participants and their clinical episodes.
- ***CMS Provider of Services Files*** – Characteristics of hospitals and other types of health care facilities, including the name and address of the facility and the type of Medicare services the facility provides.
- ***CMS Claims and Enrollment Data*** – Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after April 1, 2013, and ending on or before December 31, 2017 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2020, and ending on or before December 31, 2020 (intervention period) for BPCI Advanced Model Year 3 episode initiators. Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or

after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced Model Year 4 episode initiators.

- ***CMS BPCI Advanced Reconciliation Result Files*** – reconciliation payments and final target prices from the model implementation contractor.
- ***Site Visits*** – Data from 23 virtual site visits with BPCI Advanced Model participants in 2021 and 2022.
- ***Key Informant Interviews*** – Data from 29 half-hour telephone interviews with BPCI Advanced Model participants in 2021 focused on participant responses to the Model Year 4 changes.
- ***Electronic Survey*** – An electronic survey fielded in Model Year 5 (2022) to BPCI Advanced participants to understand continued participation in the model.

A. Key Findings

BPCI Advanced Participants

- In Model Year 4, 682 hospitals and 523 physician group practices (PGPs) participated in BPCI Advanced as episode initiators.
- Unique participants declined 37.2% from Model Year 3 (2020) to Model Year 4 (2021), but the average number of clinical episodes in which a given episode initiator was actively participating nearly doubled for hospitals and more than doubled for PGPs.
- Participants reported staying in the model in Model Year 4 to continue to gain experience with bundled payments in anticipation of a future mandatory model.
- About 68.9% of hospitals and PGPs were downstream episode initiators participating under a convener. The remaining 31.1% were non-convener participants and had direct accountability for their performance through participation agreements with CMS.
- The distribution of participants in terms of geographic, organizational, and patient characteristics remained stable from Model Year 3 to Model Year 4.

B. BPCI Advanced Participant Characteristics

The BPCI Advanced Model has two types of participants: convener participants and non-convener participants. A *convener participant* holds financial risk on behalf of at least one hospital or PGP. A *non-convener participant* is a hospital or PGP that bears financial risk only for itself. A hospital or PGP that participates in the model under a convener is referred to as a *downstream episode initiator.* An episode initiator may participate as a convener participant, but this is relatively rare; most episode initiators typically participate under a convener.

Conveners are varied types of organizations, including health systems, value-based care consultants, ACOs, clinically integrated networks (CINs), and health plans. A convener can have one or more downstream episode initiators. Conveners bear the financial risk and typically support their downstream episode initiators by providing guidance on participation decisions related to clinical episodes, data analytics, and post-discharge patient navigation staff or case management services. Some conveners also help downstream episode initiators identify high-performing post-acute care (PAC) providers and establish preferred provider networks.

Convener: An organization that bears financial risk on behalf of at least one downstream episode initiator.

Example convener types: ACOs, CINs, health systems, health plans, and value-based care consultants.

Episode Initiator: A hospital or PGP that triggers BPCI Advanced episodes and provides Medicare Severity-Diagnosis Related Groups (MS-DRG)/Healthcare Common Procedure Coding System (HCPCS) services. May participate in BPCI Advanced under a convener *(downstream episode initiator)* or bear its own financial risk *(non-convener participant).*

Unique Participant: A unique entity that entered into one or more participation agreements with CMS.

Non-convener participants, which are hospitals or PGPs bearing their own financial risk, often hired consultants to support their participation in the model. These consultants provided services similar to conveners, such as strategic guidance on participation and clinical episode selection as well as data analytic support. During site visits, some episode initiators reported that their relationship with consultants was not specific to BPCI Advanced and that these consultants provided similar support for a broader set of Medicare programs and contracts with private payers.

1. Participation Changes in Model Year 4

Convener and non-convener participants hold participation agreements with CMS. Conveners can have multiple participation agreements. For example, a convener might create separate agreements for each downstream episode initiator. In Model Year 4, there were 986 participation agreements, only 431 of which were for unique participants. This was a decrease from Model Year 3, when there were 1,707 participation agreements, reflecting 686 unique participants.

There were no new participants in Model Year 4 because Model Year 3 was the last opportunity to join the model prior to Model Year 7. Participants can exit the model at any time, as long as they provide 90 days of advance notice to CMS. Many Model Year 3 participants exited the model between Model Year 3 and prior to the start of Model Year 4. In Model Year 3, 1,010 hospital episode initiators and 1,031 PGP episode initiators participated in the model (Exhibit 6). By the end of Model Year 3, 328 hospitals and 508 PGPs had exited the model, resulting in 682 hospitals and 523 PGPs participating in BPCI Advanced at the start of Model Year 4. These exits may have been due to the significant changes to the model design in Model Year 4, including the shift to CESLGs and changes to the target price methodology. Conveners and episode initiators also reported that the COVID-19 PHE resulted in provider burnout and workforce shortages, which likely contributed to exits from the model.

Exhibit 6: Number of BPCI Advanced Hospital and PGP Episode Initiators at the Start of Model Years 3 and 4

Model Year	Unique Participants	Hospital Episode Initiators		PGP Episode Initiators	
		Downstream Episode Initiators	Non-Convener Participants	Downstream Episode Initiators	Non-Convener Participants
3 (2020)*	686	823	187	612	419
4 (2021)	431	580	102	250	273
Percent Change	37.2%	29.5%	45.5%	59.2%	34.8%

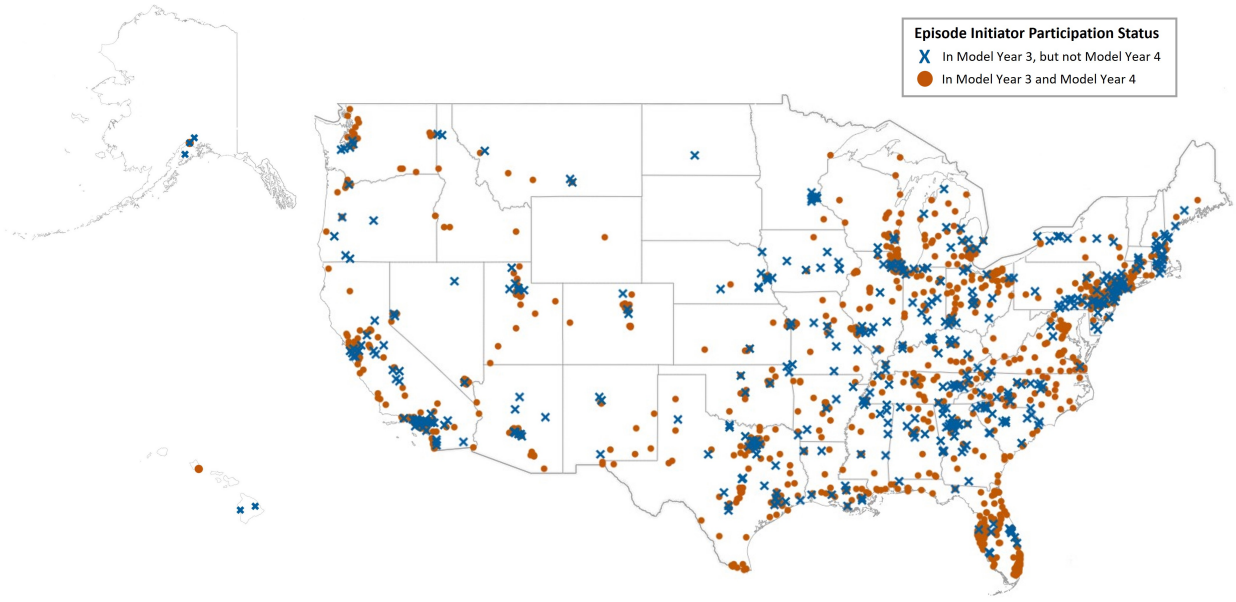
Note: Unique participants refer to the unique entities that entered into participation agreements with CMS. Downstream episode initiators were identified as participating under a convener in the CMS BPCI Advanced Database. Asterisk (*) indicates an entry point for participation. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of enrollment data for BPCI Advanced episode initiators from December 1, 2020, to December 31, 2021 (Model Years 3 and 4). CMS BPCI Advanced Database, as of January 20, 2023.

2. Geographic Spread of BPCI Advanced Episode Initiators in Model Year 4

Episode initiators in Model Year 4 were spread across 47 of 50 states (Exhibit 7). Hospitals were primarily located in urban areas (90.4%) that had an average population size of about 4 million people and were largely concentrated in the South (42.4%). There was little difference in rurality, average population size, or census region between the hospitals in Model Year 3 and those that continued into Model Year 4. Hospital and population characteristics also remained stable over the 2 model years. PGPs primarily had discharges in three or more hospitals (40.6%), although these discharges were mostly located within a single state (91.6%). Full results of hospital and PGP characteristics can be found in **Appendix D**.

Exhibit 7: Map of Episode Initiators in Model Year 3 and Model Year 4



Note: Episode initiators are designated by an orange dot if they participated in both Model Years 3 (2020) and 4 (2021) and a blue X if they did not continue into Model Year 4.

Source: The BPCI Advanced evaluation team's analysis of the CMS BPCI Advanced Database as of January 20, 2023, and the 2021 Provider of Services (POS) file.

3. Convener Characteristics in Model Year 4

Of the 1,205 episode initiators in Model Year 4, 68.9% participated as downstream episode initiators under a convener, a similar percentage to Model Year 3. Although the total number of unique entities participating as conveners decreased by 29.0% from Model Year 3 to Model Year 4, the distribution of convener types remained relatively stable (Exhibit 8). About 31.1% of episode initiators participated as non-convener participants in Model Year 4.

Top Value-Based Care Consultants in Model Year 4

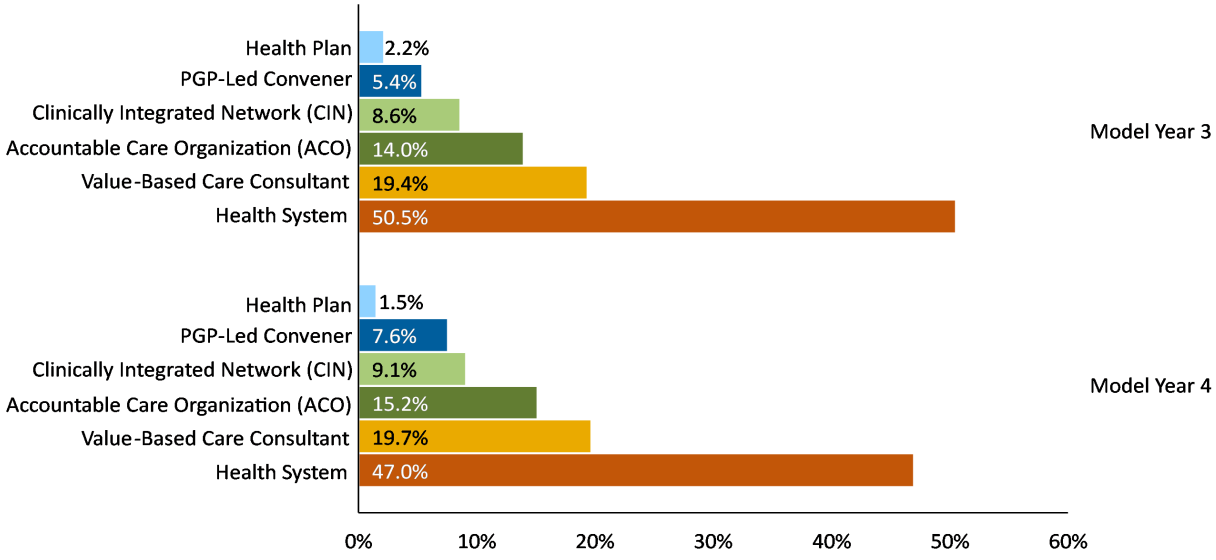
Six value-based care consultants accounted for about **53%** of the downstream episode initiators in Model Year 4.

Convener (% of Downstream Episode Initiators)

1. Remedy BPCI Partners, LLC (28.8%)
2. Advanced Bundle Convener, LLC (8.4%)
3. naviHealth, Inc. (5.9%)
4. The Center for Orthopedic and Research Excellence, Inc. (4.0%)
5. Ascension Care Management, LLC (3.5%)
6. Lifepoint Corporate Services, General Partnership (3.5%)

Most conveners were health systems, but value-based care consultants tended to have the most downstream episode initiators. In Model Year 3, seven of the 10 conveners with the most downstream episode initiators were value-based care consultant organizations, with the single largest convener representing 25.9% of all downstream episode initiators. This trend continued into Model Year 4, where six of the 10 largest conveners were value-based care consultants, and the episode initiators under the largest convener comprised 28.8% of all downstream episode initiators.

Exhibit 8: BPCI Advanced Conveners by Convener Type in Model Years 3 and 4



Note: See **Appendix D** for more detailed results. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced participants' self-reported type in the CMS BPCI Advanced Database, January 20, 2023, supplemented with publicly available information, generally from participants' websites.

The total number of downstream episode initiators under each convener type is displayed in Exhibit 9. The exhibit also depicts the range of episode initiators per convener for each convener type. Value-based care consultants, health systems, and health plans had the most downstream

episode initiators, with some individual conveners managing hundreds of downstream episode initiators. CINs and ACOs had fewer total downstream episode initiators and a smaller range of downstream episode initiators per convener.

Exhibit 9: Count and Range of Downstream Episode Initiators by Convener Type in Model Years 3 and 4

Convener Type	Model Year 3 Downstream Episode Initiators per Convener			Model Year 4 Downstream Episode Initiators per Convener		
	Total	Average	Range	Total	Average	Range
Value-Based Care Consultant	856	48	1–373	493	38	1–240
Health System	320	7	1–50	168	5	1–31
PGP-Led Convener	80	16	2–65	37	7	1–29
Accountable Care Organization	79	6	1–21	56	6	1–20
Health Plan	74	37	2–72	61	61	–
Clinically Integrated Network	30	4	1–8	18	3	1–8

Note: The total and average number of downstream episode initiators under each convener type and the range of downstream episode initiators per convener are shown above. In Model Year 4 (2021), only one convener was designated as a health plan participating in the BPCI Advanced Model, reflecting a range of one value. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of the CMS BPCI Advanced Database, January 20, 2023.

Convener-Like Organizations

Entities that are not formal participants in the BPCI Advanced Model but provide services to episode initiators that are similar to the services provided by conveners, including data analysis and care navigation services.

Example types of convener-like organizations: Health systems or value-based care organizations not registered as a convener.

In Model Year 4, 372 episode initiators participated in BPCI Advanced as non-convener participants (that is, they bear their own financial risk). Based on an analysis of participant data, we estimate that at least 79.8% of these hospitals and PGPs participated under convener-like organizations, including health systems. According to participants, these organizations assisted episode initiators with patient monitoring and care navigation services and provided data analytics, among other services. Although these organizations are not officially participating in the model as conveners, they provide similar services as conveners in helping episode initiators implement and operationalize their BPCI Advanced activities. Many provide and fund care navigation activities, eliminating the need for episode initiators to hire or repurpose staff to monitor patients in the post-discharge period.

As reported in prior evaluation reports, some PGPs (defined by Taxpayer Identification Numbers [TINs]) participating in Model Year 4 did not exist prior to BPCI Advanced. Further, many of these PGPs did not have any episode volume in Model Year 4 or any other model year and are thus considered "non-active PGPs." During site visits and interviews, the evaluation team learned that convener-like organizations sometimes establish new PGPs in order to review target price information for hospitals in a certain market. These organizations can then recruit physicians they expect to be financially successful in the model to join these PGPs. This strategic participation in the model underscores the flexibility that PGPs have to apply for and receive a new TIN at any time. Because clinicians can submit Medicare claims through any TIN to which they have reassigned their Medicare billing rights, clinicians associated with multiple TINs may submit

Medicare claims to a TIN that was in BPCI Advanced or one that was not, which would determine whether that beneficiary would be in a BPCI Advanced episode. As a result, the clinician composition of the PGPs participating in BPCI Advanced can be quite fluid, and the ability to bill to multiple TINs could be leveraged to achieve financial success in the model.

Non-Active PGP Episode Initiators

PGPs that have a participation agreement under the BPCI Advanced Model but do not have any episode volume.

C. Transition to Clinical Episode Service Line Groups

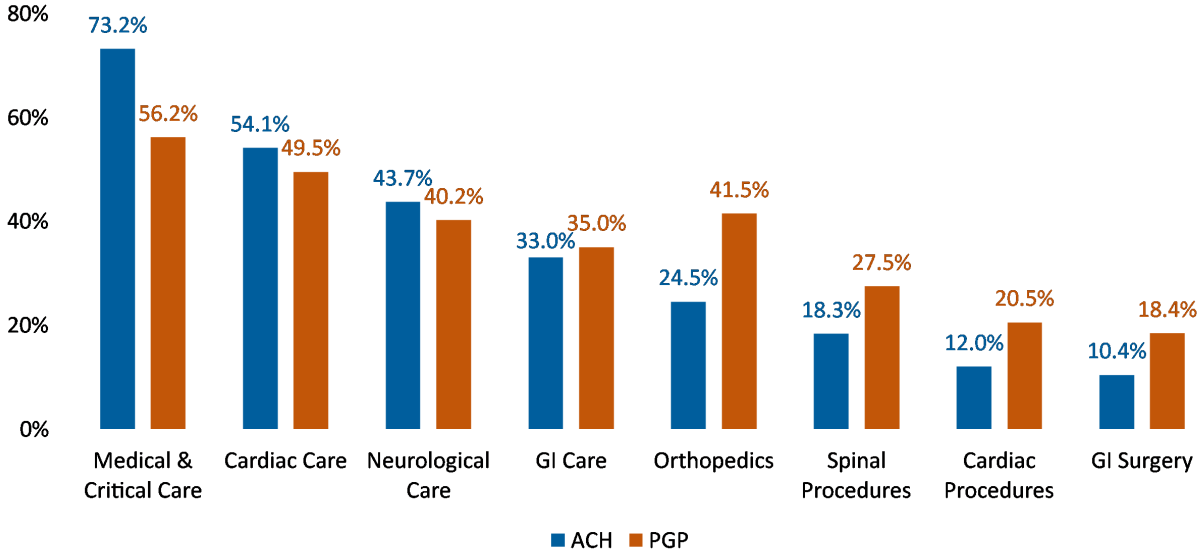
In Model Year 4, CMS required hospital and PGP episode initiators to select from one or more of eight CESLGs, or groupings of the 34 individual clinical episodes that episode initiators could select in prior model years. Hospitals and PGPs were accountable for each clinical episode within the CESLGs they chose. This was a major change in terms of the nature of participation in the model because hospitals and PGPs were now accountable for a wide variety of clinical conditions or procedures, some of which were not closely related and required engagement and care redesign efforts with additional staff and specialty physicians. The only exception is that hospitals are excluded from participating in a clinical episode if they do not meet the minimum volume threshold of 41 episodes during the baseline period. PGPs receive target prices based on a hospital's benchmark price, so PGPs will only receive preliminary target prices for hospitals with at least 41 clinical episodes in a clinical episode category during the baseline period.

1. Differences in Hospital and PGP Participation in CESLGs

In Model Year 3, the five most common clinical episodes selected by hospital episode initiators were sepsis; chronic obstructive pulmonary disease (COPD), bronchitis, asthma; cardiac arrythmia; simple pneumonia and respiratory infections (SPRI); and acute myocardial infarction (AMI). All of these clinical episodes are considered *medical* episodes. Among PGPs, the five most popular clinical episodes selected were major joint replacement of the lower extremity (MJRLE), sepsis, AMI, cardiac arrythmia, and SPRI. All of these episodes except MJRLE are considered medical episodes.

When the model shifted to CESLGs in Model Year 4, the two most popular CESLGs for both hospital and PGP episode initiators were *medical and critical care* and *cardiac care* (Exhibit 10). About 73.2% of hospital episode initiators and 56.2% of PGPs participated in *medical and critical care*, while 54.1% of hospitals and 49.5% of PGPs participated in *cardiac care*. The next most popular CESLGs for hospitals were *neurological care* (43.7%) and *gastrointestinal care* (33.0%). For PGPs, the next most popular CESLGS were *orthopedics* (41.5%) and *neurological care* (40.2%). In general, PGPs were more likely than hospitals to participate in surgical CESLGs, including *orthopedics* (41.5% vs. 24.5%), *spinal procedures* (27.5% vs. 18.3%), *cardiac procedures* (20.5% vs. 12.0%), and *gastrointestinal surgery* (18.4% vs. 10.4%).

Exhibit 10: CESLG Selection by Episode Initiator Type in Model Year 4



Note: Percentage of episode initiators selecting CESLGs out of the total number of hospitals (N=682) and the total number of active PGPs (N=386 of 523) in Model Year 4 (2021). PGP CESLG selection is shown for PGPs that have billed at least one episode to Medicare under the BPCI Advanced Model during any model year. See **Appendix D** for more detailed results. ACH = acute care hospital; CESLG = clinical episode service line group; GI = gastrointestinal; PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of the CMS BPCI Advanced Database, January 20, 2023.

2. Approach to CESLG Selection

During site visits and interviews, hospital and PGP episode initiators reported that they approached CESLG selection like they approached individual clinical episode selection in previous years—by reviewing data provided by CMS to identify the CESLGs in which they were likely to earn reconciliation payments. Hospital episode initiators also considered their relationship with associated specialty groups, such as orthopedic or cardiac surgeons, to understand opportunities for collaboration and cost savings. Episode initiators often relied on conveners and consultants to help them assess data and determine which CESLGs would be most profitable.

> *"Stroke's an easy bundle because it is a priority internally. For something that is rare for us, like seizures, it's something we now have to try to catch up on and make sure everyone's on board . . . we don't want to drop stroke, so ready or not here we come."*
>
> *– PGP Episode Initiator*

Some episode initiators decided not to participate in certain CESLGs due to concerns about performance in one of the clinical episodes within that CESLG. For example, a few episode initiators reported that although they had achieved savings in sepsis in the past, they did not elect to participate in the *medical and critical care* CESLG because they were uncertain about their ability to be successful in the other clinical episodes within that CESLG, such as urinary tract infections and renal failure. Other episode initiators chose to broaden their participation and take on more clinical episodes despite concerns about a single clinical episode within that CESLG. For example, one episode initiator that was participating in stroke continued participating in the *neurological care* CESLG because it had a high volume of stroke patients but raised concerns about being responsible for seizures due to the lower expected volume and the increased risk of an outlier driving up costs. Although some participants saw the expanded set of

clinical episodes within the CESLGs as an opportunity to spread care redesign activities to a broader set of patients, most participants were wary of the additional risk they were taking on with new required clinical episodes.

3. Changes in the Number and Type of Clinical Episodes Selected by Hospitals and PGPs

With the transition to CESLGs, the number of clinical episodes for which each episode initiator was responsible rose from Model Year 3 to Model Year 4 (Exhibit 11). The average number of clinical episodes nearly doubled for hospitals, and it more than doubled for PGPs. Among hospital episode initiators, the average number of clinical episodes increased from 4.8 to 9.2. Among active PGP episode initiators, the average number of clinical episodes increased from 4.7 to 12.4.[19] Hospitals and PGPs both had larger increases in their accountability for medical clinical episodes than for surgical clinical episodes. The average number of medical clinical episodes increased by 3.7 for hospitals (from 3.7 to 7.4) and by 4.5 for PGPs (from 2.6 to 7.1). The average number of surgical clinical episodes increased by 0.7 for hospitals (from 1.2 to 1.9) and by 3.2 for PGPs (from 2.1 to 5.3).

Exhibit 11: Average Number of Clinical Episodes per Episode Initiator, Model Years 3 and 4

Participant Type	Average Number of Clinical Episodes		Average Number of Medical Clinical Episodes		Average Number of Surgical Clinical Episodes	
	Model Year 3	Model Year 4	Model Year 3	Model Year 4	Model Year 3	Model Year 4
Hospital	4.8	9.2	3.7	7.4	1.2	1.9
PGP*	7.6	17.9	3.6	9.1	3.9	8.9
Active PGP	4.7	12.4	2.6	7.1	2.1	5.3

Note: All PGPs are reflected in the PGP* measure, including PGPs that have not billed any BPCI Advanced eligible hospital discharges or outpatient procedures to Medicare. Active PGP category includes all PGPs that have billed at least one BPCI Advanced eligible hospital discharge or outpatient procedure to Medicare between 2013 and 2021. In Model Year 4, 386 out of 523 PGPs were Active PGPs. See **Appendix D** for more detailed results. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of the CMS BPCI Advanced Database, January 20, 2023.

D. Concern About Changes to Target Price Methodology

Major changes to the BPCI Advanced Model in Model Year 4 also included the addition of a retrospective trend adjustment to target prices and removal of the PGP offset. During site visits and interviews conducted in 2021, participants expressed uncertainty about how changes to the target price methodology would affect their performance in the model. Episode initiators reported that they had not made any changes to their approach to participation because of the changes to the target price methodology. However, conveners did report that some episode initiators decided to exit the model ahead of 2021 in response to changes in the target price methodology.

Among the many changes CMS introduced to the target price methodology, the one that raised the most concern for participants was the shift from prospectively setting target prices to making a retrospective target price adjustment. Starting in Model Year 4, CMS gives participants a preliminary target price at the beginning of the model year and then later provides them with a

[19] Active PGPs refers to those that billed any BPCI Advanced eligible hospital discharges or outpatient procedures to Medicare between 2013 and 2021.

final target price that has been adjusted for case mix and retrospective trends. Episode initiators described that they could monitor their performance against the prospective target price in "real time" during the first 3 years of the model, but this tracking was not possible after the shift to a retrospective adjustment because the target price changed at the end of the performance period. However, about half of the episode initiators interviewed in Model Year 4 reported that they had experience with similar retrospective adjustments through other CMS models, such as the BPCI Initiative or Medicare ACOs, which made them more comfortable with this change.

> *"The retrospective trend . . . basically pushed everybody underwater overnight . . . In one year, from 2020 to 2021, [for the] same hospital, same physicians caring for mainly the same patients, our savings rate fell from 6% to negative 11%."*
>
> *– PGP Episode Initiator*

In Model Year 5 (2022), after episode initiators received reconciliation payments from Model Year 4 based on changes to the target price methodology, some noted that the changes to the target price methodology had markedly affected their financial performance. Although many of these participants recognized why CMS needed to make these changes, they reported the changes made it difficult for them to be financially successful in the model. For example, executive leadership from one PGP described that it decreased its participation in the model over time as it earned less and less in reconciliation payments and that by 2022, participating had become prohibitively expensive.

Another Model Year 4 change was the removal of the PGP offset, which adjusted PGP target prices based on the hospitals in which care occurred to better align target prices with actual costs. Some non-convener PGPs and conveners that worked primarily with PGPs were aware of the removal of the PGP offset and were concerned that the removal would make it difficult for them to continue to be financially successful in the model because the change could result in lower target prices. However, most PGP episode initiators were not aware of this change, nor were they concerned about its impact.

E. How COVID-19 Affected Participation in BPCI Advanced

Conveners and episode initiators reported that the COVID-19 PHE resulted in changes to health care utilization, workforce shortages, and use of telehealth and telemonitoring that affected their approach to care redesign and their financial performance in BPCI Advanced. Through interviews and site visits in 2021 and 2022, episode initiators reported an overall decrease in patient volume during the COVID-19 PHE due to patients delaying or avoiding care and temporary restrictions on elective procedures. This decrease in volume was particularly notable for episode initiators participating in the *orthopedics* CESLG. At times during the PHE, they could not perform elective procedures due to high COVID-19 caseloads. Some PGPs and conveners that work with PGPs reported a notable shift to providing surgeries in the outpatient setting and in

> *"These [lower extremity joint replacement] surgeries are moving rapidly to outpatient surgery. These are 1- to 2-hour procedures, patients become ambulatory quickly thereafter . . . it accelerated with COVID. The surgeons are getting better at more minimally invasive surgery, patients who are more ready to go home, technology is better. In addition to patients not wanting to stay in the hospital due to COVID, hospitals kept surgeons from doing elective surgeries . . . the change to outpatient occurred more quickly than anyone anticipated."*
>
> *– PGP Episode Initiator*

ambulatory surgical centers during this time, which significantly affected BPCI Advanced patient volume and financial performance. This shift coincided with the removal of hip replacements and shoulder reconstruction surgeries from the Medicare inpatient-only list in 2020 and 2021, respectively. The outmigration of lower-complexity patients to an outpatient setting jeopardized participants' ability to be successful in the model because the only patients triggering episodes within BPCI Advanced would be the most acute and, therefore, the costliest. At the same time, the COVID-19 PHE increased the pressure to shift these procedures to the outpatient setting because patients were reluctant to stay in the hospital for elective procedures. These participants did not anticipate that the volume of elective procedures being performed as inpatient procedures would ever return to pre-PHE levels.

Some participants noted that patients who did come to the hospital for urgent issues were higher acuity during the COVID-19 PHE, as patients were waiting longer to seek out medical care. They also noted that this higher acuity had the potential to negatively affect patient outcomes and episode initiators' financial performance in the model. One episode initiator explained that patients who waited longer to seek medical attention after heart failure or a stroke may have missed a critical window for intervention, ultimately making their recovery longer and more intensive.

> *"From our standpoint, we noticed that patients didn't want as much home health or PT [physical therapy] at home or even outpatient PT . . . they were more motivated to do it at home with themselves or with family members."*
>
> *– PGP Episode Initiator*

Conveners and episode initiators also reported that beneficiaries were reluctant to go to a skilled nursing facility (SNF) during the PHE. Some beneficiaries were hesitant to have home health agency (HHA) staff in their homes or attend outpatient physical therapy appointments. For beneficiaries who did go to a SNF, length of stay was much longer than it would have been prior to the PHE for various reasons. For example, quarantine requirements for beneficiaries created challenges for the provision of rehabilitation services, resulting in longer SNF stays. Other episode initiators flagged increased utilization of inpatient rehabilitation facilities due to the difficulty with finding SNF beds for patients because SNFs often had to stop admitting patients during COVID-19 outbreaks.

Participants also identified several workforce issues related to the PHE that affected the implementation of BPCI Advanced-related care redesign activities. Many episode initiators described clinical and administrative staff being redeployed at various points during Model Year 3 and Model Year 4 to care for COVID-19 patients or support community-level COVID-19 response, such as standing up testing or vaccination programs. These redeployments affected both administrative and clinical staff, as administrative staff were also used to support COVID-19 monitoring or logistics support for the response efforts. These types of staff redeployments made it difficult to prioritize BPCI Advanced or engage administrative and clinical leadership in time-sensitive decisions related to BPCI Advanced participation or CESLG selection during the PHE.

Episode initiators also reported nursing shortages as a significant challenge to their operations and activities related to their BPCI Advanced participation. Early in the PHE, many episode initiators reported high levels of burnout among nursing staff, leading to nursing shortages. As the PHE progressed, some episode initiators reported vaccine hesitancy among nursing staff as contributing to or exacerbating nursing shortages. Many participants engaged travelling nurses to cover

shortages, which created additional challenges due to the high costs of these providers, the temporary nature of travel nurses' assignments, and their limited engagement in broader care redesign efforts such as BPCI Advanced. Staffing shortages also negatively affected capacity at SNFs and HHAs and limited engagement in BPCI Advanced.

Finally, episode initiators reported that the COVID-19 PHE inspired increased use of telehealth and telephonic case management and remote patient monitoring. Some even credited investments and process changes made in response to the BPCI Advanced Model with facilitating the use of those services during the PHE. For multiple reasons, beneficiaries were less likely to come for in-person follow-up visits, and BPCI Advanced participants reported relying on telephonic and video visits and other remote patient monitoring strategies to help ensure patients were recovering safely at home. Some episode initiators noted that the relationships they formed with PAC providers due to BPCI Advanced helped support their response to the PHE because they had already established routines to share information and communicate with PAC partners during a patient's stay. These relationships helped the episode initiators find beds for patients and continue to monitor and support patients in the post-discharge period.

> *"I would say that is a positive because of our relationship through the BPCI program and our focus on post-acute care. We had met in advance of COVID. Each of the administrators in the nursing homes, they knew of our goals, they knew of our collaboration efforts. It's even stronger because of COVID and it will help us come out of COVID at some point . . . I think that relationship will strengthen."*
>
> *– Hospital Episode Initiator*

F. Exit Decisions

By the end of Model Year 3, 328 hospitals and 508 PGPs had exited the model. Participation dropped even further during Model Year 4, with 247 hospitals and 127 PGPs exiting at the end of the model year. Although multiple factors could contribute to the decision to terminate BPCI Advanced participation, episode initiators that exited the model had lower average reconciliation payments compared with episode initiators that continued in the model (Exhibit 12). These findings suggest that a lower probability of financial success was likely a major contributor to exit decisions.

In 2022, the evaluation team distributed a five-question electronic survey to all BPCI Advanced conveners and non-convener participants to learn why participants chose to remain in the BPCI Advanced Model despite lower average reconciliation payments in Model Year 4. The evaluation team received 70 unique survey responses. Results indicated that participants continued to participate in BPCI Advanced despite Model Year 4 changes because they wanted to gain experience in value-based contracts that could be applied to future models, such as future ACO models and mandatory bundled payment models. For example, more than 80% of respondents indicated that they saw BPCI Advanced as an opportunity to prepare for a future mandatory Medicare bundled payment model, which many respondents viewed as inevitable.

> *"While we do anticipate a loss in Model Year 5, based on recent reconciliations, we have made significant investments in BPCI. It is our goal to align our episode-based models with our ACOs to leverage care improvement across total-cost-of-care APMs, including episode nesting."*
>
> *– Convener Participant*

Across site visits, key informant interviews, and the survey, participants reported staying in the model so they could continue earning reconciliation payments and strengthening partnerships with physicians and PAC providers to improve patient care. Some participants also saw BPCI Advanced as an opportunity to learn strategies that they could apply to contracts with private payers. This reasoning helps explain why participation did not decline more after the major changes to model design in Model Year 4.

Exhibit 12: Average Per-Episode Reconciliation Payments for Participants That Stayed in the Model and for Those That Exited in Model Years 1–4

Note: The number of BPCI Advanced participants is limited to the BPCI Advanced hospitals and PGPs with episode volume during the intervention period for each model year. For each Model Year in Model Years 1 and 2 (October 1, 2018–December 31, 2019), Model Year 3 (January 1, 2020–December 31, 2020), and Model Year 4 (January 1, 2021–December 31, 2021), average reconciliation payments are shown for participants that either continued into or left before the next model year. Reconciliation payments for each model year only include episodes in that model year. See **Appendix D** for more detailed results. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of the CMS BPCI Advanced Database as of January 20, 2023, and CMS reconciliation data for BPCI Advanced hospitals and PGPs from Model Years 1–4. Second True-Up for Performance Periods 1–6. First True-Up for Performance Period 7.

G. Discussion

1. How Did the Model Year 4 Design Changes Influence Participation in the Model?

The move to CESLGs in Model Year 4 required participants to take accountability for a broader set of clinical episodes than in prior model years. Many participants opted to continue in the model despite this requirement, which typically entailed taking on more risk. The average number of clinical episodes in which a given episode initiator was actively participating in Model Year 4 nearly doubled for hospitals and more than doubled for PGPs, resulting in expanded participation and care redesign activities among those that chose to remain in the model.

At the same time, we observed a 37.2% decline in unique participants in BPCI Advanced between Model Year 3 and Model Year 4. The number of conveners declined by 29.0%, while the number of hospital episode initiators declined by 32.5% and the number of PGP episode initiators declined by 49.3%. An analysis of reconciliation payments indicated that participants that terminated their participation in the model had lower reconciliation payments compared with those that elected to remain in the model, indicating that difficulties achieving savings may have contributed to exit decisions. The major design changes to the model in Model Year 4, as well as staffing shortages and overall burnout from the COVID-19 PHE, may have also contributed to participation declines.

Many participants remained in the model despite lower reconciliation payments because they wanted to gain experience with bundled payments before a mandatory model was introduced. Anticipation of a future mandatory model may have helped mitigate exits from the model.

2. What Was the Impact of the Model Year 4 Changes on Care Transformation?

Hospitals and PGPs that remained in the model were asked to take on accountability for new clinical episodes by selecting CESLGs, which contain multiple clinical episodes. As noted above, this shift to CESLGs essentially doubled the number of clinical episodes for which a participant was responsible. Episode initiators reported being wary of having to take on clinical episodes that they would not have otherwise selected, some of which are urgent episodes that are riskier and whose outcomes are harder to control compared with planned episodes. Some hospitals and PGPs saw an opportunity to engage with new sets of providers and expand care redesign activities, whereas others shared concerns about higher-acuity patients and low volume in certain clinical episodes increasing the chance of outliers that hinder financial success in the model. For example, some episode initiators said they opted to not participate in certain CESLGs despite achieving savings with some clinical episodes in the past because they were unsure whether they would be successful with other clinical episodes in the CESLG.

> *"If the change of MY4 hadn't gone to CESLGs, we would have continued to participate in sepsis and heart failure across the enterprise."*
>
> *– Hospital Episode Initiator*

3. What Do These Findings Mean for CMS Objectives?

The types and characteristics of Model Year 4 participants were similar to Model Year 3 participants. Although participation declined in Model Year 4, anticipation of a future mandatory model likely mitigated the impact of model design changes on participation declines. According to

participants, the most concerning model design changes were the shift to CESLGs and the retrospective trend adjustment, which made it harder to predict financial success in the model.

Certain features unique to PGPs may be important to consider in future episode-based payment models. For example, when participants selected CESLGs in Model Year 4, PGPs were more likely than hospitals to select surgical CESLGs, such as *orthopedics*, a similar trend to prior model years. This difference in clinical episode and CESLG selection could be due to some PGPs specializing in certain fields, such as orthopedics or cardiology. PGPs also have the flexibility to bill Medicare claims to different TINs, which may make it easier for PGPs to avoid certain clinical episodes that may be more likely to include costlier patients or riskier conditions and procedures. This flexibility may increase their likelihood of achieving financial success in the model.

About 69% of hospitals and PGPs were downstream episode initiators under a convener in Model Year 4. These episode initiators received support from conveners in identifying BPCI Advanced patients, reviewing and interpreting performance data, selecting CESLGs, and tracking and monitoring patients in the post-discharge period. Interviews with model participants indicated that many non-convener participants partner with consultants or convener-like organizations who can provide similar support to conveners but are not official participants in the model. Many episode initiators reported that without the aid of consultants, they would have difficulty understanding the data they received from CMS and making the feedback actionable.

III. BPCI Advanced Reach

As a national, voluntary model, the reach of BPCI Advanced has changed as the model has evolved. In Model Year 1 (October–December 2018), more hospitals and physician group practices (PGP) participated in BPCI Advanced than in the foundational BPCI Initiative. The reach of the model to hospitals, clinicians, and patients increased as new participants joined the model in Model Year 3 (2020).[20]

In Model Year 4 (2021), CMS introduced changes to the target price methodology and clinical episode groupings to expand the model's reach and bolster its ability to achieve Medicare savings. In this chapter, we first assess how these model design changes corresponded to changes in the reach of the model to hospitals, clinicians, and discharges. Second, we assess how the Model Year 4 changes corresponded to changes in the representativeness of participants and beneficiaries in the model, including its reach to underserved populations.

To understand the breadth of BPCI Advanced participation, we calculated the proportion of eligible hospitals and the unique count of PGPs that participated in the model during Model Year 4. We also calculated the number of clinicians who treated BPCI Advanced beneficiaries and how many hospital discharges and outpatient procedures nationwide were attributed to BPCI Advanced participants during Model Year 4. We relied on the CMS BPCI Advanced Database of participants to identify BPCI Advanced hospitals and PGPs and the clinical episodes in which they participated, the CMS Provider of Services (POS) files and Inpatient Prospective Payment System (IPPS) files to identify all eligible hospitals, and Medicare fee-for-service (FFS) claims to identify eligible clinicians, discharges, and procedures. To assess the reach of BPCI Advanced, we calculated the proportion of BPCI Advanced hospitals, clinicians, and discharges among all eligible hospitals, clinicians, and discharges.

To understand whether the model's representativeness among beneficiaries from underserved populations was different during Model Year 4 versus Model Years 1 through 3, we analyzed changes in shares of beneficiaries across Medicare FFS with hospital discharges or outpatient procedures, as well as shares of beneficiaries with BPCI Advanced episodes in financial reconciliation. We present results for underserved populations for which we had a sufficient sample size for analysis: beneficiaries who are Black or African American, beneficiaries who are Hispanic, and beneficiaries who are dually eligible for Medicare and Medicaid.

[20] See the BPCI Advanced Second Evaluation Report, available for download at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced.

A. Key Findings

BPCI Advanced Reach

- In Model Year 4 (2021), about one in five (21.7%) eligible U.S. hospitals participated in BPCI Advanced, more than one in four (28.5%) eligible U.S. clinicians triggered a BPCI Advanced episode, and about one in five (18.9%) hospitalizations or outpatient procedures were under BPCI Advanced.
- The BPCI Advanced Model's reach to underserved populations was greater in medical episodes than surgical episodes, reflecting differences in representation among hospital discharges and outpatient procedures nationwide.
- Representation of beneficiaries from underserved populations within BPCI Advanced episodes either slightly declined (Hispanic beneficiaries and dually eligible beneficiaries) or stayed the same (Black or African American beneficiaries) compared with previous model years.

B. BPCI Advanced Reach to Hospitals, Clinicians, and Discharges

During Model Year 4, about one in five hospitals (21.7%) participated in at least one clinical episode in BPCI Advanced among U.S. hospitals that were eligible to participate in the model (Exhibit 13).[21] The proportion of eligible hospitals that participated varied by clinical episode service line group (CESLG), from 3.8% in *gastrointestinal surgery* to 16.8% in *medical and critical care* (see **Appendix E** for results by CESLG). The proportion of hospitals that participated in the model in Model Year 4 decreased relative to the proportion of those that participated in Model Years 1, 2, or 3, when one in three hospitals (33.4%) participated in at least one clinical episode in BPCI Advanced.[22]

More than one in four (28.5%) clinicians with eligible discharges or procedures were involved in the BPCI Advanced Model during Model Year 4 (Exhibit 14).[23] Higher shares of clinicians were involved in medical discharges compared with surgical discharges or procedures, reflecting participants' higher participation in medical CESLGs than surgical CESLGs. About 29.8% of clinicians with eligible medical discharges and 13.0% of clinicians with eligible surgical discharges or procedures were involved in the model during Model Year 4 (see **Appendix E** for results by CESLG.) The proportion of clinicians with eligible discharges or procedures initiated by

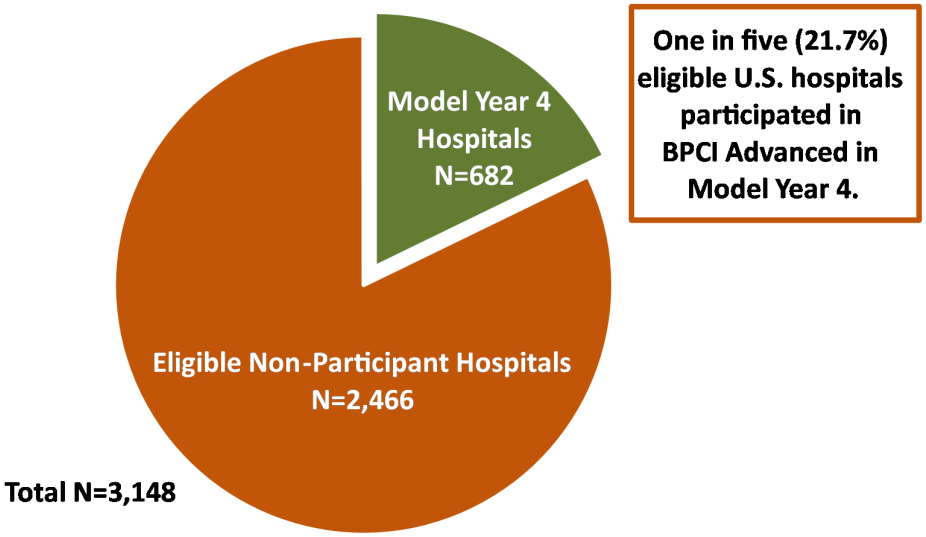
[21] Hospitals were limited to those that were eligible for BPCI Advanced in Model Year 4, with at least one clinical episode for which they met the baseline volume criterion. Eligible hospitals account for the vast majority of all hospitals included in the IPPS. For more detail on the methods, see **Appendix C**.

[22] See the BPCI Advanced Second Evaluation Report, available for download at https://www.cms.gov/priorities/innovation/data-and-reports/2021/bpci-yr2-annual-report

[23] Clinicians were considered to be involved in BPCI Advanced under the following scenarios: They were the attending or operating clinician for at least one BPCI Advanced eligible episode and billing to a PGP episode initiator that participated in the clinical episode, or they were the attending or operating clinician for at least one BPCI Advanced eligible episode at a BPCI Advanced hospital episode initiator that participated in the clinical episode. We only include discharges or procedures in which the BPCI Advanced hospital or PGP episode initiators were participating.

BPCI Advanced hospitals and PGPs was higher in Model Year 4 than in Model Years 1 and 2 (28.5% vs. 23.9%).[24]

Exhibit 13: Number and Proportion of Eligible U.S. Hospitals That Participated in BPCI Advanced, Model Year 4 (2021)



Note: Eligible hospitals were limited to those with at least one clinical episode that meets the minimum baseline volume criterion. For example, this analysis excluded Inpatient Prospective Payment System-exempt cancer hospitals and hospitals located in Maryland. For more detail on the methods, see **Appendix C**.

Source: The BPCI Advanced evaluation team's analysis of the BPCI Advanced Preliminary Target Pricing File as of October 20, 2020, and the CMS BPCI Advanced Database as of January 20, 2023.

Exhibit 14: Number and Proportion of Clinicians With Eligible Discharges or Procedures, Model Year 4 (2021)

Type of Discharge or Procedure	Unique Clinicians with Eligible Discharges	Unique Clinicians with BPCI Advanced Discharges	
		Number	Percent
All Discharges and Procedures	255,855	72,806	28.5
Medical	218,062	64,992	29.8
Surgical	127,118	16,554	13.0

Note: Eligible discharges and procedures are those that map to Medicare Severity-Diagnosis Related Groups (MS-DRGs) or Healthcare Common Procedure Coding System (HCPCS) codes for one of the clinical episodes in BPCI Advanced in Model Year 4. Clinicians were identified as either attending or operating National Provider Identifiers (NPIs) at a BPCI Advanced hospital or the attending or operating NPI when the episode was attributed to a BPCI Advanced physician group practice. The number of clinicians is a unique count of clinicians who treated Medicare beneficiaries who met the BPCI Advanced beneficiary inclusion criteria at a BPCI Advanced eligible hospital. For determining hospital eligibility, the minimum hospital volume criterion was not applied. The sum of clinicians with medical and surgical episodes does not equal the number of clinicians for all episodes because a clinician can have both medical and surgical episodes.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021, for BPCI Advanced hospitals and the CMS BPCI Advanced Database, as of January 20, 2023.

[24] The proportion of clinicians with eligible discharges or procedures in Model Years 1 and 2 is presented in the BPCI Advanced Second Evaluation Report, available for download at https://www.cms.gov/priorities/innovation/data-and-reports/2021/bpci-yr2-annual-report. These data were not available for Model Year 3 when the Second Evaluation Report was under development.

During Model Year 4, about one in five (18.9%) eligible hospital discharges or outpatient procedures were under BPCI Advanced (Exhibit 15). The model reached a larger share of eligible discharges and procedures in Model Years 1 and 2 (23.3%).[25]

The reach of the model to eligible discharges and procedures varied by type (medical or surgical). Of the more than 3 million BPCI Advanced-eligible discharges and procedures in the United States in 2021, about two in three eligible discharges and procedures were medical and one in three were surgical. The model reached about a quarter (23.3%) of eligible medical discharges and one in 10 (9.9%) eligible surgical discharges or procedures. The reach of the model also varied by CESLG, from 4.0% for *gastrointestinal surgery* to 26.9% for *medical and critical care* (see **Appendix E** for results by CESLG).

Eligible Hospital Discharge
A Medicare fee-for-service (FFS) inpatient stay that met the model eligibility requirements, including having a BPCI Advanced Medicare Severity-Diagnosis Related Group (MS-DRG), being at a hospital that was eligible to be in BPCI Advanced, and meeting other beneficiary inclusion criteria.

Eligible Outpatient Procedure
A Medicare FFS outpatient procedure that met the model eligibility requirements, including being in a hospital outpatient setting, having a BPCI Advanced Healthcare Common Procedure Coding System (HCPCS) code, and meeting other beneficiary inclusion criteria.

Exhibit 15: Number and Proportion of Discharges and Procedures, Model Year 4 (2021)

Type of Discharge or Procedure	Eligible Discharges	BPCI Advanced Discharges	
		Number	Percent
All Discharges and Procedures	3,257,463	615,381	18.9
Medical	2,174,404	507,675	23.3
Surgical	1,083,059	107,706	9.9

Note: Eligible discharges and procedures include hospital discharges and outpatient procedures that met the model eligibility requirements, including having a BPCI Advanced Medicare Severity-Diagnosis Related Groups (MS-DRGs) or Healthcare Common Procedure Coding System (HCPCS) code, being at a hospital that was eligible to be in BPCI Advanced, and meeting other beneficiary inclusion criteria. The minimum hospital baseline volume criterion was not applied.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021, for BPCI Advanced hospitals and the CMS BPCI Advanced Database, as of January 20, 2023.

C. Reach of BPCI Advanced to Beneficiaries From Underserved Populations

In voluntary models such as BPCI Advanced, how well the model reaches underserved populations can provide context for understanding how the model achieved its objectives. The reach to underserved populations also has important implications for health equity, although BPCI Advanced predated the Innovation Center's 2021 strategy refresh and therefore was not designed with an explicit focus on health equity. Changes outside of the model, including demographic shifts, increasing Medicare Advantage enrollment, and changes in health care utilization due to COVID-19, can result in shifts in the composition of eligible beneficiaries. Changes to the model itself, including changes to model rules related to clinical episodes and participation, can also lead

[25] The proportion of discharges and procedures in Model Years 1 and 2 is presented in the BPCI Advanced Second Evaluation Report, available for download at https://www.cms.gov/priorities/innovation/data-and-reports/2021/bpci-yr2-annual-report. These data were not available for Model Year 3 when the Second Evaluation Report was under development.

to shifts in the composition of beneficiaries treated. Both types of changes can have consequences for model reach.

We used three metrics to assess the representation of beneficiaries from underserved populations. First, we considered the shares of beneficiaries from underserved populations among all Medicare FFS beneficiaries. These shares are influenced by population demographics and Medicare Advantage enrollment. Second, we examined the shares of beneficiaries from underserved populations among Medicare FFS beneficiaries with a medical or surgical discharge with a Medicare Severity-Diagnosis Related Group (MS-DRG) or Healthcare Common Procedure Coding System (HCPCS) code included in the BPCI Advanced Model. These shares are a function of the clinical episodes included in the model as well as demographic differences in patterns of clinical conditions (diagnoses) and health care utilization, which may vary by subpopulation. Third, we examined the shares of beneficiaries from underserved populations with a BPCI Advanced episode. These shares are influenced by the rules and exclusions of the model as well as the participation of providers.

Metrics Used to Assess Representation in the BPCI Advanced Model

(A) Share of Beneficiaries Enrolled in Medicare Fee-for-Service (FFS)
Beneficiaries from underserved populations among the general population of beneficiaries enrolled in Medicare FFS Parts A and B during the model year.

(B) Share of Beneficiaries With Hospital Discharges or Outpatient Procedures Included in BPCI Advanced
Beneficiaries from underserved populations among beneficiaries who had a hospital discharge for one of the BPCI Advanced Medicare Severity-Diagnosis Related Groups (MS-DRGs) or Healthcare Common Procedure Coding System (HCPCS) codes during the model year.

(C) Share of Beneficiaries With BPCI Advanced Episodes
Beneficiaries from underserved populations among beneficiaries who had a BPCI Advanced episode that was included in financial reconciliation during the model year.

Notable changes to the BPCI Advanced Model design occurred between Model Years 1 through 3 and Model Year 4. These changes in Model Year 4 could have affected the composition of beneficiary populations within the BPCI Advanced Model and would be reflected in increases or decreases in the share of BPCI Advanced episodes (definition C), relative to the share of hospital discharges or outpatient procedures (definition B). Changes in participation from Model Years 1 through 3 to Model Year 4 likely affected the reach of the BPCI Advanced Model. Starting in Model Year 4, hospitals and PGPs were required to participate in all clinical episodes contained within each selected CESLG. Additionally, some hospitals and PGPs terminated participation at the end of Model Year 3, potentially reducing the reach of the model. Other notable changes to the model rules may have affected its reach to underserved populations, including the update to the episode overlap exclusion rules. While beneficiaries were never allowed to be in more than one episode at a time (that is, overlap was resolved to avoid duplicate payments), the methodology was updated to include the first episode regardless of provider participation, rather than favoring

episodes under BPCI Advanced participants.[26] Additional changes to the model, including updated COVID-19 exclusions and changes to the target price methodology, likely made smaller shifts in the reach of the model between Model Years 1 through 3 and Model Year 4.

Key Model Changes Between Model Years 1–3 and Model Year 4 That May Affect Representation

Shift to CESLGs. Participants were required to select one or more CESLGs in which to participate, rather than clinical episodes.

Participant Withdrawals. Many participants withdrew from BPCI Advanced prior to the beginning of Model Year 4.

Update to Episode Overlap Exclusion. When episodes for a given beneficiary overlap within the 90-day episode window, the first becomes the episode retained for reconciliation, regardless of whether it was for a BPCI Advanced participating provider.

1. Reach of the Model to Beneficiaries Who Are Black or African American

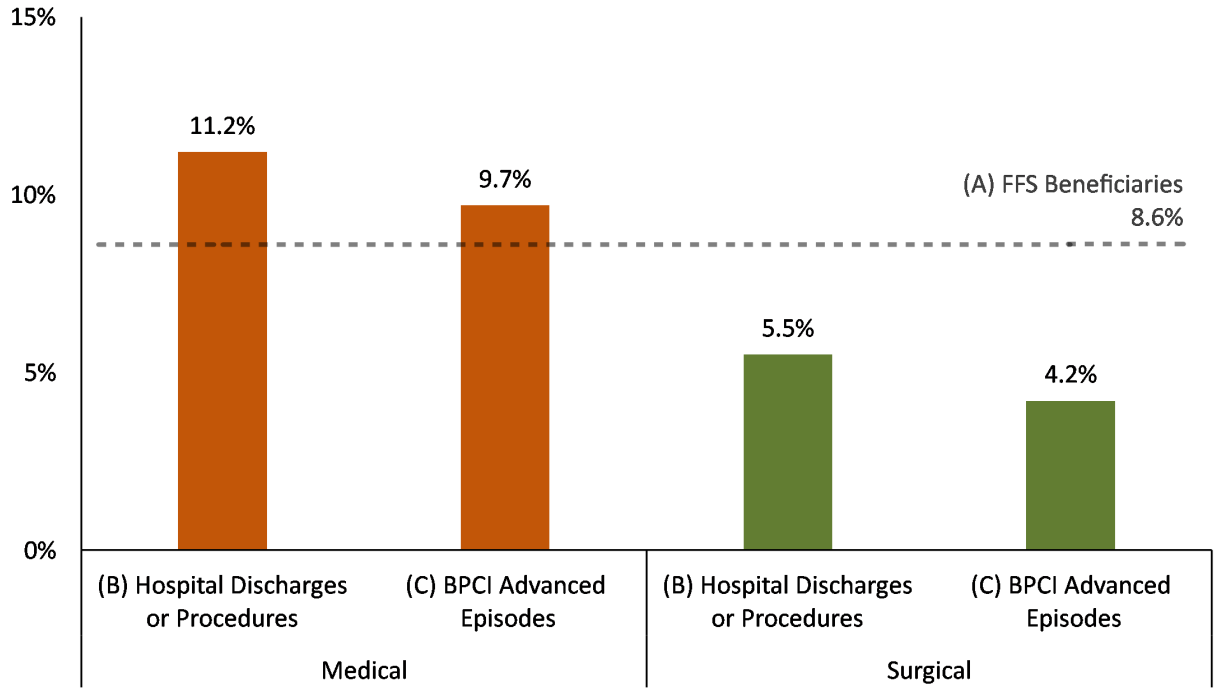
The BPCI Advanced Model's reach to Black or African American beneficiaries was higher in medical episodes than in surgical episodes, reflecting differences in representation among hospital discharges and outpatient procedures nationwide.[27] During 2021, 8.6% of beneficiaries enrolled in Medicare FFS Parts A and B were Black or African American. In comparison, the share of beneficiaries who were Black or African American with BPCI Advanced episodes was larger in medical episodes (9.7%) and smaller in surgical episodes (4.2%). These differences in representation by medical and surgical BPCI Advanced episodes stem from the underlying FFS system rather than a construct of the model, as the share of Black or African American beneficiaries with hospital discharges or outpatient procedures during 2021 in medical episodes is more than double the share in surgical episodes (11.2% vs. 5.5%) (Exhibit 16).

This pattern of representation among medical and surgical discharges and BPCI Advanced episodes was similar, with a slight decline in Model Year 4 compared with Model Years 1 through 3, indicating that the changes introduced to the BPCI Advanced Model in Model Year 4 did not have a substantial effect on representation of Black or African American beneficiaries in the model. The share of Black or African American beneficiaries with BPCI Advanced episodes declined less than 1 percentage point (pp) in Model Year 4 compared with Model Years 1 through 3 in both medical episodes (from 10.5% to 9.7%) and surgical episodes (from 4.8% to 4.2%) (Exhibit 17). At the same time, the share of Black or African American beneficiaries with hospital discharges or outpatient procedures was relatively stable across model years for both medical and surgical discharges or procedures.

[26] There are a few cases where the initial admission or procedure may not trigger an episode in favor of a subsequent admission or procedure. See the *Clinical Episode Construction Specifications Model Year 4*, available for download at https://www.cms.gov/priorities/innovation/media/document/bpciadvanced-my4-clinical-episode-construction-specs-v2

[27] In the analysis of the model's representativeness among beneficiaries from underserved populations, BPCI Advanced episodes are episodes (medical or surgical) that are in financial reconciliation. Hospital discharges or outpatient procedures are those with BPCI Advanced Medicare Severity-Diagnosis Related Groups (MS-DRGs) or Healthcare Common Procedure Coding System (HCPCS) codes included in the BPCI Advanced Model and are not restricted to hospitals that were eligible to participate in BPCI Advanced.

Exhibit 16: Share of Beneficiaries Who Are Black or African American Among the FFS Medicare Population, Among Medical and Surgical Hospital Discharges or Outpatient Procedures, and Among Medical and Surgical BPCI Advanced Episodes, Model Year 4 (2021)



Note: FFS beneficiaries are those enrolled in Medicare Parts A and B FFS for at least 1 month during the model year. Hospital discharges or outpatient procedures are defined as any FFS discharge with a BPCI Advanced triggering Medicare Severity-Diagnosis Related Group (MS-DRG) or Healthcare Common Procedure Coding System (HCPCS) code and are not restricted to hospitals that were eligible to be in BPCI Advanced. Medical and surgical episodes are BPCI Advanced episodes attributed to participants. For more detail on the methods, see **Appendix C**. FFS = fee-for-service.

Source: Master Beneficiary Summary File 2021, inpatient and outpatient Medicare discharges with a BPCI Advanced triggering MS-DRG or HCPCS code, and CMS reconciliation data from the same period.

Exhibit 17: Representation of Beneficiaries Who Are Black or African American Among Hospital Discharges or Outpatient Procedures and Among BPCI Advanced Episodes, Model Years 1–3 and Model Year 4 (October 1, 2018–December 31, 2021)

Episode Type	Model Year	(B) Share of Beneficiaries with Hospital Discharges or Outpatient Procedures (%)	(C) Share of Beneficiaries with BPCI Advanced Episodes (%)
Medical Episodes	Model Years 1 Through 3	11.2	10.5
	Model Year 4	11.2	9.7
Surgical Episodes	Model Years 1 Through 3	5.6	4.8
	Model Year 4	5.5	4.2

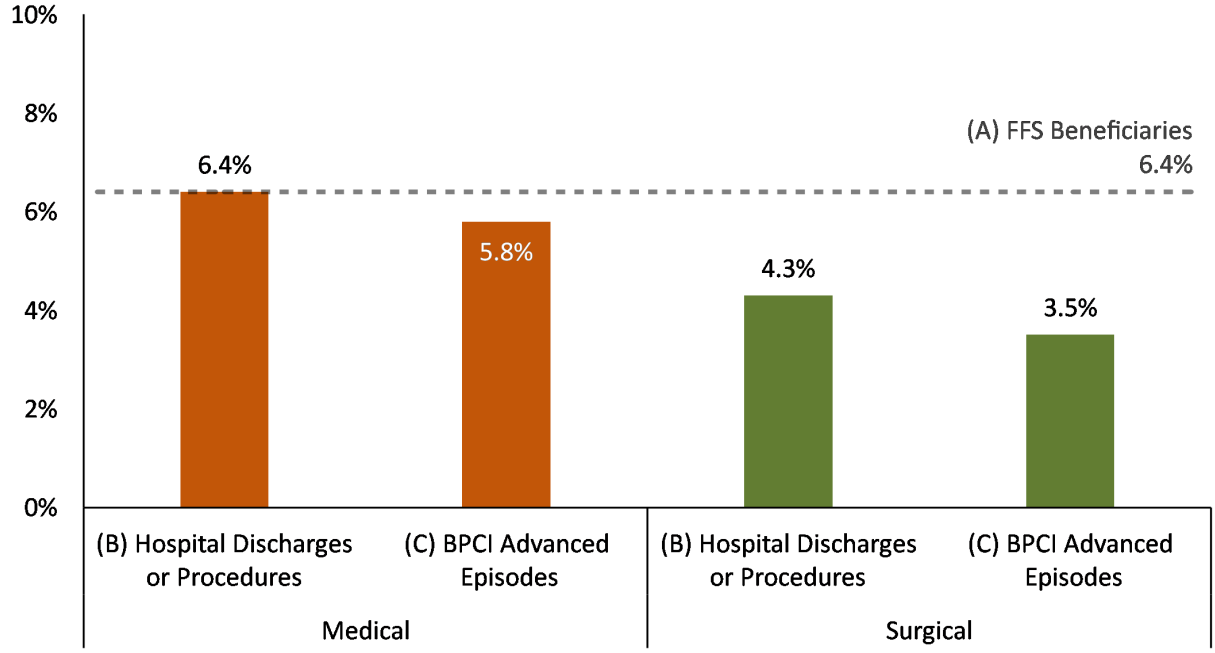
Note: Hospital discharges or outpatient procedures are defined as any fee-for-service discharge with a BPCI Advanced triggering Medicare Severity-Diagnosis Related Group (MS-DRG) or Healthcare Common Procedure Coding System (HCPCS) code and are not restricted to hospitals that were eligible to be in BPCI Advanced. Medical and surgical episodes are BPCI Advanced episodes attributed to participants. For more detail on the methods, see **Appendix C**.

Source: Inpatient and outpatient Medicare discharges with a BPCI Advanced triggering MS-DRG or HCPCS code and the set of BPCI Advanced episodes during October 1, 2018–December 31, 2021, and CMS reconciliation data from the same period.

2. Reach of the Model to Beneficiaries Who Are Hispanic

During 2021, 6.4% of beneficiaries enrolled in Medicare FFS Parts A and B were Hispanic (Exhibit 18). While the BPCI Advanced Model's reach to Hispanic beneficiaries was higher in medical episodes (5.8%) than in surgical episodes (3.5%), both shares were smaller than the representation of Hispanic beneficiaries in the Medicare FFS population (6.4%).

Exhibit 18: Share of Beneficiaries Who Are Hispanic Among the FFS Medicare Population, Among Medical and Surgical Hospital Discharges or Outpatient Procedures, and Among Medical and Surgical BPCI Advanced Episodes, Model Year 4 (2021)



Note: FFS beneficiaries are those enrolled in Medicare Parts A and B FFS for at least 1 month during the model year. Hospital discharges or outpatient procedures are defined as any FFS discharge with a BPCI Advanced triggering Medicare Severity-Diagnosis Related Group (MS-DRG) or Healthcare Common Procedure Coding System (HCPCS) code and are not restricted to hospitals that were eligible to be in BPCI Advanced. Medical and surgical episodes are BPCI Advanced episodes attributed to participants. For more detail on the methods, see **Appendix C**. FFS = fee-for-service.

Source: Master Beneficiary Summary File 2021, inpatient and outpatient Medicare discharges with a BPCI Advanced triggering MS-DRG or HCPCS code, and CMS reconciliation data from the same period.

The representation of Hispanic beneficiaries with medical discharges or procedures was stable from Model Years 1 through 3 to Model Year 4 (both 6.4%) (Exhibit 19). Over the same period, there was a slight decrease in the share of beneficiaries with medical BPCI Advanced episodes who were Hispanic (6.8% to 5.8%), indicating that the model changes may have affected the underlying demographic representation. We see similar, small increases in representation of Hispanic beneficiaries for both surgical discharges or procedures (4.1% vs. 4.3%) and surgical episodes (3.2% to 3.5%).

Exhibit 19: Representation of Beneficiaries Who Are Hispanic Among Hospital Discharges or Outpatient Procedures and Among BPCI Advanced Episodes, Model Years 1–3 and Model Year 4 (October 1, 2018–December 31, 2021)

Episode Type	Model Year	(B) Share of Beneficiaries with Hospital Discharges or Outpatient Procedures (%)	(C) Share of Beneficiaries with BPCI Advanced Episodes (%)
Medical Episodes	Model Years 1 Through 3	6.4	6.8
	Model Year 4	6.4	5.8
Surgical Episodes	Model Years 1 Through 3	4.1	3.2
	Model Year 4	4.3	3.5

Note: Hospital discharges or outpatient procedures are defined as any fee-for-service discharge with a BPCI Advanced triggering Medicare Severity-Diagnosis Related Group (MS-DRG) or Healthcare Common Procedure Coding System (HCPCS) code and are not restricted to hospitals that were eligible to be in BPCI Advanced. Medical and surgical episodes are BPCI Advanced episodes attributed to participants. For more detail on the methods, see **Appendix C**.

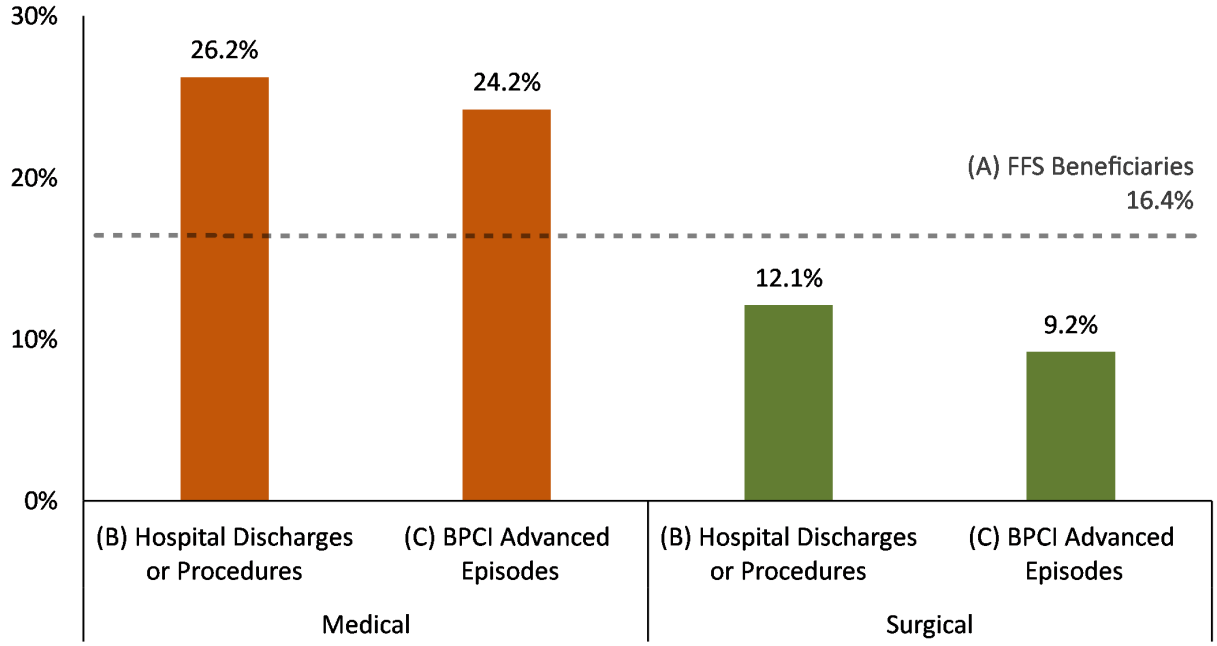
Source: Inpatient and outpatient Medicare discharges with a BPCI Advanced triggering MS-DRG or HCPCS code and the set of BPCI Advanced episodes during October 1, 2018–December 31, 2021, and CMS reconciliation data from the same period.

3. Reach of the Model to Beneficiaries Who Are Dually Eligible

Of beneficiaries enrolled in Medicare FFS Parts A and B during 2021, 16.4% were dually eligible for Medicare and Medicaid (Exhibit 20). The BPCI Advanced Model's reach to dually eligible beneficiaries followed the same trend as the reach to Black or African American and Hispanic beneficiaries, where the share of dually eligible beneficiaries was greater in medical episodes (24.2%) than in surgical episodes (9.2%). Likewise, these differences are reflected in representation among hospital discharges and outpatient procedures nationwide, where dually eligible beneficiaries had higher representation in discharges for medical episodes (26.2%) and lower representation in discharges and procedures for surgical episodes (12.1%).

For medical and surgical discharges and episodes, the changes in representation between Model Year 4 and Model Years 1 through 3 for dually eligible beneficiaries were modest but not uniform (Exhibit 21). The share of beneficiaries with BPCI Advanced medical episodes who were dually eligible declined by 2.1 pp in Model Year 4 compared with Model Years 1 through 3 (from 26.3% to 24.2%). Similarly, the share of beneficiaries with BPCI Advanced surgical episodes who were dually eligible declined by 0.4 pp in Model Year 4 compared with Model Years 1 through 3 (from 9.6% to 9.2%). These declines in shares did not correspond to similar declines in the shares of hospital discharges and outpatient procedures, indicating the changes to the model may have affected the reach to dually eligible beneficiaries. In fact, the share of beneficiaries with discharges or procedures increased for both medical episodes (24.3% to 26.2%) and surgical episodes (10.9% to 12.1%) from Model Years 1 through 3 to Model Year 4.

Exhibit 20: Share of Beneficiaries Who Are Dually Eligible Among the FFS Medicare Population, Among Medical and Surgical Hospital Discharges or Outpatient Procedures, and Among Medical and Surgical BPCI Advanced Episodes, Model Year 4 (2021)



Note: FFS beneficiaries are those enrolled in Medicare Parts A and B FFS for at least 1 month during the model year. Hospital discharges or outpatient procedures are defined as any FFS discharge with a BPCI Advanced triggering Medicare Severity-Diagnosis Related Group (MS-DRG) or Healthcare Common Procedure Coding System (HCPCS) code and are not restricted to hospitals that were eligible to be in BPCI Advanced. Medical and surgical episodes are BPCI Advanced episodes attributed to participants. For more detail on the methods, see **Appendix C**. FFS = fee-for-service.

Source: Master Beneficiary Summary File 2021, inpatient and outpatient Medicare discharges with a BPCI Advanced triggering MS-DRG or HCPCS code, and CMS reconciliation data from the same period.

Exhibit 21: Representation of Beneficiaries Who Are Dually Eligible Among Hospital Discharges or Outpatient Procedures and Among BPCI Advanced Episodes, Model Years 1–3 and Model Year 4 (October 1, 2018–December 31, 2021)

Episode Type	Model Year	(B) Share of Beneficiaries with Hospital Discharges or Outpatient Procedures (%)	(C) Share of Beneficiaries with BPCI Advanced Episodes (%)
Medical Episodes	Model Years 1 Through 3	24.3	26.3
	Model Year 4	26.2	24.2
Surgical Episodes	Model Years 1 Through 3	10.9	9.6
	Model Year 4	12.1	9.2

Note: Hospital discharges or outpatient procedures are defined as any fee-for-service discharge with a BPCI Advanced triggering Medicare Severity-Diagnosis Related Group (MS-DRG) or Healthcare Common Procedure Coding System (HCPCS) code and are not restricted to hospitals that were eligible to be in BPCI Advanced. Medical and surgical episodes are BPCI Advanced episodes attributed to participants. For more detail on the methods, see **Appendix C**.

Source: Inpatient and outpatient Medicare discharges with a BPCI Advanced triggering MS-DRG or HCPCS code and the set of BPCI Advanced episodes during October 1, 2018–December 31, 2021, and CMS reconciliation data from the same period.

D. Discussion

In this chapter, we assessed the reach of BPCI Advanced during Model Year 4 to hospitals, clinicians, discharges and procedures, and underserved populations. About one in five eligible hospitals participated in at least one clinical episode during Model Year 4. The proportion of eligible hospitals that participated in the model during Model Year 4 decreased relative to that of prior model years. During the same period, about one in four eligible clinicians were involved with at least one BPCI Advanced episode by billing Medicare through a participant, representing greater reach of the model to clinicians relative to the first 2 model years. The model's reach to clinicians was greater among clinicians to whom medical episodes were attributed than clinicians to whom surgical episodes were attributed, reflecting participants' higher selection of medical CESLGs than surgical CESLGs in Model Year 4. About one in five eligible discharges or procedures was under BPCI Advanced during Model Year 4. The proportion of eligible discharges or procedures in the model decreased slightly relative to the proportion reached by the model in Model Years 1 and 2. Among CESLGs, BPCI Advanced had the greatest reach to hospitals, clinicians, and discharges among clinical episodes within *medical and critical care*, which was also the most popular CESLG selection among both hospitals and PGP participants in Model Year 4 (see **Chapter 2** for a discussion of participation decisions).

In our analysis of representation in the model, we considered the relationship between the share of underserved populations within the FFS population and the shares of each population with hospital discharges or outpatient procedures and with BPCI Advanced reconciled episodes. There was a consistent relationship where the shares within discharges were larger than shares within reconciled episodes for these three groups. We found consistent patterns within all populations indicating that representation in the model appears to be a function of the FFS landscape rather than rules of the model. Specifically, for Black or African American, Hispanic, and dually eligible beneficiaries, their representation in medical discharges and in medical episodes was larger than the share within surgical discharges and episodes.

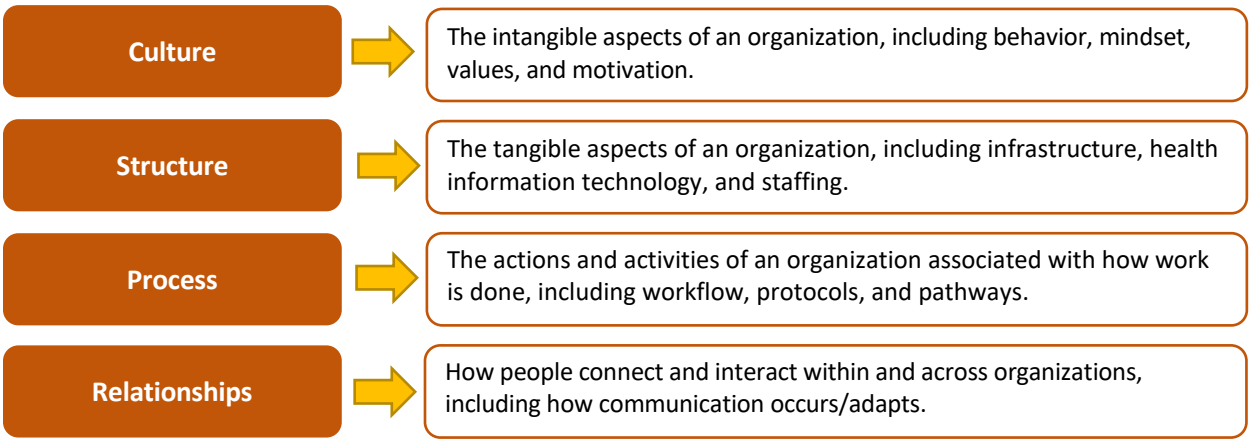
Most compositional shifts from Model Years 1 through 3 to Model Year 4 for Black or African American, Hispanic, or dually eligible populations were not substantial, despite notable changes to the model rules in Model Year 4. For dually eligible beneficiaries, we observed a small decrease in representation within the model, in contrast to the small increase in representation within hospital discharges and outpatient procedures. Additionally, we observed a modest decline in the share of Hispanic beneficiaries with medical episodes but no change in representation within medical discharges. These changes may be a function of the changes to participation and model exclusion rules and should be assessed in future model years.

IV. BPCI Advanced Care Transformation

To be successful in the BPCI Advanced Model, participants need to keep episode expenditures below the target price while maintaining or improving quality of care. The BPCI Advanced Model does not prescribe the adoption of specific activities to reduce expenditures or improve care; thus, participants have the flexibility to redesign care as they see fit. As mentioned in prior evaluation reports, many BPCI Advanced participants have been able to achieve savings by reducing discharges to post-acute care (PAC) facilities and discharging patients directly home when medically appropriate. During interviews and site visits conducted in Model Year 4 (2021) and Model Year 5 (2022), participants reported other strategies to lower costs and better coordinate care for patients. This chapter describes those care redesign activities and how these activities have led to care transformation.

Care transformation can be thought of in terms of changes to four domains: (1) culture, (2) structure, (3) process, and (4) relationships (Exhibit 22). *Culture* is defined as the intangible aspects of organizational behavior, including mindset, values, and motivation. *Structure* refers to infrastructure, technology, or staffing. *Process* refers to workflows or care pathways, and *relationships* are how people connect and interact within and across organizations. This chapter explores how BPCI Advanced is contributing to care transformation in terms of these four domains.

Exhibit 22: The Four Domains of Care Transformation



In this chapter, we first review the initial investments that hospitals and physician group practices (PGPs) made in response to the model, including technology and staffing investments, as well as new relationships with PAC providers. Next, we explore the care redesign strategies participants used to lower costs and improve care coordination and how those activities have led to care transformation. The chapter concludes with a summary of how participants adjusted to the model design changes in Model Year 4.

This chapter is based on site visits and key informant interviews (KIIs) conducted with model participants in 2021 and 2022. For more information on data collection methods, see **Appendix C**. The data are subject to the recall and judgment of interviewed individuals. Although the site visits were intended to be representative of all BPCI Advanced participants, the KIIs were conducted on specific topics of interest and findings from these interviews may not be representative of all BPCI

Advanced participants or of providers nationwide. Additionally, many interviewees had trouble attributing initiatives directly to the BPCI Advanced Model and could only state that BPCI Advanced contributed to their care redesign activities.

A. Key Findings

BPCI Advanced Care Transformation

- The BPCI Advanced Model is changing participant **culture** by reshaping patient and provider expectations about appropriate discharge destinations and enhancing provider awareness of costs, utilization, and quality of care in the acute and post-acute care (PAC) settings.
- The model has resulted in **structure** changes in terms of investments in technology and care management tools and staff.
- Participants reported numerous **process** changes, including data review, standardization of care pathways, identification and mitigation of medical and social risk factors that could impede home recovery, monitoring patients in the post-discharge period, and connecting patients to primary care providers.
- The model has inspired new **relationships** between inpatient providers and PAC facilities, with some hospitals and physician group practices dispatching their own staff to care for patients within these facilities.

B. Initial Investments in BPCI Advanced

This section describes the initial care redesign strategies adopted by hospitals and PGPs upon joining the model, including investments in data and technology, staff and provider education, and new relationships with PAC providers.

1. Data Review

In response to the model, hospitals and PGPs reported reviewing the data that CMS provides to all model participants, which includes spending and utilization patterns for selected clinical episodes, as well as quality metrics for PAC providers in each market. Many hospitals and PGPs found the data helped them understand how their performance or utilization of health care services or PAC providers differed from their peers, helped them identify areas to reduce unnecessary spending, and informed their care redesign strategies. These data also allowed hospitals and PGPs to identify qualified PAC providers with which to partner and conduct care redesign activities.

> *"The BPCIA data helped us realize we were overutilizers of SNFs [skilled nursing facilities] compared to others and below benchmarks in sending people home. This has incentivized us to change our practices."*
>
> *– Hospital Episode Initiator*

> *"Unless you have a very robust data analytics team who understands what you need to look at these from the model perspective, then you need a third-party vendor."*
>
> *– Hospital Episode Initiator*

Many hospitals and PGPs used conveners or consultants to help them interpret and analyze the CMS data. These organizations parsed the data to help hospitals and PGPs understand financial opportunities in the model, select clinical episode service line groups (CESLGs) in Model Year 4, and identify high-performing PAC partners based on quality metrics, including star ratings for skilled nursing facilities (SNFs). Some hospitals and PGPs reported that conveners and consultants prepared other actionable feedback that helped engage providers in the model, including physician scorecards with information on each clinician's quality, utilization, and cost measures. Several hospitals and PGPs reported that they could not analyze the CMS data on their own and relied on conveners, consultants, or other vendors to help them understand and interpret the CMS data.

The review of performance data and identification of inefficiencies was a critical first step in the care transformation journey reported by many hospitals and PGPs. When providers became aware of their own discharge patterns and the quality of the PAC providers in their local market, discharge decision-making and referral patterns began to shift. Subsequent steps in the care transformation journey are listed below.

2. Staff and Partner Education

Hospitals and PGPs also reported educating staff and PAC partners on the goals of BPCI Advanced and showing clinicians their own performance data, which included quality metrics and expenditures relative to their peers, to help engage providers in the model and care redesign activities. Some hospitals and PGPs reported designating a physician champion to lead care redesign activities and help foster physician engagement in the model. Many considered these physician champions critical to achieving success in BPCI Advanced because they encouraged other clinicians to become invested in model objectives.

> *"Most groups that are successful, you will see some sort of variation of Physician Champions step up to get their peers engaged and on the same page with dynamic protocols and streamlining preferred partners."*
>
> *– PGP Episode Initiator*

Many hospitals and PGPs reported re-setting both provider and patient expectations to encourage discharges directly home when medically appropriate. Historically, providers reported discharging Medicare beneficiaries to SNFs or inpatient rehabilitation facilities (IRFs) following hospitalizations or procedures due to their age, comorbidities, and the assumption that these facilities would be safer than discharging beneficiaries directly home. Furthermore, some Medicare beneficiaries or their families preferred to be discharged to a SNF or other facility rather than directly home because that was their prior experience or the experience of their family members or friends.

To change these expectations, many participants reported using data on historical cost and patient outcomes to show providers that patients can recover safely at home. Hospitals and PGPs also established new discharge instructions and drafting scripts for providers on how to discuss discharge locations with patients. One hospital explained that although physicians historically discharged most joint replacement patients to an IRF, through sustained efforts by hospital

> *"Our goal used to be 'How do we get the patient to the next available level of care as soon as possible?' We were managing length of stay. Now the question is, what is the next appropriate level of care? That has been a culture change, not only for our hospital but for our community."*
>
> *– Hospital Episode Initiator*

leadership, physicians had started to discharge more patients directly home when it was appropriate to do so. Another PGP participating in the *orthopedics* CESLG shared that upon joining the BPCI Advanced Model, about 80% of fracture patients were discharged to an IRF or a SNF and 20% were discharged directly home. After participating in the model for a few years, only 10% of fracture patients were discharged to an IRF and 40% were discharged directly home. These changes in discharge patterns may be contributing to a broader shift toward home recovery for patients following hospitalizations or procedures. Some hospitals and PGPs noted that the COVID-19 public health emergency accelerated the shift toward discharge to home, as many patients wanted to avoid PAC facilities due to the fear of contracting COVID-19.

Many hospitals and PGPs reported forging new relationships with preferred PAC partners, such as SNFs and home health agencies (HHAs), by meeting in person to explain the model and share protocols and care expectations for BPCI Advanced beneficiaries. Hospitals and PGPs reported using data from CMS to identify high-quality SNFs and HHAs in their area and working closely with these providers to specify care expectations for their BPCI Advanced patients, such as expectations on the timing or cadence of therapy services. Many hospitals and PGPs held weekly calls with their preferred SNFs to get updates on their BPCI Advanced patients and address any obstacles to discharge. Some hospitals and PGPs held monthly or quarterly meetings with preferred SNFs to review performance data and learn from expensive episodes.

3. Technology Investments

Both convener participants and non-convener participants reported making upfront investments in data analytic capabilities and electronic health records (EHRs) in response to the model. For example, one PGP invested $80,000 to upgrade its EHR and access a care management platform to help track patients in the post-discharge period. Another hospital updated its EHR to consolidate patient information, such as therapy recommendations, discharge medications, and outstanding labs, to make it easier for physicians to create comprehensive discharge plans. Some participants worked with their billing coding teams and EHR vendors to identify BPCI Advanced patients within the EHR system so physicians, nurses, and care coordination staff would be aware of which patients would be attributed to the model. The flag would serve as a reminder to provide increased patient and caregiver education around discharge planning and monitor these patients during the 90-day post-discharge period.

> *"We treat every patient who discharges with these certain diagnoses as if they are going to be a bundle patient."*
>
> *– Hospital Episode Initiator*

Many hospitals and PGPs emphasized the importance of identifying BPCI Advanced beneficiaries as soon as possible to enable providers to begin care coordination efforts for these patients. However, some episode initiators reported struggling to identify BPCI Advanced patients in real time due to changes to the classification of patient clinical conditions during the inpatient stay. When BPCI Advanced patients are not identified during the hospital stay, certain care coordination activities may be missed, such as

conducting patient education or introducing care navigators at the bedside. Because of the difficulty of accurately identifying BPCI Advanced patients in real time, some hospitals and PGPs assumed every Medicare fee-for-service (FFS) beneficiary could be a BPCI Advanced patient and applied the same care coordination strategies to all Medicare patients, resulting in improved care coordination for patients outside of the model.

C. Care Redesign Across the Patient's Journey

After establishing the infrastructure, staff, and new relationships to support BPCI Advanced activities, hospitals and PGPs reported implementing care redesign initiatives to achieve savings and better coordinate care for their patients. Most episode initiators focused their care redesign efforts on the post-acute period rather than the anchor hospitalization because that is where they saw the biggest opportunity to reduce costs. Common care redesign strategies reported by hospitals and PGPs are listed in Exhibit 23.

Exhibit 23: Common Care Redesign Activities Reported by Episode Initiators

Stage of Care Journey	Care Redesign Activities
Prior to Hospitalization (for planned procedures)	• Educate patients and caregivers on what to expect during procedure and recovery in preoperative appointments. • Screen patients for medical risks or social needs that may affect surgical outcomes or make recovery at home more challenging.[28] • Refer patients to preoperative rehabilitation or surgical classes. • Refer patients to primary care provider to optimize health prior to elective surgery (if necessary). • Schedule follow-up appointments for patients with primary care providers or specialists.
During Hospitalization	• Use risk-assessment tools to identify medical and social risks that may affect health outcomes or recovery. • Establish standard clinical pathways to reduce variations in care for patients. • Enhance interdisciplinary rounding, including specialists and therapists, to improve care coordination and discharge planning. • Use clinical decision-making tools to support discharge destination decisions and discharge planning. • Increase education to patients and caregivers on diagnoses, treatments, and recovery expectations.
After Hospitalization	• Form preferred SNF and HHA networks based on quality metrics. • Hold weekly calls with SNFs to discuss patient progression and obstacles to discharge. • Deliver standard clinical pathways for providers to follow, specifying expectations about length of stay and timing and frequency of services. • Engage care managers or navigators to call patients during the 90-day post-discharge period to address questions or concerns. • Connect beneficiaries to primary care providers or specialists after discharge.

Note: HHA = home health agency; SNF = skilled nursing facility.

Source: Data from virtual site visits and key informant interviews with BPCI Advanced Model participants in 2021 and 2022.

[28] Social needs are the social determinants of health that may influence a beneficiary's successful recovery from a hospitalization or procedure, such as access to housing, food, and transportation.

1. Care Redesign Activities Prior to Hospitalization

Patient Optimization

When providers identify and mitigate medical risk factors prior to surgical procedures to minimize complications.

When a procedure is planned, such as a knee replacement, hospitals and PGPs can conduct activities prior to the inpatient admission or outpatient procedure to help mitigate the risk of poor outcomes or avoidable hospital readmissions. For example, hospitals and PGPs that participated in CESLGs that include elective procedures can conduct pre-hospitalization care redesign activities, such as screening patients for medical risk factors that might affect the success of a surgery. When a patient has a medical risk factor, such as a high body mass index or hemoglobin A1C score, episode initiators reported delaying surgeries and referring those patients back to their primary care provider to help address those risk factors. This patient optimization increases the likelihood that when surgeries do happen, complications will be minimal and patient outcomes will be optimal. Although many episode initiators considered patient optimization a best practice and reported optimizing patients before joining BPCI Advanced, others began or grew their optimization practices in response to the financial risks of the model. Some hospitals and PGPs reported that their screening tools also identified social risk factors, such as living alone or experiencing housing insecurity, as these factors can inform the appropriate next site of care for patients. Episode initiators reported creating discharge plans based on these risk assessments and holding preoperative appointments to discuss the care plans and discharge expectations with patients and caregivers. Episode initiators also helped prepare patients for elective procedures by sending them to preoperative rehabilitation or joint classes. All these preparatory activities help maximize the chance for successful procedures and recoveries. They also help patients discharge directly home and avoid costly PAC facilities.

2. Care Redesign Activities During Hospitalization

Risk Stratification

The categorization of patients by medical risk based on their health status and medical history.

Unlike planned procedures, patients who require an urgent hospitalization for a medical emergency, such as sepsis or pneumonia, cannot be optimized in advance. Instead, BPCI Advanced care redesign activities must start during or after the patient's hospitalization or procedure. Like planned episodes, beneficiaries with urgent care needs were screened for medical and social risk factors during the hospital stay, which allowed hospitals and PGPs to risk-stratify patients and identify who could recover safely at home and who would benefit from discharge to a PAC facility. Risk stratification also allows providers to target resources to patients who are at higher risk for readmission or poor outcomes. Most hospitals and PGPs reported risk-stratifying their entire patient population, not just their BPCI Advanced patients, but they found risk stratification particularly useful to informing discharge destinations for BPCI Advanced beneficiaries. Some examples of risk-stratification tools that hospitals and PGPs reported using include the Activity Measure for Post-Acute Care (AM-PAC) "6 Clicks,"[29] the Risk

[29] The Activity Measure for Post-Acute Care (AM-PAC) "6-Clicks" Inpatient Short Forms are multidimensional measures that use 6 questions to assess functional outcomes of patients in PAC settings.

Assessment and Prediction Tool (RAPT),[30] the LACE index scoring tool,[31] or proprietary tools developed by convener participants or consultants.

Some hospitals and PGPs reported that their risk-stratification tools incorporated social risks, such as housing instability, food insecurity, or lack of access to transportation, into their stratification process. When they identified social risks, many hospitals reported connecting patients to social workers or community resources to address these needs. Many participants recognized that social needs such as lack of transportation or difficulty affording medications were often the cause of hospital readmissions. Transportation challenges were especially prevalent among patients living in rural or underserved areas. A few hospitals and PGPs noted that underserved patients frequently had lower health literacy, meaning they had trouble understanding and managing their chronic conditions and experienced more challenges with medication adherence and attendance of follow-up appointments compared with other beneficiaries. Some observed that patients in rural areas often deferred care until they were very sick, leading to more costly hospitalizations, and that there were fewer primary care providers and community resources in rural areas. Hospitals and PGPs reported that care navigators had to spend a lot of time and resources addressing the social needs of underserved populations.

To mitigate these social risks, some hospitals reported creating resource guides or lists of community support organizations that could help address social needs. Similarly, a few conveners reported establishing platforms that allowed hospitals and PGPs to search for local organizations that provided social services. Some hospitals reported establishing "meds to beds" programs, where beneficiaries were provided with their medications at the bedside prior to discharge from the hospital. These programs eliminated access issues for beneficiaries who could not afford their medications or go to the pharmacy to pick up their medications. Other hospitals arranged transportation for their patients by contracting with Lyft® or Uber® to offer beneficiaries rides to follow-up care appointments. These efforts helped ensure that beneficiaries would not be readmitted to the hospital due to the inability to access medications or follow-up care and could safely recover from hospitalizations or procedures at home instead of costly PAC facilities.

Another strategy hospitals and PGPs used to help patients safely recover at home was increased patient and caregiver education to understand their health conditions and what to expect during recovery. Several hospitals and PGPs reported providing patients with educational binders that provided details on their chronic condition. For example, one hospital participating in the *cardiac care* CESLG provided patients with a heart failure binder that they could take home, which detailed best practices for maintaining a healthy heart and tips for diet and exercise. Education at the bedside also gave providers the chance to discuss discharge plans with patients and families and set expectations about the next site of care. Some hospitals and PGPs reported using clinical decision-making tools to help inform their discharge decisions. Other strategies to improve discharge planning included enhancing multidisciplinary rounds in hospitals to bring more providers, such as physical and occupational therapists, into discharge conversations to understand a patient's mobility and preparedness for discharge. Although many hospitals were conducting

[30] The RAPT generates a score from 1 to 12, with a lower score indicating higher risks for needing inpatient rehabilitation after joint arthroplasty.

[31] The LACE index scoring tool uses four variables to predict the risk of death or nonelective 30-day readmission after hospital discharge among both medical and surgical patients: length of stay (L), acuity of the admission (A), comorbidity of the patient (C), and emergency department use in the duration of 6 months before admission (E).

interdisciplinary rounds before joining BPCI Advanced, interviewees reported modifying the types of providers involved in these rounds to better inform discharge decisions, including physical and occupational therapists, pharmacists, and care navigators.

Other common care redesign activities conducted in the inpatient setting included developing standardized care protocols for patients with similar clinical conditions, such as a stroke care protocol or a heart failure protocol. Many hospitals and PGPs created these disease-specific order sets or checklists to improve care and reduce variations in outcomes for patients with similar clinical conditions. Some hospitals designated a service line coordinator, such as a sepsis coordinator, to help monitor patients with specific clinical conditions and ensure protocols were followed. Other episode initiators reported standardizing the medicines, devices, or implants used during procedures to reduce cost variations. Many hospitals and PGPs reported conducting similar activities before joining BPCI Advanced, but the model provided an additional incentive to reduce variations in care.

Hospitals and PGPs reported scheduling follow-up appointments on behalf of patients prior to discharge when possible. Connecting patients with follow-up care was cited as an important element of ensuring a successful recovery and reducing the chance of avoidable hospital readmissions, especially for hospitals and PGPs participating in medical episodes. Several episode initiators emphasized that it was critical for their patients to see their primary care provider within 7 to 10 days after discharge. Instead of reminding patients to schedule follow-up appointments, some hospitals and PGPs reported taking the initiative to set up these appointments directly and even monitored whether patients attended these appointments.

Connecting Patients With Primary Care

Before participating in BPCI Advanced, one hospital's discharge process was to simply tell the patient to follow up with their primary care provider to set up home health care. Since joining BPCI Advanced, the hospital formally communicates with the patient's primary care provider and works directly with them to set up home health services on behalf of the patient.

When BPCI Advanced beneficiaries did not have a primary care provider, many hospitals and PGPs reported identifying a new primary care provider for the patient and scheduling appointments with the new primary care provider on the patient's behalf. Alternatively, several hospitals described having special teams to serve as the primary care provider until the patient could establish a longer-term primary care relationship. For example, the attending physician or hospitalist may serve as a short-term primary care provider to make sure the discharge planning process and immediate post-discharge needs are met. One hospital implemented a virtual primary care team to ensure a patient's care was not disrupted because they could not identify or reach a primary care provider in a timely manner. Most hospitals agreed that engaging primary care was beneficial for every patient, but not all hospitals had the resources to make this effort on behalf of all patients. When needed, they often focused these efforts on patients with medical or social complexity. Some hospitals indicated their primary care connection efforts were specific to BPCI Advanced patients only.

Although coordination with primary care providers during the post-discharge period often predated BPCI Advanced, as part of a hospital or PGP's efforts to decrease avoidable hospital readmissions, several episode initiators acknowledged BPCI Advanced helped accelerate and expand those

efforts and safely discharge a greater proportion of patients home rather than to institutional PAC facilities.

3. Care Redesign Activities After Hospitalization

The most common care redesign strategies in the post-discharge period reported by hospitals and PGPs included forming narrow networks of preferred PAC providers and using care coordinators or patient navigators to monitor patients in the post-discharge period.

> *"Having employees in SNFs lets us control length of stay, [and] they can also do direct admissions to nursing homes if [patients are] not sick enough to go to hospital."*
>
> *– PGP Episode Initiator*

Some hospitals and PGPs reported that their preferred SNFs allowed them to send their own providers into facilities to conduct rounds on BPCI Advanced patients. Several hospitals and PGPs felt this practice was key to their financial success in the model because it gave them more control over patients' cost and care outcomes in the post-discharge period as well as length of stay in these facilities. A few episode initiators reported having their own physicians serve as medical directors at partnering SNFs to support BPCI Advanced care redesign activities. One PGP established a direct physician-to-physician phone line between the PGP and the SNF to use for consultations on high-risk patients. This newfound integration between inpatient providers and outpatient facilities is an example of care transformation under the BPCI Advanced Model. Because some hospitals and PGPs have trouble identifying BPCI Advanced patients in real time, some reported discharging most of their Medicare FFS patients to their preferred PAC facilities, resulting in higher quality of care for more beneficiaries, which is another example of care transformation.

Another care redesign activity reported in the post-acute period was enhanced monitoring of patients during their recovery from procedures or hospitalizations. Hospitals and PGPs used staff such as care coordinators or care navigators to call patients by phone or visit them during the post-discharge period, whether the patient was discharged to a PAC facility or directly home. According to hospitals and PGPs, these coordinators asked patients about any medical concerns and helped address other needs, including lack of transportation to follow-up appointments or concerns about access to or costs of medications. Some care navigators reported strategies for helping patients afford their medicines, such as asking physicians for samples of medications to help the patients get by until their primary care appointment or instructing pharmacies to fill prescriptions for only 10 days instead of 30 days to limit the costs for patients. The cadence of the phone calls and visits by navigators varied by participant, and some targeted this outreach to higher-risk patients only. Some hospitals and PGPs used care management platforms provided by their convener to remind them when to call or check in on beneficiaries.

Care navigators also helped schedule follow-up care appointments with specialists or primary care providers on behalf of patients if these appointments had not been previously scheduled. Some navigators even identified new primary care providers for patients who did not already have a provider. As previously mentioned, many participants emphasized the importance of connecting

> *"We know, based on previous studies, seeing a provider within seven days of an acute hospitalization reduces the risk for readmission overall."*
>
> *– Hospital Episode Initiator*

patients with primary care providers following hospitalizations or procedures to ensure a successful recovery and prevent readmissions, particularly for medical episodes.

> *"Because we have that financial funding source, there's the ability to do that type of work post-discharge, where we know it is for the patient and it helps . . . connect them to transportation sources or food banks or get them to their PCPs, etc. Healthcare is tough when you don't have someone beside your side, particularly in a rural community. Bundled payments has [sic] brought that to our ability."*
>
> *– Hospital Episode Initiator*

Dedicating staff to monitoring patients and addressing concerns in the post-discharge period was a new activity for many hospitals and PGPs. This monitoring allowed providers to address concerns that could lead to readmissions and avoidable emergency department use. Hospitals and PGPs reported that navigators were key in helping connect patients with medications, durable medical equipment, and follow-up appointments with primary care providers and other specialists. Many episode initiators felt that this last activity of connecting patients with follow-up care was a particularly important part of ensuring a successful recovery. Some navigators even checked in with patients to make sure they attended these follow-up appointments. Navigators also provided support to address health-related social needs, such as helping patients obtain meals or groceries, assisting with medication affordability challenges, identifying transportation options, and helping patients sign up for Medicaid (if eligible). For some hospitals and PGPs, the ability to use care navigators was only affordable due to the reconciliation payments received from participating in the model. Although it was not financially feasible for hospitals and PGPs to monitor all patients after discharge, many reported that navigators offered value by identifying and mitigating medical and social needs that often contribute to readmissions.

Some hospitals and PGPs reported investing in remote patient monitoring or telehealth tools to keep track of patient outcomes during the 90-day post-discharge period. For example, one hospital participating in the *cardiac care* CESLG sent patients home with technology that collected patient vital signs, like blood pressure and weight, and transmitted that information to the home health team. One convener participant deployed an automatic phone call and text messaging service to every hospital in its health system that called patients after discharge and connected them with nurses if they reported an issue. Participants could not always attribute these investments directly to participation in the BPCI Advanced Model, but they recognized that this technology and enhanced monitoring of patients in the post-discharge period aligned with model objectives.

Some participants reported developing care management practices for high-risk patients to help reduce readmissions and discharge patients home safely. For example, one hospital reported analyzing high-cost outliers among their gastrointestinal episodes and recognizing that patients with co-occurring chronic diseases needed extra support to understand and manage their post-discharge care. This hospital developed a dedicated clinic to refer patients with complex needs for additional support, such as office appointments, phone calls, and home visits. Other hospitals and PGPs reported developing similar chronic care management programs for their medically complex patients.

Shift to Providing Health Care in the Home

Several episode initiators reported establishing new programs to provide health care to beneficiaries in their homes, such as "SNF at Home" or "Hospital at Home" models and mobile integrated health programs.

Another strategy included establishing programs in which nurses or physicians provide care to patients in their homes, especially patients who could not obtain an appointment with their primary care providers in a timely manner and were at increased risk of readmission. For example, one hospital designed a mobile integrated health program to provide patients with SNF-level care at home. The hospital partnered with its local visiting nurse association so that patients who have appropriate social supports at home are managed at home. Other hospitals and PGPs established home rehabilitation programs for stroke patients instead of sending these patients to an IRF. Participants could not always directly attribute these new "SNF at Home" or "Hospital at Home" programs to their participation in BPCI Advanced, but they recognized that these programs expanded access to care for beneficiaries and helped reduce avoidable hospital readmissions.

D. Influence of Model Year 4 Changes on Care Redesign Activities

With the shift from clinical episodes to CESLGs in Model Year 4, participants raised some concerns about their ability to expand their care redesign activities to new clinical episodes and continue to be successful in the model. The biggest concerns were that:

1. The inclusion of both planned and unplanned clinical episodes within some surgical CESLGs makes care redesign activities more difficult.
2. Low volume or poor performance on a single clinical episode within the CESLG can negatively affect financial performance in the model.

"From a care redesign perspective, [the orthopedic service line group] really is dealing with an expanded population of patients more on the traumatic and unscheduled side of the service line."

– Convener Participant

With the shift to CESLGs, some participants that previously had participated in primarily planned clinical episodes now were taking on urgent clinical episodes. Participants raised this as a particular concern in the *orthopedics* and *spinal procedures* CESLGs because their strategies for planned clinical episodes, such as preoperative patient education, may not translate well to unplanned clinical episodes. For example, many participants that previously participated in major joint replacement of the lower extremity (MJRLE), which is primarily a planned procedure, were now responsible for fractures of the femur and hip or pelvis, which are emergency procedures for which preoperative planning is not possible. Further, patients requiring urgent care or emergency procedures often have more complex needs and require more intensive care in the post-acute period. One episode initiator participating in the *spinal procedures* CESLG explained that spinal fusion procedures are clinically complex and that patient PAC needs are highly variable, so it can be difficult to identify opportunities for care improvement or cost reduction. On the other hand, the other clinical episodes in the *spinal procedures* CESLG are planned procedures, and there are more opportunities to reduce institutional PAC use.

Participants also expressed concern that low volume in a specific clinical episode within a CESLG could negatively affect their financial performance in the model. A few hospitals and PGPs

participating in the neurological care CESLG reported that although they have a high episode volume of strokes, their volume of seizures was much lower, and patient needs associated with seizures are much more variable. They were concerned that a single high-cost seizure patient could have a large impact on their performance for the whole CESLG.

> *"[The shift to CESLGs] encouraged us to take on some of the harder episodes and ultimately lift quality across the board."*
>
> *– Hospital Episode Initiator*

Other episode initiators described the shift to CESLGs as an opportunity because it required them to focus on clinical episodes beyond those in which they anticipated financial gains. For example, some hospitals and PGPs described engaging primary care providers and additional specialty groups in their care redesign activities in response to the shift to CESLGs. A few conveners reported that the shift to CESLGs fostered additional physician engagement because redesign was about a more comprehensive set of diagnoses, not just a single clinical episode. However, most episode initiators were wary of this expansion because they did not have physician buy-in or a physician champion for these new clinical episodes, which participants said is critical to achieving success in the model.

Some hospitals and PGPs saw a need to engage PAC partners differently in response to the shift to CESLGs. For example, PGP episode initiators participating in the *orthopedics* CESLG reported that patients with certain types of fractures would require either an IRF stay or a longer SNF stay due to their limited weight-bearing status. Some of these episode initiators were participating only in the MJRLE clinical episode prior to the introduction of CESLGs, and MJRLE patients do not often need a SNF stay after surgery. For these episode initiators, the shift to CESLGs meant they needed to coordinate more closely with SNFs and IRFs to manage patient length of stay and set expectations about quality of care for their higher volume of fracture patients, who generally have more intensive PAC needs than patients with elective joint replacements.

E. Discussion

1. What Are the Findings of This Chapter?

During site visits and interviews with model participants, hospitals and PGPs shared about the initial investments they made to participate in BPCI Advanced, including staff and technology investments, and their new relationships with preferred PAC providers. Participants emphasized the importance of the data provided by CMS in guiding initial care redesign activities and partnerships with PAC providers. Hospitals and PGPs described the care redesign activities implemented during each stage of the patient's care journey, from before hospitalization to the post-discharge period. Many hospitals and PGPs screened BPCI Advanced patients for medical and social risk factors to inform discharge planning and help mitigate adverse outcomes and avoidable readmissions. Some hospitals and PGPs reported connecting BPCI Advanced patients with community resources, including social workers and transportation options, to increase the chances of a successful home recovery. Many hospitals and PGPs underscored the importance of scheduling follow-up appointments with primary care providers and specialists to increase the chance of successful recoveries from hospitalizations or procedures.

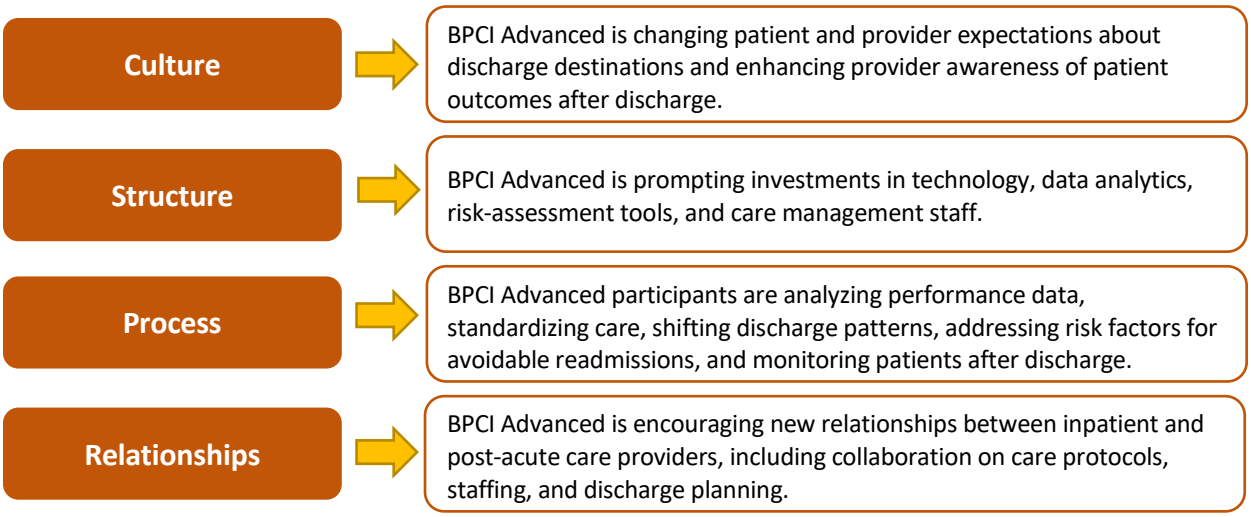
As in prior years, many participants could lower spending on their BPCI Advanced patients by reducing discharges to costly PAC facilities. Hospitals and PGPs reported a shift in discharge patterns, with more patients recovering safely at home and fewer patients requiring lengthy PAC

institutional stays. Hospitals and PGPs collaborated with SNFs and HHAs on care protocols, discharge planning, mobilization and provision of therapy, and other steps to limit length of stay and frequency of services. For example, some hospitals and PGPs sent their own physicians and staff into these facilities to serve as medical directors or conduct rounds on BPCI Advanced patients. Most participants used care navigators to monitor patients in the post-discharge period, and some relied on remote patient monitoring or telehealth to identify risk factors for readmissions.

2. What Are the Implications of These Findings on Care Transformation?

All these care redesign activities have contributed to care transformation in terms of shifts in organizational culture, structure, process, and relationships, as described in Exhibit 24. Hospitals and PGPs reported that BPCI Advanced was not the only driver for changes to patient care and coordination in recent years, but participation in the model has accelerated care transformation by giving providers actionable performance data, changing provider and patient expectations around discharge destination, and encouraging partnerships between providers in the acute and post-acute settings.

Exhibit 24: The Impact of BPCI Advanced on Four Domains of Care Transformation



Certain factors could influence the success of care redesign activities and subsequent care transformation. For example, the ability to reduce length of stay in PAC facilities could depend on local market dynamics, such as the number of PAC providers in the market. Hospitals or PGPs located in "under-bedded" communities (or communities with relatively lower numbers of SNF beds) may have less bargaining power. Some participants in under-bedded communities reported that they could not entice their PAC providers to shorten length of stay or engage with them on BPCI Advanced care redesign efforts. On the other hand, in "over-bedded" communities (or communities with dozens of SNFs), SNFs may have to compete for customers and may be more willing to adopt preferred care practices to increase referrals to their facilities.

> *"The SNFs were not engaged with our organization because they didn't need to be. There was no competition, and they were at capacity."*
>
> *– PGP Episode Initiator*

Other hospitals reported that ownership of an IRF was a challenge to care redesign activities due to the financial incentive to maintain an average daily census in that facility. Hospitals and PGPs that

owned an IRF or had an IRF in their market reported less success avoiding or reducing IRF stays among their BPCI Advanced beneficiaries. One hospital said it decided not to participate in the *neurological care* CESLG specifically because the hospital owned an IRF and did not anticipate being able to reduce discharges to that facility. Another hospital noted that the local IRF advertises aggressively in its market, so it has had to focus on patient re-education on the best PAC setting.

> *"Having the larger health system support us, it gave us some flexibility and buy-in with our post-acute care partners. Branding from [the] health system helped."*
>
> *– Hospital Episode Initiator*

Another factor that could affect success in the model is support from a health system. Hospitals and PGPs that are part of health systems reported receiving additional support with their participation in the model, including population health teams that helped produce metrics and data dashboards, best practices and lessons learned disseminated from other hospitals and physicians within the system, and health system-wide campaigns to improve care for patients with certain clinical conditions. For example, one health system formed a sepsis critical care alliance, where hospitals shared best practices in sepsis care. Even when health systems were not formally participating in the model as conveners, hospitals and PGPs reported benefiting from these system-level initiatives.

> *"Anything that we're doing in the BPCI Advanced program, we're influencing care for all patients. We're taking this as a step forward in that value-based journey."*
>
> *– Hospital Episode Initiator*

Another way to analyze care transformation resulting from the model is to identify model spillover effects. Care transformation can occur when care redesign activities for one patient population are applied more broadly to all patients. Many hospitals and PGPs reported that at least some of their care redesign activities are applied to all patients, including the use of standardized inpatient clinical workflows, multidisciplinary rounding, and enhanced bedside education before discharge. This spillover could occur because care redesign activities are clinical best practices or because the activities align with the episode initiator's broader goals or other value-based care initiatives. Another reason that BPCI Advanced care redesign activities are applied to all patients is due to the difficulty of identifying BPCI Advanced beneficiaries in real time. Hospitals and PGPs shared that care redesign activities are sometimes applied to all patients due to the financial risk associated with being responsible for the cost of care for all Medicare FFS patients in selected CESLGs. Many hospitals and PGPs reported that they do not vary their activities based on a patient's payer source and instead aim to standardize care across all patient populations. However, hospitals and PGPs were less likely to spread care redesign initiatives in the post-discharge period to patients beyond those attributed to BPCI Advanced. For example, using care navigators and conducting telephonic case management is time and resource intensive and is sometimes limited to just BPCI Advanced beneficiaries.

3. What Do These Findings Mean for CMS Objectives?

As CMS plans for a new episode-based payment model, it could be important to consider the differences in care redesign strategies between planned and unplanned episodes. According to hospitals and PGPs, controlling costs can be harder for unplanned episodes, such as stroke, sepsis, and renal failure, and patients with these conditions often have multiple comorbidities. That said, including unplanned episodes in the BPCI Advanced Model means that the model is reaching

beneficiaries who may benefit the most from more coordinated care. Hospitals and PGPs reported increasing screenings for medical and social risk factors for BPCI Advanced beneficiaries and connecting patients with social workers and community resources as well as primary care providers. Several hospitals and PGPs shared that in the past, having patients follow up with primary care providers was simply encouraged. Now, some hospitals and PGPs are setting up those appointments on behalf of their patients before discharge or identifying new primary care providers for patients without one. Patients who are admitted to the hospital with unplanned episodes could greatly benefit from these primary care connections. If the BPCI Advanced Model is encouraging those connections, including unplanned episodes in future episode-based payment models could help CMS achieve its health equity goals.

> *"There are certain steps physicians can take [for planned surgical episodes] and there's not that many of them: preoperative education planning, postoperative communication. On the medical episodes, it's a bit of like a roll the dice. We don't know what patients can be coming in with sepsis, but I know which patient's going to get a spine surgery a month from Tuesday."*
>
> *– Convener Participant*

The role of conveners and consultants is another factor cited by hospitals and PGPs as crucial to success in the model. As stated in Chapter 3, in Model Year 4, about 69% of episode initiators worked with convener participants, and many others relied on convener-like organizations and consultants. Conveners played an important role in assisting downstream episode initiators with patient identification and post-discharge care management. Conveners also assisted hospitals and PGPs with care management in the 90-day post-discharge period by providing tools or platforms to help monitor patients. Some conveners even provided care management staff to their downstream episode initiators, relieving them of the need to hire new staff or repurpose staff to monitor BPCI Advanced patients during the post-discharge period.

Although hospital and PGP episode initiators reported similar care redesign activities overall, some PGPs shared that they felt better able to implement new care processes than hospitals, which can be larger, more complex organizations with competing priorities. Many PGPs reported establishing their own care protocols and sharing them with hospitals and PAC providers and having their own physicians conduct rounds in both hospitals and PAC facilities to ensure care protocols were followed. Another important distinction between hospitals and PGPs is that some PGPs reported that their physicians elected not to care for trauma patients at the hospitals where they performed surgeries. This approach was advantageous to their BPCI Advanced performance because trauma patients can be riskier and costlier. These differences might help explain differences in savings achieved between hospitals and PGPs.

V. Impact of BPCI Advanced

In line with the CMS priority to increase the affordability of health care, a key goal of the BPCI Advanced Model is to reduce episode payments through reductions in unnecessary or avoidable services. In Model Years 1 through 3, the BPCI Advanced Model reduced episode payments while maintaining quality of care. The same impacts were not guaranteed in Model Year 4 (2021), given various model changes, including the shift to participating in clinical episode service line groups (CESLGs) rather than individual clinical episodes and changes to the target price methodology. In addition, participation declined because some hospitals and physician group practices (PGPs) chose not to continue into the new year. Broader changes in health care in 2021 due to the COVID-19 public health emergency also may have influenced model functioning, including new waves of COVID-19 infections, staffing shortages, and increased provider burnout.[32,33,34] In this chapter, we describe the impact of the BPCI Advanced Model on payments, utilization, claims-based quality measures, and drivers of outcomes in Model Year 4 and to identify any notable changes from patterns observed in Model Year 3.

The Innovation Center launched a strategy refresh in 2021, which sought to promote equitable outcomes through high-quality, affordable, person-centered care, with a special focus on underserved communities.[35,36] Although BPCI Advanced was not designed with a specific health equity focus, the model could have differential and unintended effects on beneficiary subpopulations, particularly for beneficiaries from underserved populations. Therefore, in addition to providing model-level findings, we present the estimated impact of BPCI Advanced on key outcomes in Model Year 4 by beneficiary subpopulation, including beneficiaries who are African American, Hispanic, and dually eligible for Medicare and Medicaid. Given the importance of understanding how the model may affect underserved populations in unanticipated ways, we discuss the findings in detail, even when results do not reach statistical significance, to assess any patterns that may be present.

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[32] Paglino, E., Lundberg, D. J., Zhou, Z., Wasserman, J. A., Raquib, R., Luck, A. N., Hempstead, K., Bor, J., Preston, S. H., Elo, I. T., & Stokes, A. C. (2023). Monthly excess mortality across counties in the United States during the COVID-19 pandemic, March 2020 to February 2022. *Science Advances, 9*(25), eadf9742.

[33] Brazier, J. F., Geng, F., Meehan, A., White, E. M., McGarry, B. E., Shield, R. R., Grabowski, D. C., Rahman, M., Santostefano, C., & Gadbois, E. A. (2023). Examination of staffing shortages at US nursing homes during the COVID-19 pandemic. *JAMA Network Open, 6*(7), e2325993.

[34] Shanafelt, T. D., West, C. P., Dyrbye, L. N., Trockel, M., Tutty, M., Wang, H., Carlasare, L. E., & Sinsky, C. (2022). Changes in burnout and satisfaction with work-life integration in physicians during the first 2 years of the COVID-19 pandemic. *Mayo Clinic Proceedings, 97*(12), 2248–2258.

[35] See https://innovation.cms.gov/strategic-direction for more information about the Innovation Center's strategy refresh.

[36] The *Racial Equity and Support for Underserved Communities Through the Federal Government Executive Order 13985* states, "The term 'equity' means the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality. The term 'underserved communities' refers to populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life, as exemplified by the list in the preceding definition of 'equity.'" The executive order is available for download at https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-advancing-racial-equity-and-support-for-underserved-communities-through-the-federal-government/.

We conducted descriptive analyses of the evaluation sample, including the sample size, number of episode initiators (BPCI Advanced participating hospitals and PGPs), and patient characteristics of beneficiaries treated by BPCI Advanced and matched comparison hospitals and PGPs. We estimated the impact of the model on payment, utilization, and claims-based quality outcomes using a difference-in-differences (DiD) approach. Analyses used Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (evaluation baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (Model Year 4; intervention period).

In addition to evaluating the impact of the model by beneficiary subpopulation, we assessed the presence of unadjusted baseline differences in outcomes between Black or African American beneficiaries and Non-Hispanic White beneficiaries, Hispanic beneficiaries and Non-Hispanic White beneficiaries, and beneficiaries dually eligible for Medicare and Medicaid and non-dually eligible beneficiaries (see **Appendix G** and **Appendix H** for findings).

A. Key Findings

BPCI Advanced Model Impacts

- BPCI Advanced reduced total episode payments relative to the comparison group by $930 per episode, or 3.5% of the baseline mean, in Model Year 4 (2021).
    - Episode payments decreased for both medical and surgical episodes, with a smaller reduction in medical episodes ($680 vs. $1,939). This pattern held for both hospitals and physician group practices (PGPs).
    - There were reductions in episode payments for the beneficiary subpopulations evaluated.
- As in prior years, reductions in total episode payments were driven by changes in post-acute care (PAC) use and spending.
    - For medical episodes, reductions in skilled nursing facility (SNF) payments were a larger driver than reductions in inpatient rehabilitation facility (IRF) payments. For surgical episodes, reductions in IRF payments were slightly larger. This pattern held for both hospitals and PGPs, though for PGPs, reductions in home health spending also contributed substantially to the reduction in surgical episode payments.
    - BPCI Advanced reduced the share of episodes first discharged to institutional PAC settings by 0.62 percentage points (pp) in medical episodes and 4.81 pp in surgical episodes.
    - Both BPCI Advanced hospitals and PGPs reduced the share of episodes first discharged to institutional PAC settings and the number of SNF days among beneficiaries with at least 1 day in a SNF.

BPCI Advanced Model Impacts (Continued)

- Overall, quality of care was varied in Model Year 4.
  - The readmission rate during the 90-day post-discharge period (PDP) fell for both BPCI Advanced hospitals and PGPs as well as the comparison group, but the decline was slightly larger for the comparison group, particularly for medical episodes. This resulted in a slight relative increase in the readmission rate under the BPCI Advanced Model, although the increase was not statistically significant.
  - There were relative increases in the readmission rate for most beneficiary subgroups with medical episodes. The small relative increases in readmission rates were statistically significant for Hispanic beneficiaries, Non-Hispanic White beneficiaries, and dually eligible beneficiaries with medical episodes.
  - We observed a pattern of reductions in the mortality rate during the anchor stay and 90-day PDP for BPCI Advanced relative to the comparison group, although the reductions were often not statistically significant. Statistically significant declines in the mortality rate occurred for medical episodes initiated by PGPs and for dually eligible beneficiaries. Relative reductions in mortality were concentrated in the anchor stay.

B. Evaluation Sample

In this section, we highlight key features of the evaluation sample to provide context for the model impact estimates. Hospitals and PGPs voluntarily chose to participate in BPCI Advanced, and they were required to pick from eight CESLGs in Model Year 4. We constructed comparison groups at the clinical episode level, separately for hospitals and PGPs, because CMS calculated target prices and minimum volume requirements for hospital participation at the clinical episode level. The evaluation included a subset of clinical episodes from all CESLGs with a sufficient sample size for analysis. We constructed comparison groups for 26 hospital-initiated clinical episodes, which spanned all CESLGs (four medical CESLGs and four surgical CESLGs). We constructed comparison groups for 18 PGP-initiated clinical episodes from six CESLGs (four medical CESLGs and two surgical CESLGs).

In Model Year 4, there were 1,205 episode initiators, including 682 hospitals and 523 PGPs. To be included in our analysis, hospitals and PGPs had to meet the requirements for evaluation, such as having episode volume in both the baseline period and Model Year 4. After comparison group construction, 860 BPCI Advanced episode initiators were included in the final evaluation sample, including 701 episode initiators for medical episodes and 389 episode initiators for surgical episodes (Exhibit 25). Our evaluation included the vast majority of BPCI Advanced episode volume in the clinical episodes evaluated, despite not including all Model Year 4 participating hospitals and PGPs. The clinical episodes evaluated in Model Year 4 represent 98.0% of total BPCI Advanced volume, or 99.8% of episodes initiated under medical episodes and 90.7% of episodes initiated under surgical episodes. See **Appendix F** for clinical episode-level counts of

eligible and matched BPCI Advanced episode initiators and **Appendix C** for information on the methods used to determine the sample.[37,38]

Exhibit 25: Count of Model Year 4 (2021) BPCI Advanced Hospital and PGP Episode Initiators and Episodes Included in the BPCI Advanced Evaluation Sample

Clinical Episodes	BPCI Advanced Episode Initiators	BPCI Advanced Intervention Episodes
All Clinical Episodes	860	420,672
Medical	701	346,581
Hospitals	602	282,018
PGPs	99	75,199
Surgical	389	74,091
Hospitals	291	48,112
PGPs	98	27,424

Note: The number of BPCI Advanced episode initiators is limited to the BPCI Advanced hospitals and PGPs that met the requirements for evaluation, such as having episode volume in the baseline and in the intervention period (Model Year 4, 2021). The number of matched BPCI Advanced episode initiators is limited to the BPCI Advanced hospitals and PGPs that were used to calculate the difference-in-differences results in the remainder of this section. The number of intervention episodes is based on the sample used to evaluate the impact of the model on total allowed standardized payments. Some episodes may be assigned to both hospitals and PGPs; we have removed any duplication in the episode counts including both episode initiator types. Thus, the number of episodes separately by hospitals and PGPs may be greater than the total. The number of episode initiators in each category may not sum to the total because episode initiators can participate in multiple clinical episodes. The number of comparison group hospitals and PGPs is the same as the number of BPCI Advanced hospitals and PGPs. See **Appendix C** for information on the methods used to determine the sample. See **Appendix I** for more detailed results. PGP = physician group practice.

Source: CMS BPCI Advanced Database and the BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

We performed descriptive analyses of claims-based variables to understand whether patient characteristics and demographics shifted between the baseline and intervention period (Model Year 4) for the matched BPCI Advanced hospitals and PGPs relative to the comparison group. The analysis included prior post-acute care (PAC) use, patient complexity (measured through the count of hierarchical conditions categories, or HCCs, and the HCC score), whether the beneficiary was dually eligible for Medicare and Medicaid, whether disability was the original reason the beneficiary was eligible for Medicare, and beneficiary demographic characteristics (whether the beneficiary was 80+ years old, whether the beneficiary was male, and beneficiary race and ethnicity).

The analyses did not reveal large shifts in the composition of the samples. See **Appendix I** for detailed results. Only one relative change was larger than 1 percentage point (pp): Relative to the comparison group, the proportion of BPCI Advanced surgical episodes in which the beneficiary had prior home health (HH) use relative to the comparison group decreased (relative change: -1.28 pp). The proportion of beneficiaries who were dually eligible and who were originally enrolled in

[37] BPCI Advanced hospitals and PGPs were matched one-to-one to comparison hospitals and PGPs within each clinical episode. Thus, the counts of comparison hospitals and PGPs match those of the BPCI Advanced group within the clinical episode. However, in regressions where results are grouped, there may be more unique comparison hospitals and PGPs, as BPCI Advanced episode initiators may be matched to different comparison providers across clinical episodes.

[38] Please see **Appendix J** for sample sizes for both the BPCI Advanced and comparison hospital and PGP episodes.

Medicare due to a disability declined between the baseline and intervention period for both the BPCI Advanced sample and the comparison group and for both medical and surgical episodes.

Relative differences in the racial and ethnic composition of beneficiaries between BPCI Advanced hospitals and PGPs and the comparison groups were small in magnitude (less than 1 pp in absolute value). The proportion of episodes where the beneficiary was Black or African American declined for medical and surgical episodes in both the BPCI Advanced and comparison samples. In the surgical sample, the change was larger for the BPCI Advanced sample, resulting in a -0.38 pp relative change. In medical episodes, we observed a relative reduction in the share of episodes where the beneficiary was Hispanic for the BPCI Advanced episodes, with a relative change of -0.76 pp.

C. Impact of BPCI Advanced on Payments, Claims-Based Quality, and Post-Acute Care Use

To assess the effect of BPCI Advanced on payments and quality and the key drivers of those changes, we estimated the impact of the model on claims-based outcomes using a DiD approach in which we compared the change from baseline (January 1, 2015, through September 30, 2018) to intervention (January 1, 2021, through December 31, 2021) for episodes initiated by BPCI Advanced hospitals and PGPs with the change for episodes at matched comparison providers. In our analyses, we adjusted for differences in patient mix, clinical severity, provider characteristics, and whether the beneficiary had a confirmed COVID-19 diagnosis before or during the anchor stay or procedure.[39] A key assumption of a DiD approach is that outcomes for BPCI Advanced and comparison episodes had parallel trends during the baseline period, which we tested for all our results. See **Appendix C** for more information on our parallel trends testing methodology and **Appendix K** for results.

1. Impact of BPCI Advanced on Key Outcomes

As the BPCI Advanced Model was designed to reduce episode payments while maintaining or improving quality of care, we focused on three key outcomes: (1) total allowed payments during the anchor stay and 90-day post-discharge period (PDP), (2) the readmission rate during the 90-day PDP, (3) and the mortality rate during the anchor stay and 90-day PDP. We assessed the impact of the model overall and for medical and clinical episodes. To understand whether differences existed by episode initiator type, we estimated the impact on these outcomes separately for hospitals and PGPs within medical and surgical episodes. Because the impact of the model could vary for different beneficiary populations, we estimated the impact of the model for beneficiaries from three underserved populations: beneficiaries who are Black or African American, beneficiaries who are Hispanic, and beneficiaries who are dually eligible for Medicare and Medicaid. We also estimated the impact of the model on Non-Hispanic White beneficiaries and non-dually eligible beneficiaries and assessed whether notable differences in impacts occurred for the subpopulations.

[39] To assess whether differences existed in the prevalence of a confirmed COVID-19 diagnosis between BPCI Advanced episodes and comparison episodes, we calculated the shares of episodes with a confirmed COVID-19 diagnosis during Model Year 4. Overall, the rates were similar (20.5% for BPCI Advanced and 19.9% for the comparison group). See **Appendix I** for detailed results.

a. Total Episode Payments

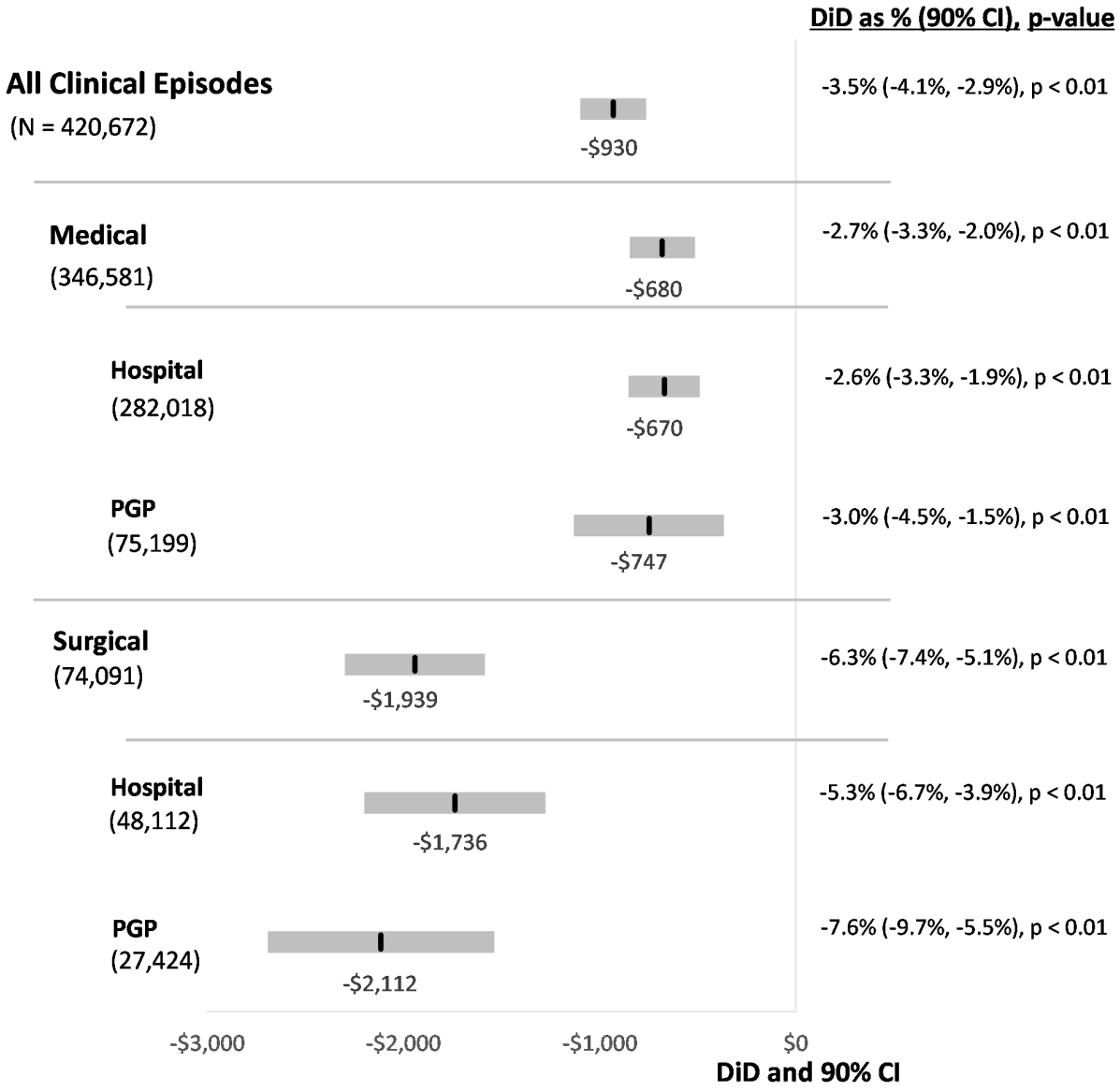
The BPCI Advanced Model reduced total episode payments in Model Year 4. We measured total allowed payments during the episode as Medicare Part A and B payments, including beneficiary cost sharing, during the anchor stay and the 90 days after discharge. Payments were standardized to remove geographic and other payment adjustments. We found reductions in payments overall, by clinical episode type, and by episode initiator type as well as by beneficiary subpopulation. Below we present these findings in detail.

Overall Impact on Episode Payments

Overall, the BPCI Advanced Model reduced episode payments by $930 per episode, or 3.5% of the baseline mean, relative to comparison hospitals and PGPs (90% confidence interval: -$1,098, -$761; $p < 0.01$) (Exhibit 26). When estimated by episode type, the relative reduction in per-episode payments was twice as large for surgical episodes compared with that for medical episodes. For medical episodes, episode payments declined by $680 per episode, or 2.7% (90% confidence interval: -$847, -$514; $p < 0.01$). For surgical episodes, episode payments declined by $1,939 per episode, or 6.3% (90% confidence interval: -$2,295, -$1,583; $p < 0.01$).

Within both episode types, BPCI Advanced hospitals and PGPs reduced per-episode payments relative to comparison hospitals and PGPs. BPCI Advanced hospitals reduced spending on medical episodes by $670 per episode, or 2.6% (90% confidence interval: -$850, -$489; $p < 0.01$), while PGPs reduced per-episode payments for medical episodes by $747, or 3.0% (90% confidence interval: -$1,129, -$366; $p < 0.01$). For surgical episodes, BPCI Advanced hospitals reduced spending by $1,736 per episode, or 5.3% (90% confidence interval: -$2,196, -$1,275; $p < 0.01$), while PGP episode initiators reduced per-episode payments by $2,112, or 7.6% (90% confidence interval: -$2,688, -$1,535; $p < 0.01$). When evaluated by CESLG, episode payments declined for almost all CESLGs evaluated for both episode initiator types. See **Appendix J** for detailed results and for results by CESLG.

Exhibit 26: Impact of BPCI Advanced on Average Episode Payments, Hospital and PGP Episode Initiators, Model Year 4 (2021)



Note: Total payments represent Part A and B fee-for-service payments for the anchor stay or procedure and the 90-day PDP. The estimates in this exhibit are the results of a DiD model. The DiD estimates represent the relative change in dollars. Results are also presented as a percentage of average episode payments for BPCI Advanced during the baseline. The grey bars indicate the 90% confidence interval of the DiD estimate. This payment outcome is standardized to remove the effect of geographic and other payment adjustments. The number of episodes in each subgroup may not sum to the total because individual episodes that were in both the hospital and PGP samples were only counted once when pooled together. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Impact on Episode Payments by Beneficiary Subpopulation

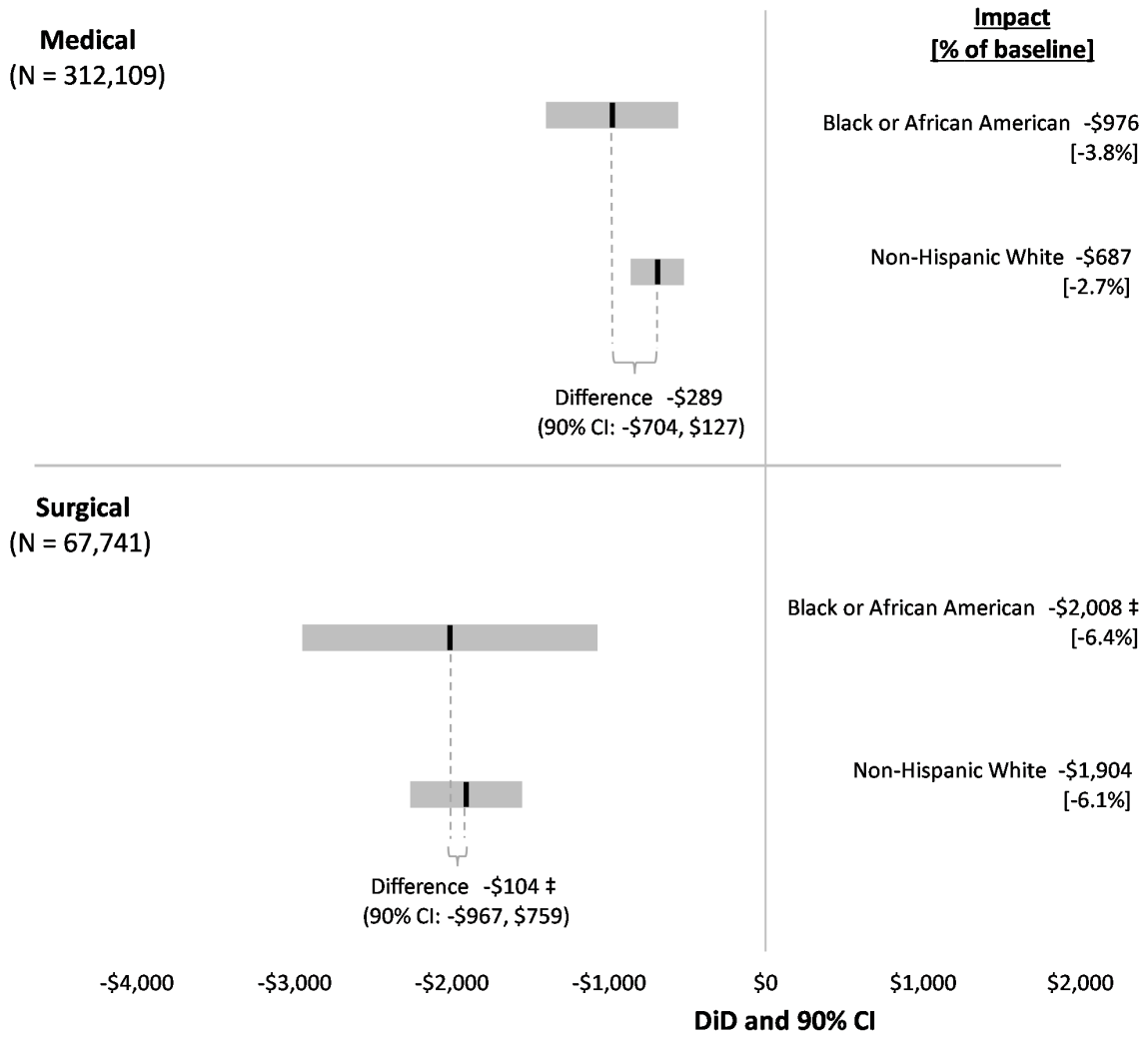
Similar to the overall results, in Model Year 4, total episode payments decreased both for Black or African American beneficiaries and for Non-Hispanic White beneficiaries relative to their comparison groups, with reductions for surgical episodes more than twice as large as the reductions for medical episodes (Exhibit 27). For Black or African American beneficiaries in medical episodes, total episode payments declined $976, or 3.8% of the baseline mean, relative to the comparison group (90% confidence interval: -$1,395, -$557; $p < 0.01$), while payments for surgical episodes declined $2,008, or 6.4% (90% confidence interval: -$2,946, -$1,070; $p < 0.01$). For Non-Hispanic White beneficiaries in medical episodes, total episode payments declined $687, or 2.7%, relative to the comparison group (90% confidence interval: -$857, -$517; $p < 0.01$), while payments for surgical episodes declined $1,904, or 6.1% (90% confidence interval: -$2,261, -$1,546; $p < 0.01$). Both medical and surgical episodes had larger reductions in total episode payments for Black or African American beneficiaries than for Non-Hispanic White beneficiaries, although the differences in impacts for the two subpopulations were not statistically significant.

Total episode payments decreased both for Hispanic beneficiaries and for Non-Hispanic White beneficiaries relative to comparison groups in Model Year 4 (Exhibit 28). For Hispanic beneficiaries in medical episodes, total episode payments declined $351 (90% confidence interval: -$878, $175; $p = 0.27$), or 1.4% of the baseline mean, relative to their comparison group, although the result was not statistically significant. For surgical episodes, total episode payments declined by $1,764 (90% confidence interval: -$2,670, -$858; $p < 0.01$), or 5.8% of the baseline mean. For Non-Hispanic White beneficiaries in medical episodes, total episode payments declined by $690 (90% confidence interval: -$860, -$519; $p < 0.01$), or 2.7% of the baseline mean, relative to their comparison group, while total episode payments in surgical episodes declined by $1,895 (90% confidence interval: -$2,250, -$1,539; $p < 0.01$), or 6.1% of the baseline mean.[40] For both medical and surgical episodes, the reduction in total episode payments was smaller for Hispanic beneficiaries than for Non-Hispanic White beneficiaries, but neither of the differences in impacts between the two subpopulations was statistically significant.

Total episode payments decreased both for dually eligible BPCI Advanced beneficiaries and for non-dually eligible BPCI Advanced beneficiaries relative to the respective comparison groups (Exhibit 29). In medical episodes, the reduction in total episode payments was $627, or 2.4% of the baseline mean, for dually eligible beneficiaries (90% confidence interval: -$913, -$340; $p < 0.01$) and $708, or 2.8%, for non-dually eligible beneficiaries (90% confidence interval: -$873, -$543; $p < 0.01$). The difference in the reduction in payments was similar for dually eligible and non-dually eligible beneficiaries, with a difference in impacts of $81 (90% confidence interval: -$196, $359, $p = 0.63$). For surgical episodes, total episode payments declined $2,402, or 7.5% of the baseline mean, for dually eligible beneficiaries relative to their comparison group (90% confidence interval: -$3,117, -$1,687 $p < 0.01$) and $1,883, or 6.1%, for non-dually eligible beneficiaries (90% confidence interval: -$2,241, -$1,525; $p < 0.01$). The relative reduction in episode payments was larger for dually eligible beneficiaries by $519 (90% confidence interval: -$1,196, $158; $p = 0.21$).

[40] Estimates for Non-Hispanic White beneficiaries differ slightly between subpopulation analyses because the estimates are from separate regressions. See **Appendix C** for more details on the methods used in this analysis.

Exhibit 27: Impact of BPCI Advanced on Average Episode Payments for Beneficiaries Who Are Black or African American and for Beneficiaries Who Are Non-Hispanic White, Model Year 4 (2021)

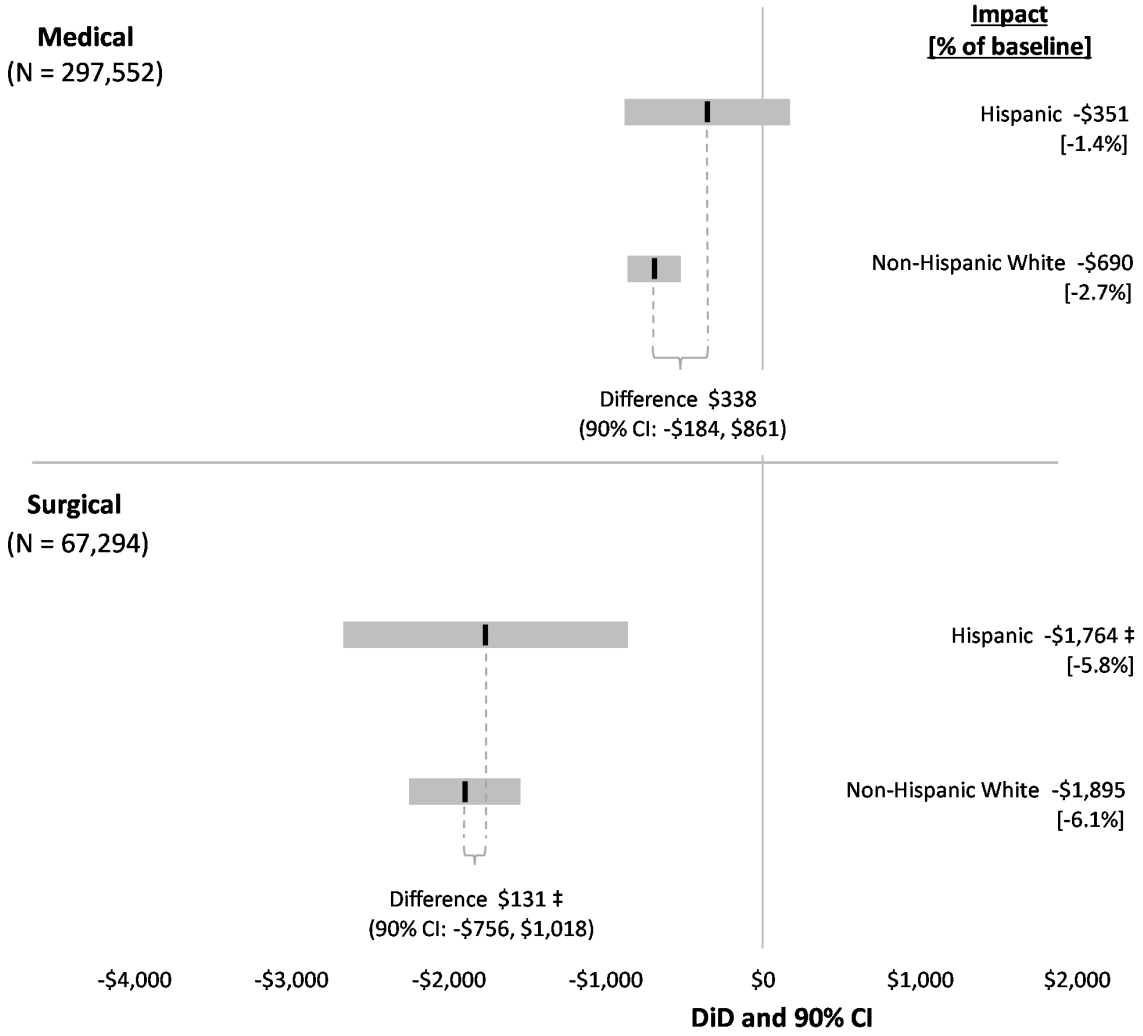


Note: Total payments represent fee-for-service Parts A and B payments for the anchor stay or procedure and the 90-day post-discharge period. The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The estimates represent the relative change in dollars. Results are also presented as a percentage of the BPCI Advanced baseline mean. The grey bars indicate the 90% confidence interval of the DiD estimates. This payment outcome is standardized to remove the effect of geographic and other payment adjustments. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. Results for subgroups included in other analyses may differ from those presented here because they are generated from a different regression. See **Appendix C** for additional information on the DiD and DiDiD methodology, outcome definitions, data sources, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences.

‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Exhibit 28: Impact of BPCI Advanced on Average Episode Payments for Beneficiaries Who Are Hispanic and for Beneficiaries Who Are Non-Hispanic White, Model Year 4 (2021)

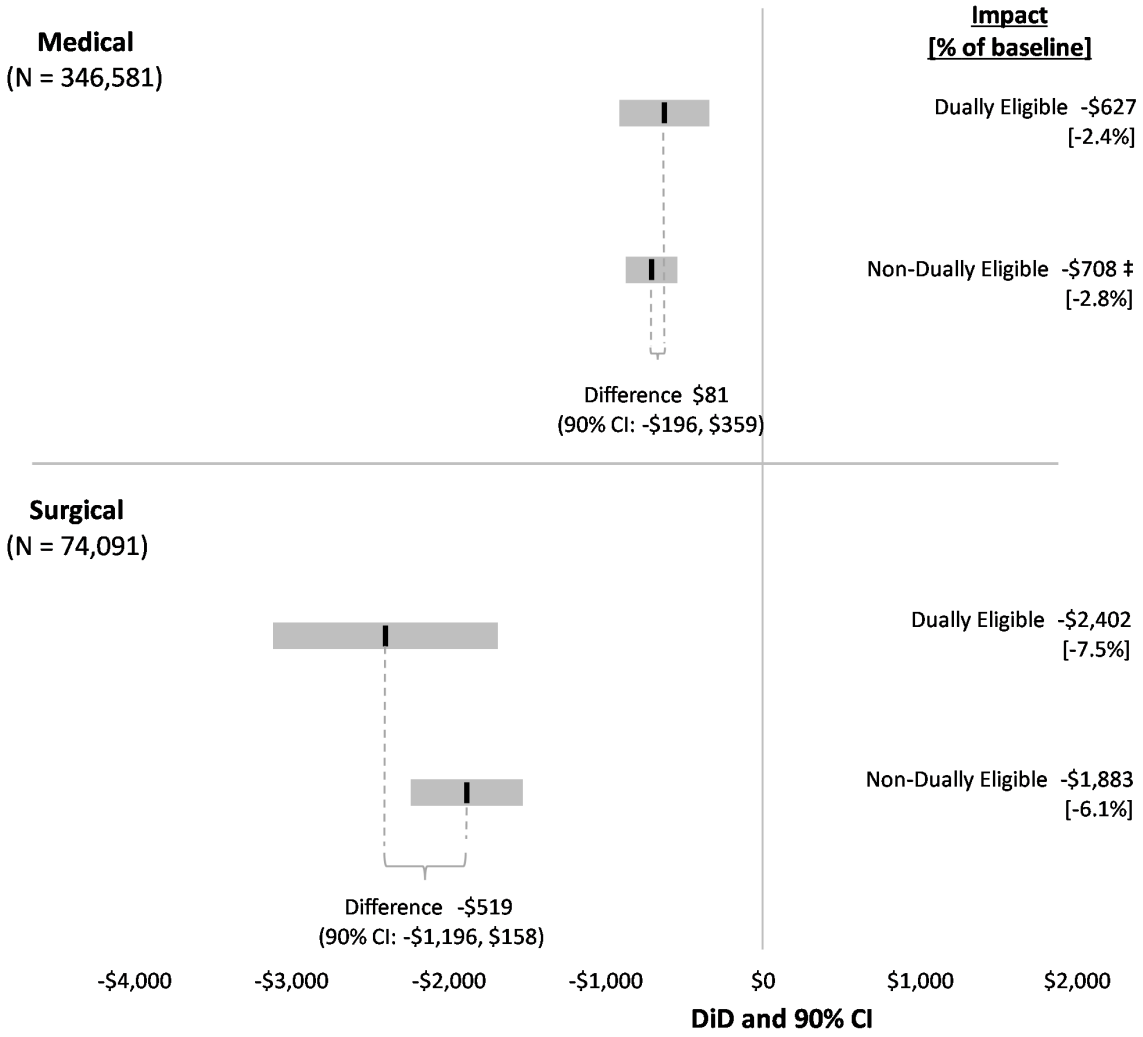


Note: Total payments represent fee-for-service Parts A and B payments for the anchor stay or procedure and the 90-day post-discharge period. The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The DiD (relative change) and DiDiD (differential change) estimates represent the relative change in dollars. Results are also presented as a percentage of the BPCI Advanced baseline mean. The grey bars indicate the 90% confidence interval of the DiD estimates. This payment outcome is standardized to remove the effect of geographic and other payment adjustments. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. When a subgroup is included in more than one analysis, the resulting estimates may differ slightly due to being from a different regression. See **Appendix C** for details of the DiD and DiDiD methodology, outcome definitions, data sources, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences.

‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Exhibit 29: Impact of BPCI Advanced on Average Episode Payments for Beneficiaries Who Are Dually Eligible and Beneficiaries Who Are Non-Dually Eligible, Model Year 4 (2021)



Note: Total payments represent fee-for-service Parts A and B payments for the anchor stay or procedure and the 90-day post-discharge period. The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The DiD (relative change) and DiDiD (differential change) estimates represent the relative change in dollars. Results are also presented as a percentage of the BPCI Advanced baseline mean. The grey bars indicate the 90% confidence interval of the DiD estimates. This payment outcome is standardized to remove the effect of geographic and other payment adjustments. See **Appendix C** for details of the DiD and DiDiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences.

‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

b. Claims-Based Quality of Care

To assess the quality of care received by beneficiaries treated by BPCI Advanced participants, we evaluated the impact of the model on (1) the readmission rate during the 90-day PDP and (2) the mortality rate during the anchor stay or procedure through the 90-day PDP. The impact of BPCI Advanced on claims-based quality measures was varied. For readmission rates, we observed larger declines for the comparison group than for BPCI Advanced for medical episodes, resulting in a small relative increase in the readmission rate under BPCI Advanced that was not statistically significant. Among beneficiary subpopulations, there were small, statistically significant relative increases in readmission rates for Hispanic beneficiaries, Non-Hispanic White beneficiaries, and dually eligible beneficiaries with medical episodes. However, for the mortality rate, we observed a pattern of relative reductions in the mortality rate for medical episodes, with statistically significant reductions for PGP-initiated episodes and for episodes where the beneficiary was dually eligible for Medicare and Medicaid. Below we discuss these findings in detail.

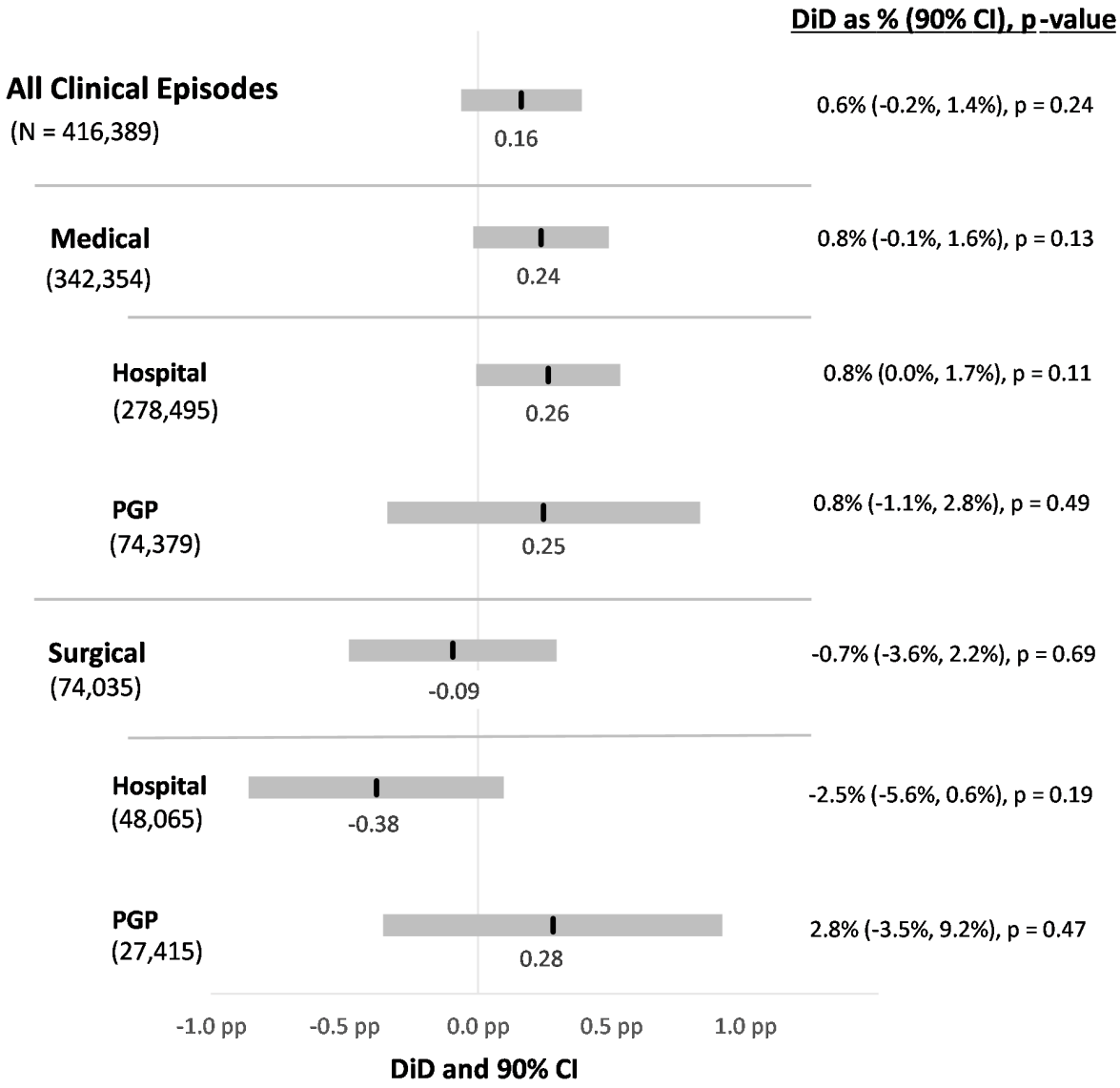
Overall Impact on Quality of Care

Overall, BPCI Advanced did not have a statistically significant impact on the readmission rate during the 90-day PDP (Exhibit 30). For medical episodes, the readmission rate increased 0.24 pp, or 0.8% of the baseline mean readmission rate (90% confidence interval: -0.02, 0.49; p = 0.13). The relative increases when estimated separately for hospitals and PGPs were similar to the overall medical results. For surgical episodes, there was no impact on the readmission rate (estimate of -0.09 pp, or -0.7% of the baseline mean, 90% confidence interval: -0.48, 0.30; p = 0.69). Although neither result was statistically significant, the impact on the readmission rate varied for hospital surgical episodes and PGP surgical episodes. For BPCI Advanced hospital surgical episodes, the readmission rate decreased 0.38 pp, or 2.5% of the baseline mean (90% confidence interval: -0.86, 0.10; p = 0.19). For PGP surgical episodes, the readmission rate increased 0.28 pp, or 2.8% of the baseline mean (90% confidence interval: -0.35, 0.92, p = 0.47). We also evaluated the impact of the model on the readmission rate by CESLG. For *medical and critical care* episodes initiated by hospitals, there was a statistically significant relative increase of 0.39 pp, or 1.3% of the baseline mean readmission rate (90% confidence interval: 0.07, 0.70; p = 0.04). For *spinal procedure* episodes initiated by hospitals, we found a statistically significant decrease of 1.1 pp, or 8.5% of the baseline mean (90% confidence interval: -2.08, -0.12; p = 0.06). The model did not have a statistically significant impact on the readmission rate for other medical and surgical CESLGs (or for any CESLGs under PGPs). We also evaluated the impact of the model on unplanned readmission rates, and results were similar. See **Appendix J** for detailed results.

BPCI Advanced did not have a statistically significant impact on the mortality rate for episodes pooled across all clinical episodes evaluated relative to the comparison group in Model Year 4. However, when we analyzed episodes separately by hospitals and PGPs, we found a statistically significant decline for PGP medical episodes of 0.86 pp, or 5.0% of the baseline mean mortality rate (90% confidence interval: -1.54, -0.18; p = 0.04) (Exhibit 31). This result was driven by statistically significant reductions in the mortality rate for the *medical and critical care* CESLG of 1.25 pp, or 6.9% of the baseline mean (90% confidence interval: -2.12, -0.39; p = 0.02), and for the *gastrointestinal care* CESLG of 1.08 pp, or 10.6% of the baseline mean (90% confidence interval: -2.05, -0.12; p = 0.06). We observed a larger and not statistically significant reduction of 1.32 pp in the mortality rate for the *neurological care* CESLG (90% confidence interval: -2.74, 0.11; p = 0.13).

Additional analyses revealed that the reduction in the mortality rate for PGP medical episodes was primarily driven by reductions during the anchor stay. See **Appendix J** for detailed results.

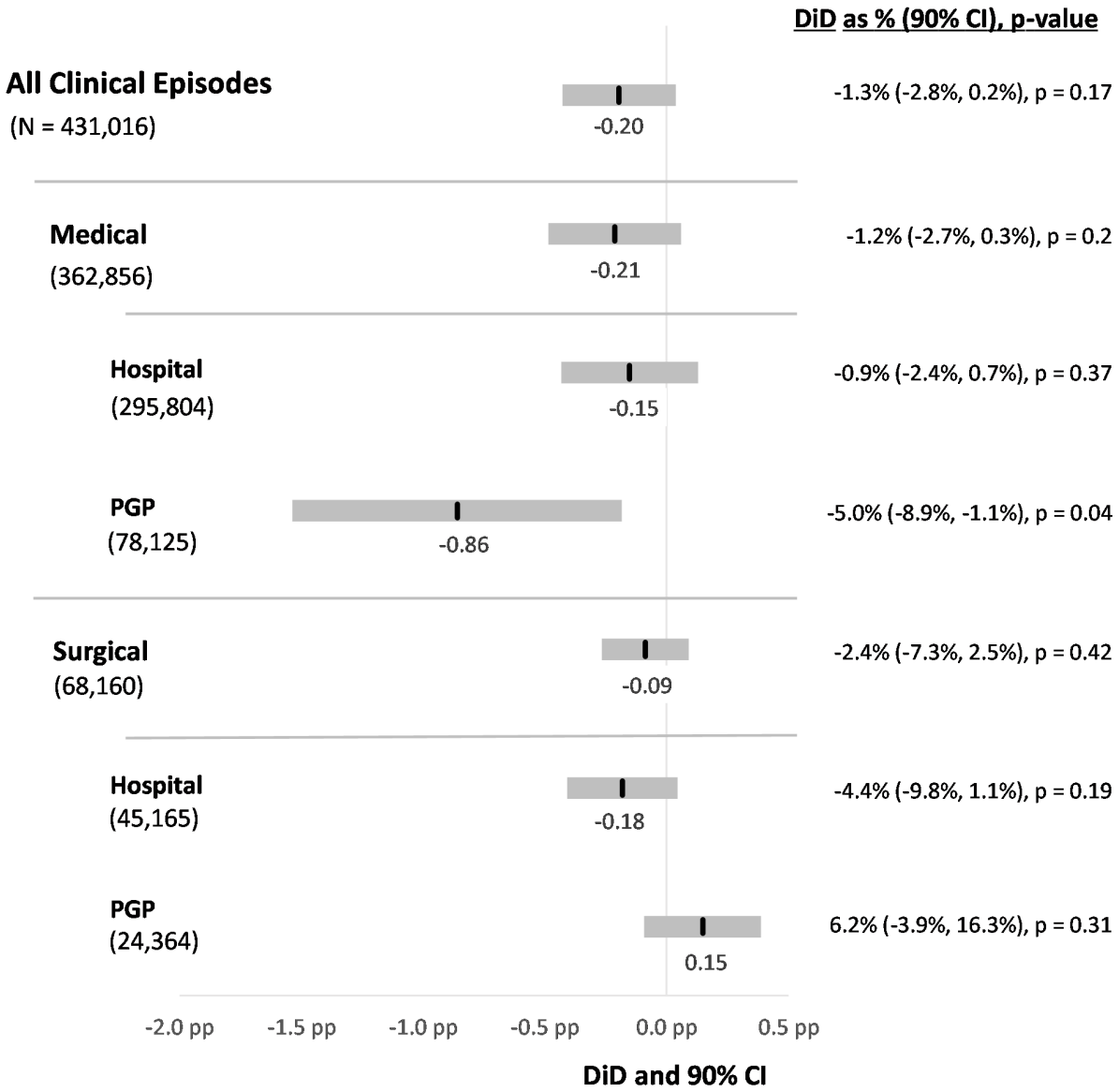
Exhibit 30: Impact of BPCI Advanced on the Readmission Rate During the 90-Day PDP, Hospital and PGP Episode Initiators, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of DiD models. The DiD estimates represent a percentage point change. Results are also presented as a percentage of the BPCI Advanced baseline average rate. The grey bars indicate the 90% confidence interval of the DiD estimate. The number of episodes in each subgroup may not sum to the total because individual episodes that were in both the hospital and PGP samples were only counted once when pooled together. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; PGP = physician group practice; pp = percentage point(s).

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Exhibit 31: Impact of BPCI Advanced on the Mortality Rate During the Anchor Stay and 90-Day PDP, Hospital and PGP Episode Initiators, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of DiD models. The DiD estimates represent a percentage point change. Results are also presented as a percentage of the BPCI Advanced baseline average rate. The grey bars indicate the 90% confidence interval of the DiD estimate. The number of episodes in each subgroup may not sum to the total because individual episodes that were in both the hospital and PGP samples were only counted once when pooled together. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; PGP = physician group practice; pp = percentage point(s).

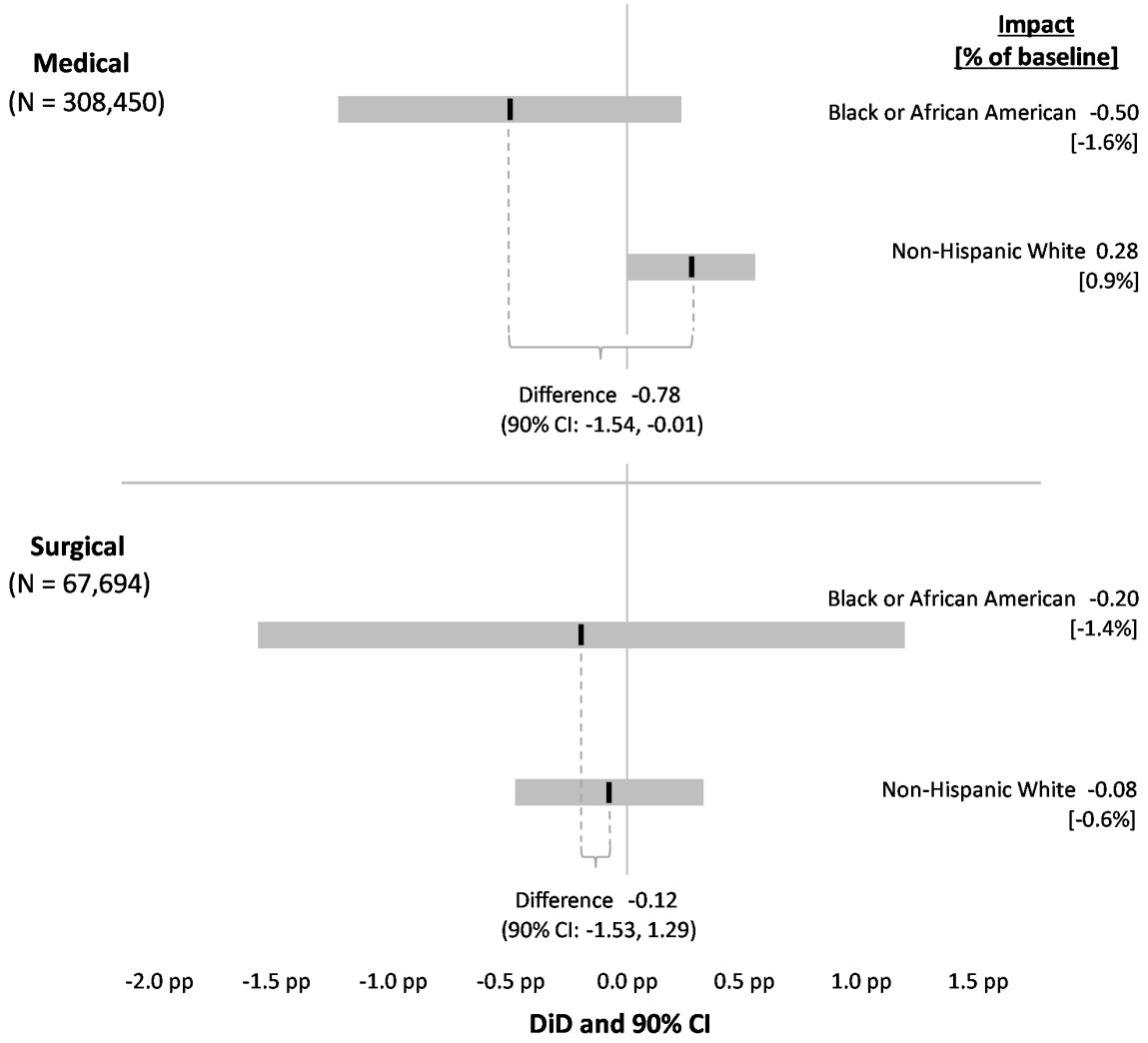
Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Impact on Quality of Care by Beneficiary Subpopulation

For medical episodes, we observed a decline in the readmission rate during the 90-day PDP for Black or African American beneficiaries with BPCI Advanced episodes relative to the comparison group in Model Year 4 (Exhibit 32), although the result was not statistically significant. For Non-Hispanic White beneficiaries, we found a statistically significant increase in the readmission rate of 0.28 pp relative to the comparison group, or 0.9% of the baseline mean (90% confidence interval: 0.00, 0.55; p = 0.10). The difference in the impacts on medical episodes was -0.78 pp (p = 0.10), indicating more favorable results for Black or African American beneficiaries compared with Non-Hispanic White beneficiaries in Model Year 4. For surgical episodes, there was little impact on the readmission rate for either beneficiary subpopulation.

We found small and not statistically significant changes in mortality for Black or African American beneficiaries and Non-Hispanic White beneficiaries in Model Year 4. For Black or African American beneficiaries with medical episodes, the mortality rate increased by 0.13 pp relative to the comparison group, or 0.8% of the baseline mean (90% confidence interval: -0.46, 0.73; p = 0.71) (Exhibit 33). For Non-Hispanic White beneficiaries in medical episodes, the mortality rate decreased by 0.21 pp, or 1.2% of the baseline mean (90% confidence interval: -0.49, 0.08; p = 0.23). The difference in the impacts for the two populations was 0.34 pp (90% confidence interval: -0.24, 0.92, p = 0.34), and the estimated impacts were not statistically different from each other. For surgical episodes, both Black or African American beneficiaries and Non-Hispanic White beneficiaries had small, not statistically significant declines in the mortality rate. The difference in the impacts was also small and not statistically significant.

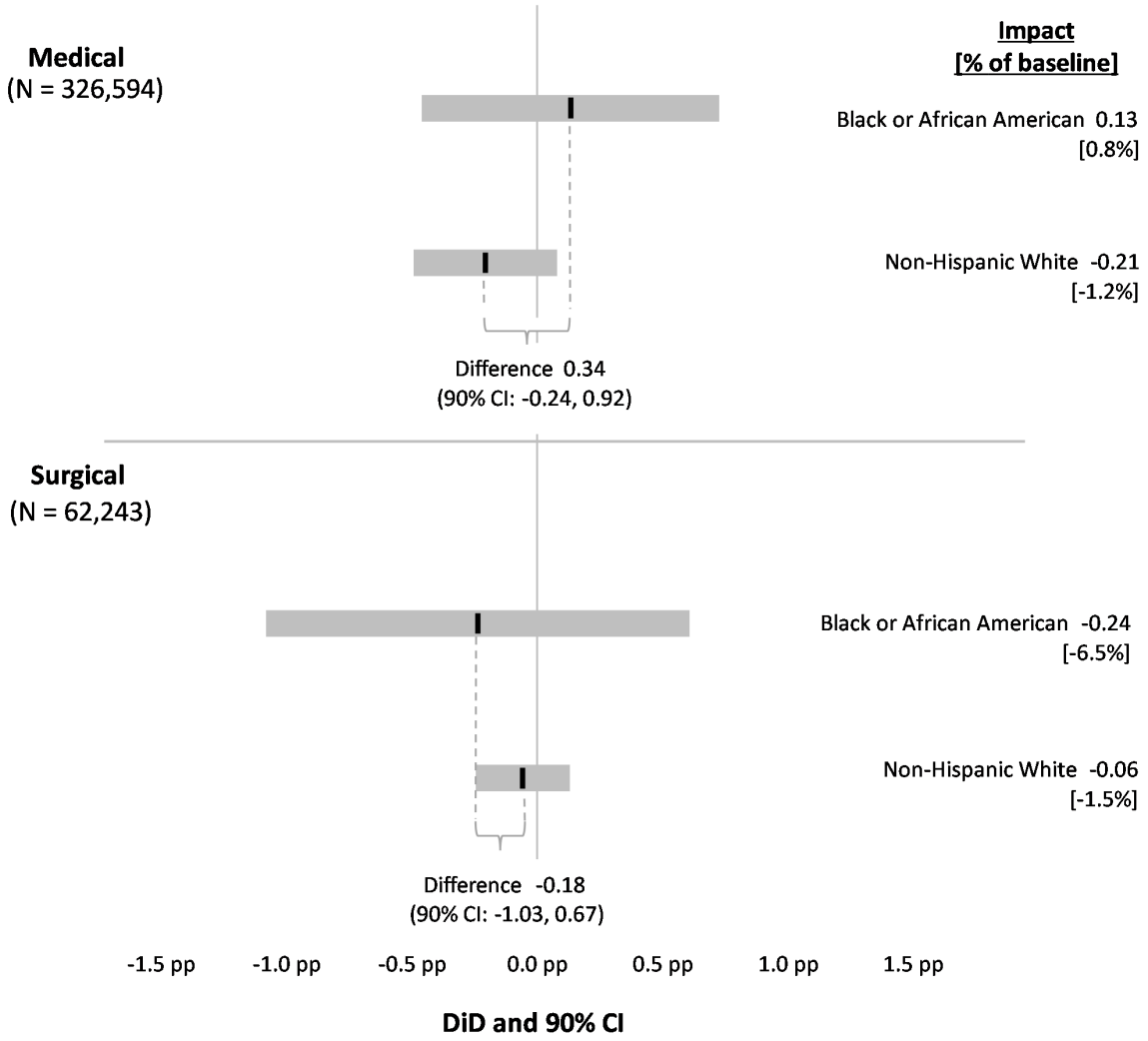
Exhibit 32: Impact of BPCI Advanced on the Readmission Rate During the 90-Day PDP for Beneficiaries Who Are Black or African American and for Beneficiaries Who Are Non-Hispanic White, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The estimates represent the relative change in percentage points. Results are also presented as a percentage of the BPCI Advanced baseline mean readmission rates. The grey bars indicate the 90% confidence interval of the DiD estimates. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. When a subgroup is included in more than one analysis, the resulting estimates may differ slightly due to being from a different regression. See **Appendix C** for details of the DiD and DiDiD methodology, outcome definitions, data sources, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; pp = percentage point(s).

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Exhibit 33: Impact of BPCI Advanced on the Mortality Rate During the Anchor Stay or Procedure and the 90-Day PDP for Beneficiaries Who Are Black or African American and for Beneficiaries Who Are Non-Hispanic White, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The estimates represent the relative change in percentage points. Results are also presented as a percentage of the BPCI Advanced baseline mean mortality rates. The grey bars indicate the 90% confidence interval of the DiD estimates. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. When a subgroup is included in more than one analysis, the resulting estimates may differ slightly due to being from a different regression. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; pp = percentage point(s).

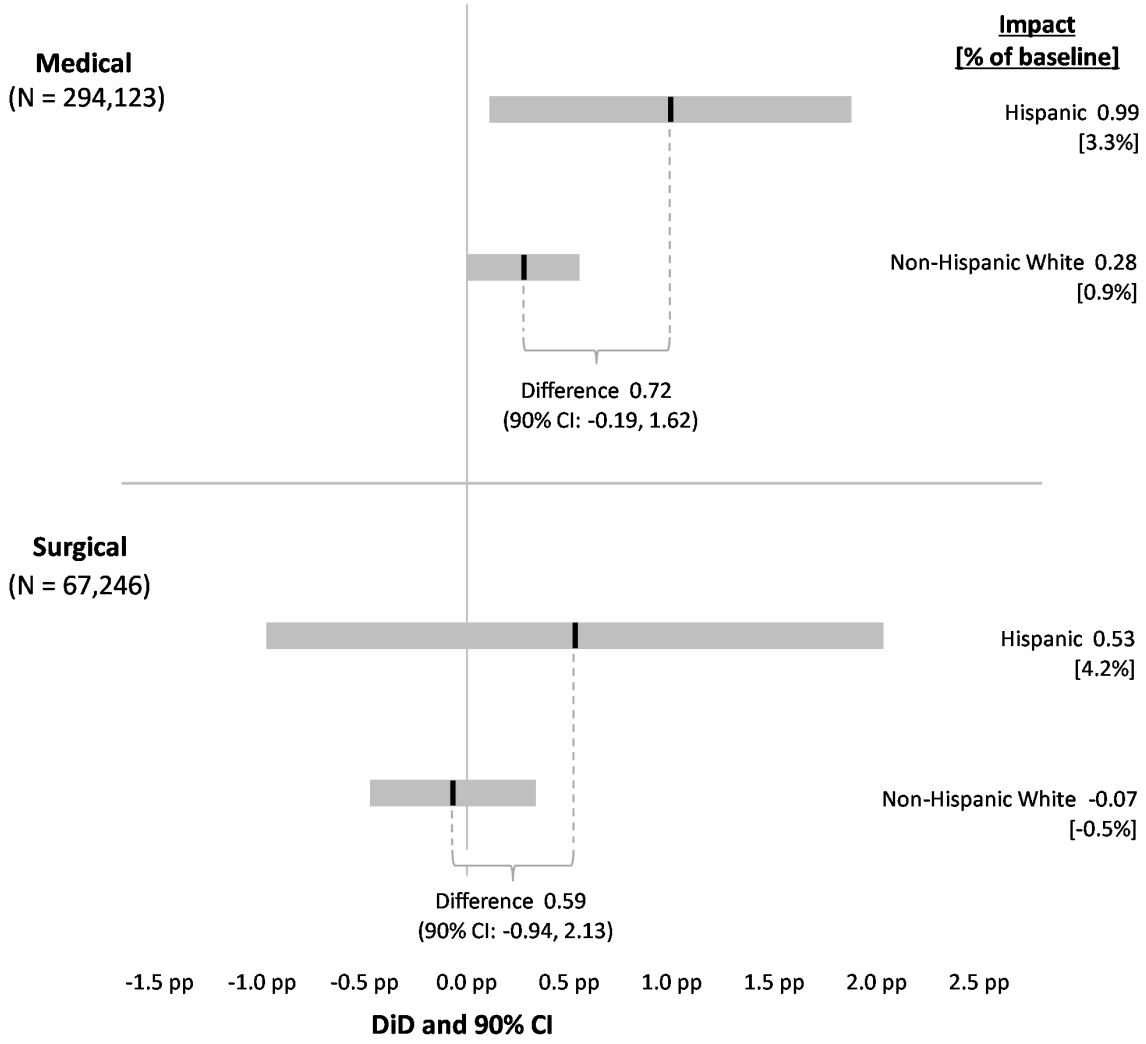
Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

We observed relative increases in the readmission rate during the 90-day PDP both for Hispanic beneficiaries and for Non-Hispanic White beneficiaries with medical episodes in the BPCI Advanced Model relative to their comparison groups in Model Year 4 (Exhibit 34). There was a statistically significant increase of 0.99 pp, or 3.3% of the baseline mean, for Hispanic beneficiaries (90% confidence interval: 0.11, 1.88; p = 0.06), while there was a statistically significant increase of 0.28 pp, or 0.9% of the baseline mean, for Non-Hispanic White beneficiaries (90% confidence interval: 0.01, 0.55; p = 0.09). The difference in the impacts was not statistically significant. Results were similar for the unplanned readmission rate, though the impact for Hispanic beneficiaries was not statistically significant and did not pass the parallel trends test (see **Appendix J**). For surgical episodes, we found little to no impact on the readmission rate for either subpopulation.

Findings for Hispanic beneficiaries in Model Years 1 and 2 and Model Year 3. The increase in the readmission rate during Model Year 4 for Hispanic BPCI Advanced beneficiaries in medical episodes relative to their comparison group was consistent with results from the prior model years. There was also a relative increase in Model Years 1 and 2 (1.13 pp or 3.6% of the baseline mean), and in Model Year 3 (1.03 pp or 3.3% of the baseline mean). For detailed results on the impact of BPCI Advanced on total episode payments, the readmission rate, and the mortality rate for Hispanic beneficiaries and Non-Hispanic White beneficiaries in prior model years, please see **Appendix J**.

There were declines in the mortality rate for Hispanic beneficiaries and for Non-Hispanic White beneficiaries in Model Year 4 relative to their comparison groups, though the results were not statistically significant (Exhibit 35). The relative declines were slightly larger for Hispanic beneficiaries than for Non-Hispanic White beneficiaries, though the difference in impacts were not statistically significant. This was true for medical and surgical episodes.

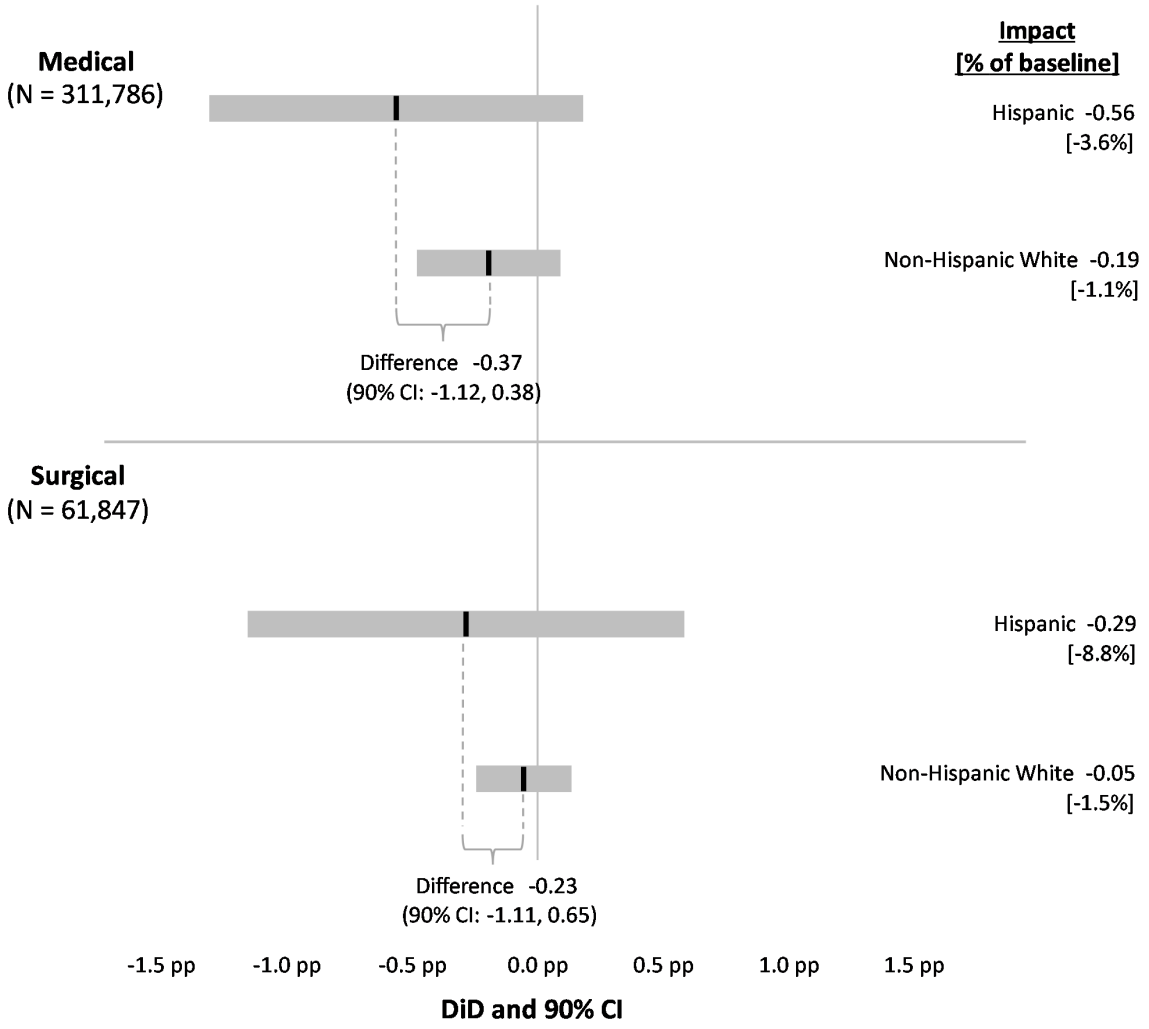
Exhibit 34: Impact of BPCI Advanced on the Readmission Rate During the 90-Day PDP for Beneficiaries Who Are Hispanic and for Beneficiaries Who Are Non-Hispanic White, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The estimates represent the relative change in percentage points. Results are also presented as a percentage of the BPCI Advanced baseline mean readmission rates. The grey bars indicate the 90% confidence interval of the DiD estimates. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. When a subgroup is included in more than one analysis, the resulting estimates may differ slightly due to being from a different regression. See **Appendix C** for details of the DiD and DiDiD methodology, outcome definitions, data sources, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; pp = percentage point(s).

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Exhibit 35: Impact of BPCI Advanced on the Mortality Rate During the Anchor Stay or Procedure and the 90-Day PDP for Beneficiaries Who Are Hispanic and for Beneficiaries Who Are Non-Hispanic White, Model Year 4 (2021)



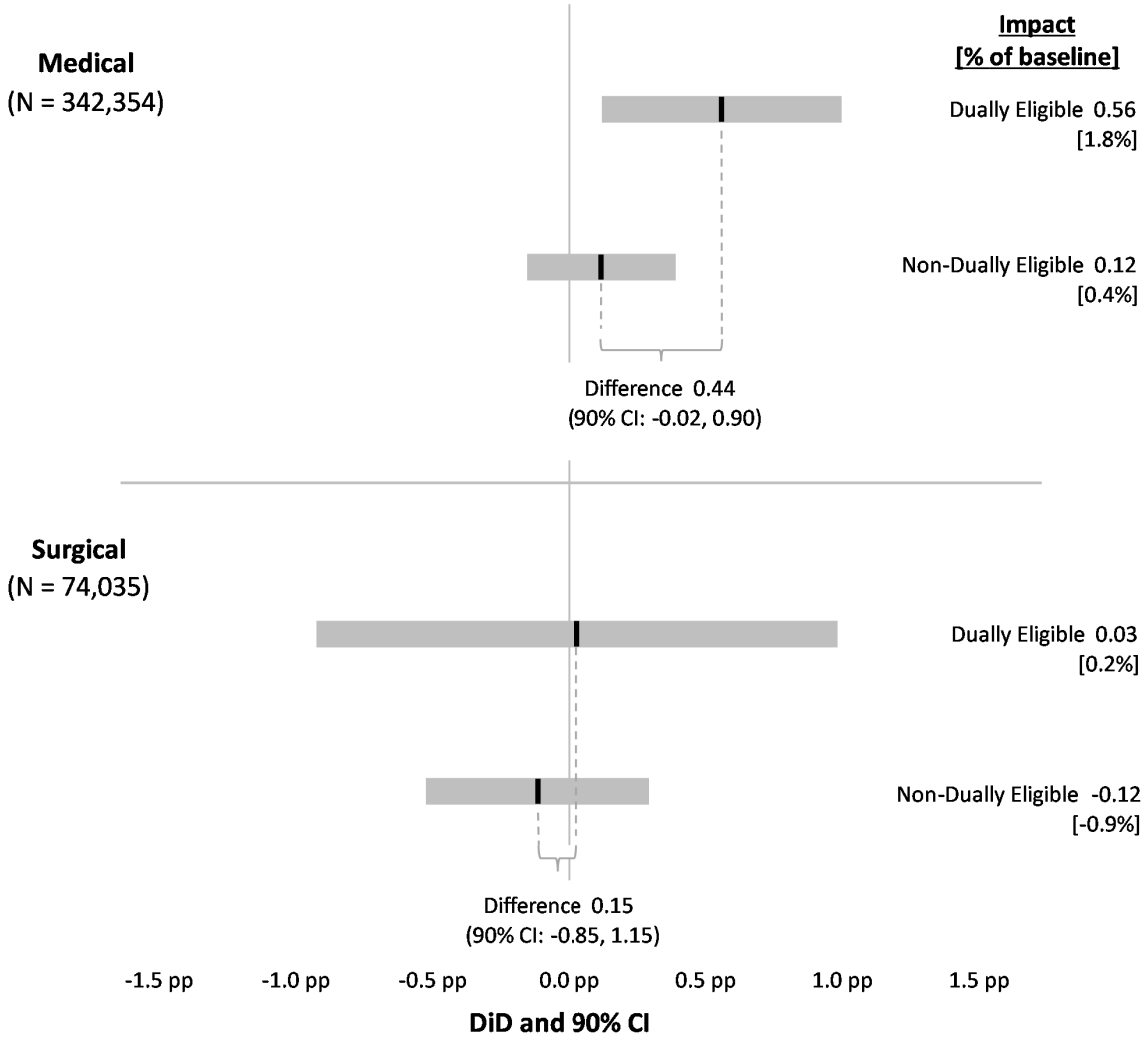
Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The estimates represent the relative change in percentage points. Results are also presented as a percentage of the BPCI Advanced baseline mean mortality rates. The grey bars indicate the 90% confidence interval of the DiD estimates. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. When a subgroup is included in more than one analysis, the resulting estimates may differ slightly due to being from a different regression. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; pp = percentage point(s).

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

For medical episodes, the readmission rate for dually eligible beneficiaries showed a statistically significant increase of 0.56 pp, or 1.8% of the baseline mean readmission rate, relative to the comparison group during Model Year 4 (90% confidence interval: 0.12, 1.00; p = 0.04) (Exhibit 36). The readmission rate increased by 0.12 pp, or 0.4%, for non-dually eligible beneficiaries with medical episodes relative to the comparison group (90% confidence interval: -0.15, 0.39; p = 0.47). The resulting difference in impacts for dually eligible beneficiaries and non-dually eligible beneficiaries with medical episodes was not statistically significant (0.44 pp; 90% confidence interval: -0.02, 0.90; p = 0.12), although the positive difference indicated that the model may have had a less favorable impact for dually eligible beneficiaries.

We found a statistically significant relative decline in the mortality rate during the anchor stay or 90-day PDP for dually eligible beneficiaries with medical episodes of 0.52 pp, or 2.9% of the baseline mortality rate, relative to the comparison group in Model Year 4 (90% confidence interval: -0.98, -0.06; p = 0.06) (Exhibit 37). The mortality rate for non-dually eligible beneficiaries with medical episodes decreased 0.14 pp, or 0.8%, relative to their comparison group, but this result was not statistically significant (90% confidence interval: -0.42, 0.14; p = 0.42). The difference in the impacts was 0.38 pp and was also not statistically significant (90% confidence interval: -0.83, 0.07; p = 0.17). Similar to the mortality rate results overall, we found that the relative reductions in the mortality rate for dually eligible beneficiaries in Model Year 4 were primarily concentrated in the anchor stay. We identified little to no impact on the mortality rate during the 90-day PDP for dually eligible or non-dually eligible beneficiaries in surgical episodes relative to the comparison group, and the difference in the impacts was not statistically significant.

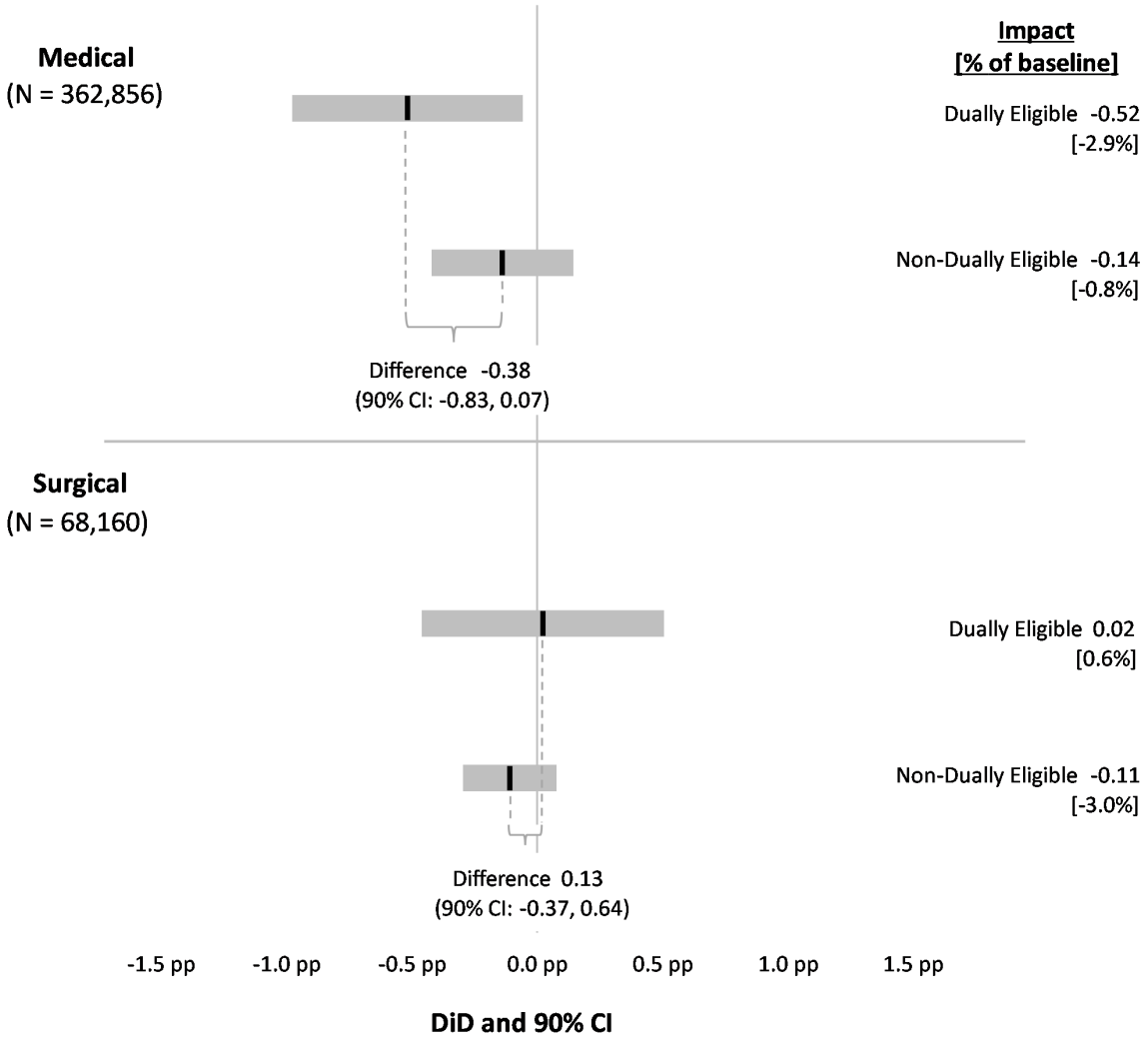
Exhibit 36: Impact of BPCI Advanced on the Readmission Rate During the 90-Day PDP for Beneficiaries Who Are Dually Eligible and for Beneficiaries Who Are Non-Dually Eligible, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The estimates represent the relative change in percentage points. Results are also presented as a percentage of the BPCI Advanced baseline mean readmission rates. The grey bars indicate the 90% confidence interval of the DiD estimates. See **Appendix C** for details of the DiD and DiDiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; pp = percentage point(s).

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Exhibit 37: Impact of BPCI Advanced on the Mortality Rate During the Anchor Stay or Procedure and the 90-Day PDP for Beneficiaries Who Are Dually Eligible and for Beneficiaries Who Are Non-Dually Eligible, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The DiD (relative change) and DiDiD (differential change) estimates represent the relative change in percentage points. Results are also presented as a percentage of the BPCI Advanced baseline mean mortality rates. The grey bars indicate the 90% confidence interval of the DiD estimates. See **Appendix C** for details of the DiD and DiDiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; pp = percentage point(s).

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

2. Impact of BPCI Advanced on PAC Spending and Use

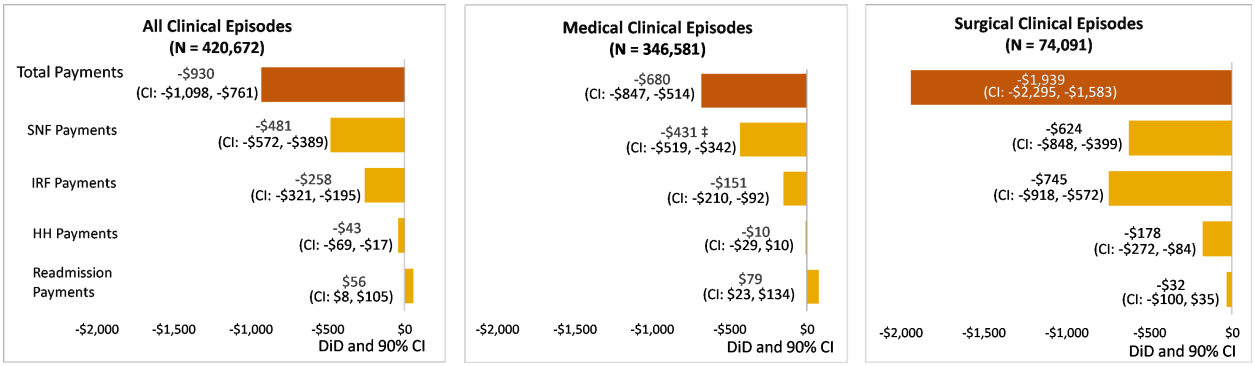
As in prior model years, reductions in total episode payments were driven by reductions in PAC payments and use. To understand how hospital and PGP participants achieved reductions in payments in Model Year 4, we estimated the impact of the model on PAC payments to skilled nursing facilities (SNFs), inpatient rehabilitation facilities (IRFs), and home health (HH) agencies during the 90-day PDP. We also assessed whether changes occurred in payments for readmissions during the 90-day PDP. We measured the impact of the model on institutional PAC use through changes in the share of beneficiaries first discharged into an institutional PAC setting and the number of days in a SNF during the 90-day PDP for episodes where the beneficiary had at least 1 day in a SNF. We chose these outcomes because evaluations of the BPCI Initiative Model 2 and prior BPCI Advanced evaluation reports demonstrated that participants reduced episode payments primarily through these two mechanisms.

a. PAC Payments and Readmission Payments

Overall Impact on PAC Payments

Reductions in payments to PAC providers during the 90-day PDP were a large driver of the declines in total episode payments. During Model Year 4, across all clinical episodes evaluated, the BPCI Advanced Model reduced per-episode SNF payments by $481, or 9.9% of the baseline mean SNF payment (90% confidence interval: -$572, -$389; $p < 0.01$), and per-episode IRF payments by $258, or 25.4% of the baseline mean IRF payment relative to the comparison group (90% confidence interval: -$321, -$195; $p < 0.01$) (Exhibit 38). The model also reduced HH payments, although this decline represents a much smaller portion of the reduction in total episode payments. HH payments declined by $43, or 3.2% of the baseline mean HH payment in Model Year 4 (this outcome did not pass the parallel trends test for this grouping) (90% confidence interval: -$69, -$17; $p < 0.01$).

Exhibit 38: Impact of BPCI Advanced on SNF, IRF, HH, and Readmission Payments in the 90-Day PDP, Hospital and PGP Episode Initiators, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of DiD models. The DiD estimates represent the relative change in dollars. Payment outcomes were standardized to remove the effect of geographic and other payment adjustments. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results.
CI = confidence interval; DiD = difference-in-differences; HH = home health; IRF = inpatient rehabilitation facility; PDP = post-discharge period; PGP = physician group practice; SNF = skilled nursing facility.

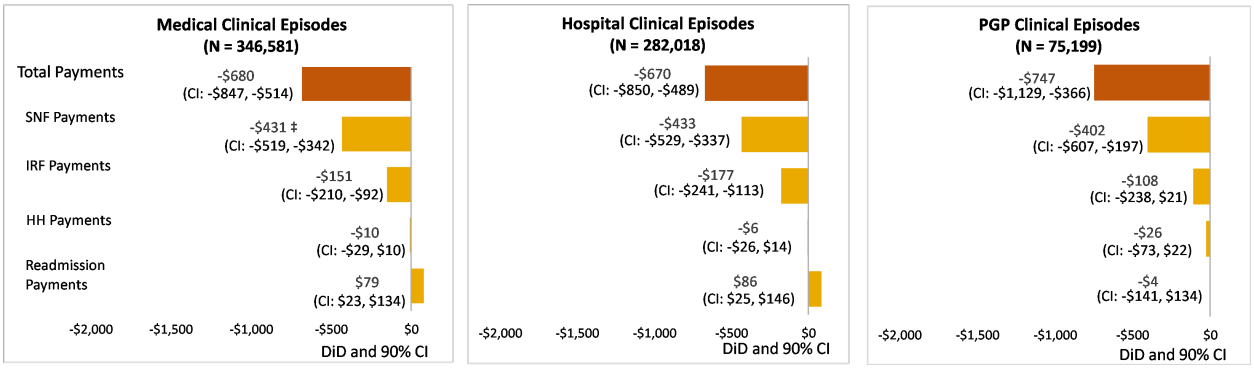
‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

For medical episodes, the reduction in SNF payments was a larger driver of the changes in total episode payments than the reduction in IRF payments in Model Year 4. The BPCI Advanced Model reduced SNF payments for medical episodes by $431, or 9.0% of the baseline mean SNF payment (90% confidence interval: -$519, -$342; $p < 0.01$), and IRF payments by $151, or 17.2% of the baseline mean IRF payment (90% confidence interval: -$210, -$92; $p < 0.01$). There was little change for HH payments in medical episodes. When separated by hospital and PGP episodes, we found that the pattern in reductions in PAC payments largely followed the pattern from the overall medical episode results (Exhibit 39).

We also assessed the impact of the model on readmission payments. The model increased payments for inpatient hospital readmissions during the 90-day PDP by $56, or 1.5% of the baseline mean readmission payment (90% confidence interval: $8, $105; $p = 0.06$). This increase was driven by medical episodes, which had an increase in readmission payments of $79, or 1.9% of the baseline mean (90% confidence interval: $23, $134; $p = 0.02$). The increase in readmission payments for medical episodes was driven by episodes initiated by BPCI Advanced hospitals, which had a statistically significant increase of $86 in readmission payments (90% CI: $25, $146; $p = 0.02$). We found no impact on readmission payments for medical episodes initiated by PGPs.

Exhibit 39: Impact of BPCI Advanced on SNF, IRF, HH, and Readmission Payments in the 90-Day PDP, Hospital and PGP Episode Initiators, Medical Episodes, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of DiD models. The DiD estimates represent the relative change in dollars. Payment outcomes were standardized to remove the effect of geographic and other payment adjustments. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results.
CI = confidence interval; DiD = difference-in-differences; HH = home health; IRF = inpatient rehabilitation facility; PDP = post-discharge period; PGP = physician group practice; SNF = skilled nursing facility.

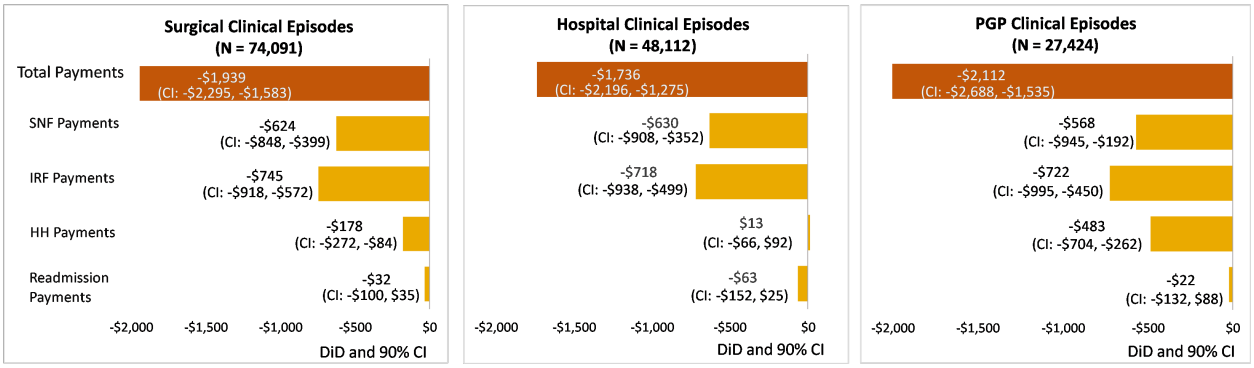
‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

For surgical episodes, both SNF and IRF payments were drivers of the change in total episode payments, although the change in IRF payments was slightly larger. The BPCI Advanced Model reduced SNF payments by $624, or 12.1% of the baseline mean SNF payment (90% confidence interval: -$848, -$399; $p < 0.01$), and IRF payments by $745, or 44.7% of the baseline mean IRF payment (90% confidence interval: -$918, -$572; $p < 0.01$). This pattern for SNF and IRF payments applied to both hospitals and PGPs (Exhibit 40).

Reductions in payments for HH services contributed to the overall decline in total episode payments for surgical episodes, as well, in Model Year 4, as payments for HH services declined by $178, or 10.2% of the baseline mean HH payment (90% confidence interval: -$272, -$84; $p < 0.01$). The declines in HH payments for surgical episodes were driven by PGPs. There was a reduction of -$483 for surgical episodes initiated by BPCI Advanced PGPs (90% confidence interval: -$704, -$262; $p < 0.01$) but little impact on payments for HH services for BPCI Advanced hospitals. Unlike medical episodes, we found a pattern of declines in readmission payments for surgical episodes, overall and when estimated separately for hospitals and PGPs, although none of the reductions were statistically significant.

Exhibit 40: Impact of BPCI Advanced on SNF, IRF, HH, and Readmission Payments in the 90-Day PDP, Hospital and PGP Episode Initiators, Surgical Episodes, Model Year 4 (2021)



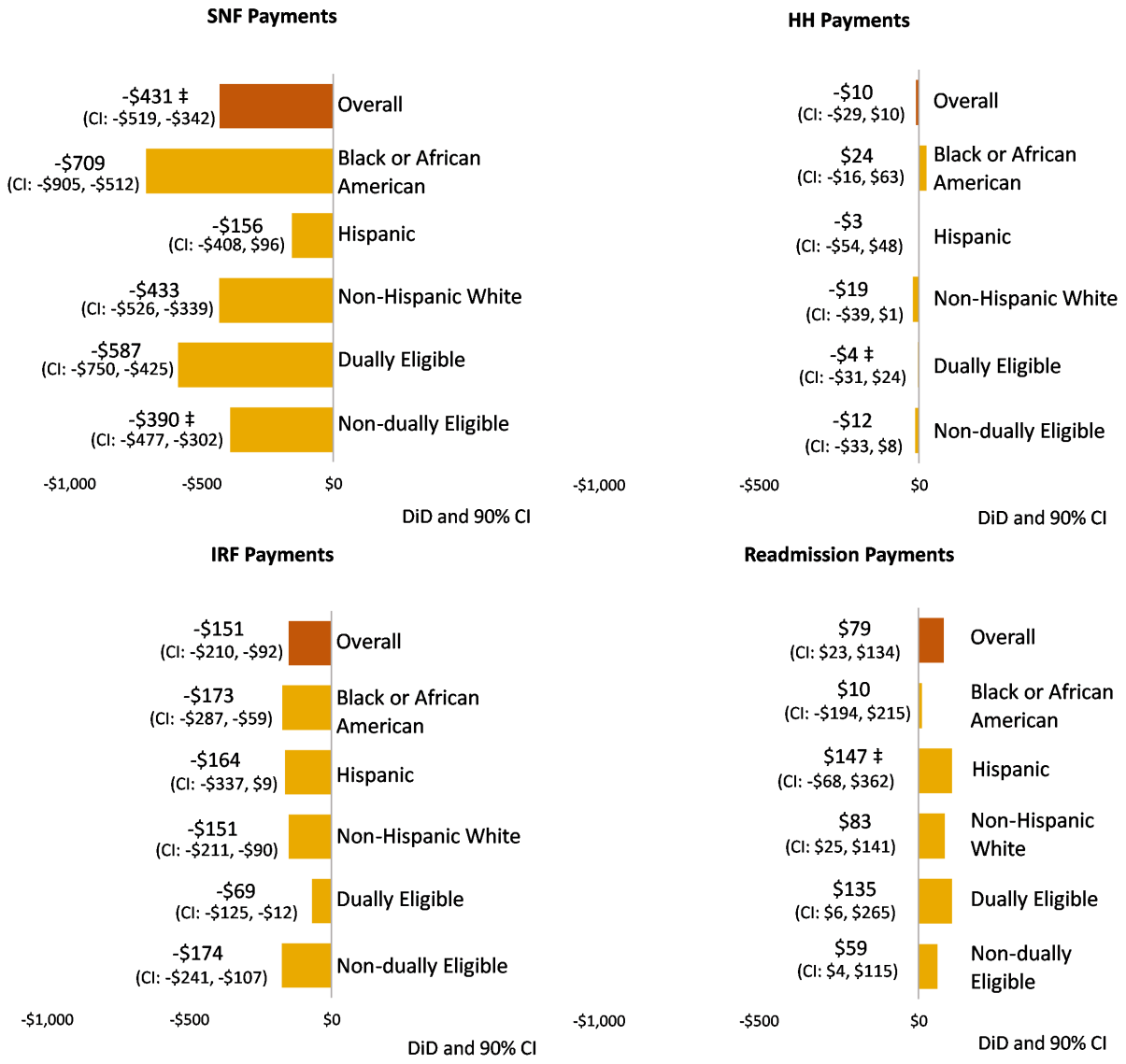
Note: The estimates in this exhibit are the results of DiD models. The DiD estimates represent the relative change in dollars. Payment outcomes were standardized to remove the effect of geographic and other payment adjustments. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results.
CI = confidence interval; DiD = difference-in-differences; HH = home health; IRF = inpatient rehabilitation facility; PDP = post-discharge period; PGP = physician group practice; SNF = skilled nursing facility.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Impact on PAC Payments by Beneficiary Subpopulation

A similar pattern was observed for beneficiary subpopulations with medical episodes, with some exceptions (Exhibit 41). There were also some outcomes where we found statistically significant differences in impacts between beneficiary subpopulations.

Exhibit 41: Impact of BPCI Advanced on SNF, IRF, HH, and Readmission Payments in the 90-Day PDP, Hospital and PGP Episode Initiators, Medical Episodes, by Beneficiary Subpopulation, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The results are the DiD estimates, which represent the relative change in dollars. Payment outcomes were standardized to remove the effect of geographic and other payment adjustments. Results for Non-Hispanic White beneficiaries are from the DiDiD for Black or African American beneficiaries and Non-Hispanic White beneficiaries. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; HH = home health; IRF = inpatient rehabilitation facility; PDP = post-discharge period; PGP = physician group practice; SNF = skilled nursing facility.

‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

For medical episodes, the impact on PAC payments for Black or African American and Non-Hispanic White beneficiaries, relative to their comparison groups, followed the pattern observed in the overall results in Model Year 4: There were statistically significant reductions in both SNF and IRF payments, with larger reductions in SNF payments. We observed a statistically significantly larger reduction in SNF payments for Black or African American beneficiaries with medical episodes relative to the comparison group than for Non-Hispanic White beneficiaries (estimate: -$276; 90% confidence interval: -$475, -$78; p = 0.02). As in the overall results, we found little to no impact on HH payments for medical episodes for either subpopulation, with a small, not statistically significant increase for Black or African American beneficiaries and a small, not statistically significant decrease in HH payments for Non-Hispanic White beneficiaries. Although the individual estimates were not statistically significant, the difference between the estimates was statistically significant, with a larger relative increase in HH payments for Black or African American beneficiaries compared with Non-Hispanic White beneficiaries (estimate: $43; 90% confidence interval: $4, $82; p = 0.07).

For Hispanic beneficiaries with medical episodes, the results differed from the overall findings, as the reductions in SNF payments were small and not statistically significant. This resulted in a statistically significant difference in impacts for SNF payments between Hispanic beneficiaries and Non-Hispanic White beneficiaries, with a difference in impacts of $275 (90% confidence interval: $24, $527; p = 0.07).

For dually eligible and non-dually eligible beneficiaries with medical episodes, the impact of BPCI Advanced on PAC payments followed a similar pattern to the overall results, with larger reductions in SNF payments than in IRF payments. In addition, the reductions in SNF payments were larger for dually eligible beneficiaries compared with non-dually eligible beneficiaries (estimate -$198; 90% confidence interval: -$359, -$37; p = 0.04). For IRF payments, the difference in impacts indicated a smaller reduction for dually eligible beneficiaries than for non-dually eligible beneficiaries (estimate = $105; 90% confidence interval: $41, $169, p = 0.01). We also found statistically significant increases in readmission payments in medical episodes for both dually eligible and non-dually eligible beneficiaries with medical episodes relative to their comparison groups (estimate for dually eligible beneficiaries: $135; 90% confidence interval: $6, $265; p = 0.09; estimate for non-dually eligible beneficiaries: $59; 90% CI: $4, $115; p = 0.08). The difference in the impacts was not statistically significant, and the outcome did not pass the parallel trends test.

Like the overall results, for surgical episodes, SNF, IRF, and HH payments declined for all beneficiary subpopulations analyzed. Generally, the magnitudes of PAC payment reductions were similar as well, with the exception of SNF payments for dually eligible beneficiaries (Exhibit 42). There was a larger reduction in SNF payments for dually eligible beneficiaries compared with non-dually eligible beneficiaries of $745 (90% confidence interval: -$1,188, -$301; p = 0.01).

Exhibit 42: Impact of BPCI Advanced on SNF, IRF, HH, and Readmission Payments in the 90-Day PDP, Hospital and PGP Episode Initiators, Surgical Episodes by Beneficiary Subpopulation, Model Year 4 (2021)

Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The results are the DiD estimates, which represent the relative change in dollars. Payment outcomes were standardized to remove the effect of geographic and other payment adjustments. Results for Non-Hispanic White beneficiaries are from the DiDiD for Black or African American beneficiaries and Non-Hispanic White beneficiaries. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; HH = home health; IRF = inpatient rehabilitation facility; PDP = post-discharge period; PGP = physician group practice; SNF = skilled nursing facility.

‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

b. Institutional Post-Acute Care Service Use

Overall Impact on Post-Acute Care Service Use

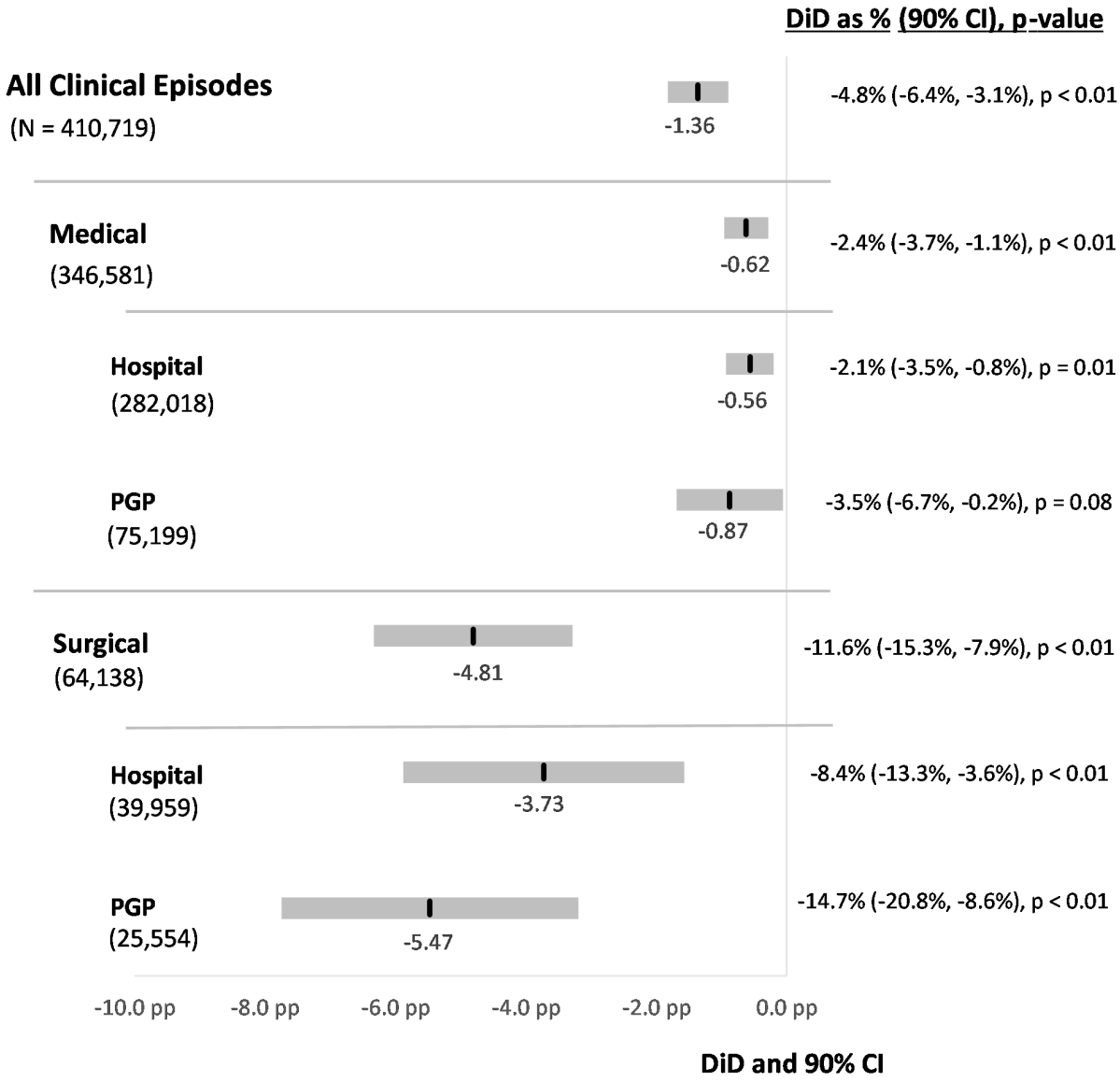
The BPCI Advanced Model reduced institutional PAC service use. During Model Year 4, the BPCI Advanced Model reduced the share of episodes discharged to an institutional PAC setting by 1.36 pp, or 4.8% of the baseline mean, relative to the comparison group (90% confidence interval: -1.83, -0.90; $p < 0.01$) (Exhibit 43). This decline was driven by reductions for surgical episodes. The reduction in the share of episodes discharged to an institutional PAC setting for medical episodes was 0.62 pp (90% confidence interval: -0.96, -0.28; $p < 0.01$), while for surgical episodes, the reduction was 4.81 pp (90% confidence interval: -6.33, -3.29; $p < 0.01$). See **Appendix J** for detailed results and for results by CESLG.

For both medical and surgical episodes, BPCI Advanced PGPs had a slightly larger reduction in the share of episodes first discharged to an institutional PAC setting compared with hospitals. For medical episodes, BPCI Advanced hospitals reduced the share of episodes first discharged to an institutional PAC setting by 0.56 pp (90% confidence interval: -0.93, -0.20; $p = 0.01$), or 2.1% of the baseline mean, while PGPs reduced the share by 0.87 pp (90% confidence interval: -1.69, -0.06; $p = 0.08$), or 3.5%, relative to the comparison group. For surgical episodes, BPCI Advanced hospitals reduced the share of episodes first discharged to an institutional PAC setting by 3.73 pp (90% confidence interval: -5.88, -1.57; $p < 0.01$), or 8.4%, while PGPs reduced the share by 5.47 pp (90% confidence interval: -7.75, -3.20; $p < 0.01$), or 14.7% of the baseline mean, relative to the comparison group.

The BPCI Advanced Model reduced the number of days in a SNF (referred to as *SNF days*) among episodes with at least 1 day of SNF use during the 90-day PDP by 2.71 days (90% confidence interval: -3.10, -2.32; $p < 0.01$), or 8.1% of the baseline mean number of SNF days, relative to the comparison group (Exhibit 44). For medical episodes, the reduction in SNF days was 2.58 days (90% confidence interval: -2.99, -2.17; $p < 0.01$), or 7.6%. For both the overall and medical groupings, the outcome did not pass the parallel trends test. For surgical episodes, the reduction in SNF days was 3.21 days, or 10.3%, relative to the comparison group (90% confidence interval: -3.99, -2.42; $p < 0.01$).

Both BPCI Advanced hospitals and PGPs reduced the number of SNF days among SNF users for both medical and surgical episodes relative to the comparison group. For medical episodes, BPCI Advanced hospitals reduced SNF days by 2.87 days (90% confidence interval: -3.31, -2.44; $p < 0.01$), or 8.5% of the baseline mean number of SNF days (although this outcome did not pass the parallel trends test for this grouping). BPCI Advanced PGPs reduced SNF days for medical episodes by 1.15 days (90% confidence interval: -2.13, -0.18; $p = 0.05$), or 3.4%. For surgical episodes, BPCI Advanced hospitals reduced SNF days by 3.86 days (90% confidence interval: -4.78, -2.93; $p < 0.01$), or 11.7%, while BPCI Advanced PGPs reduced SNF days by 2.37 days (90% confidence interval: -3.87, -0.87; $p = 0.01$), or 9.0%.

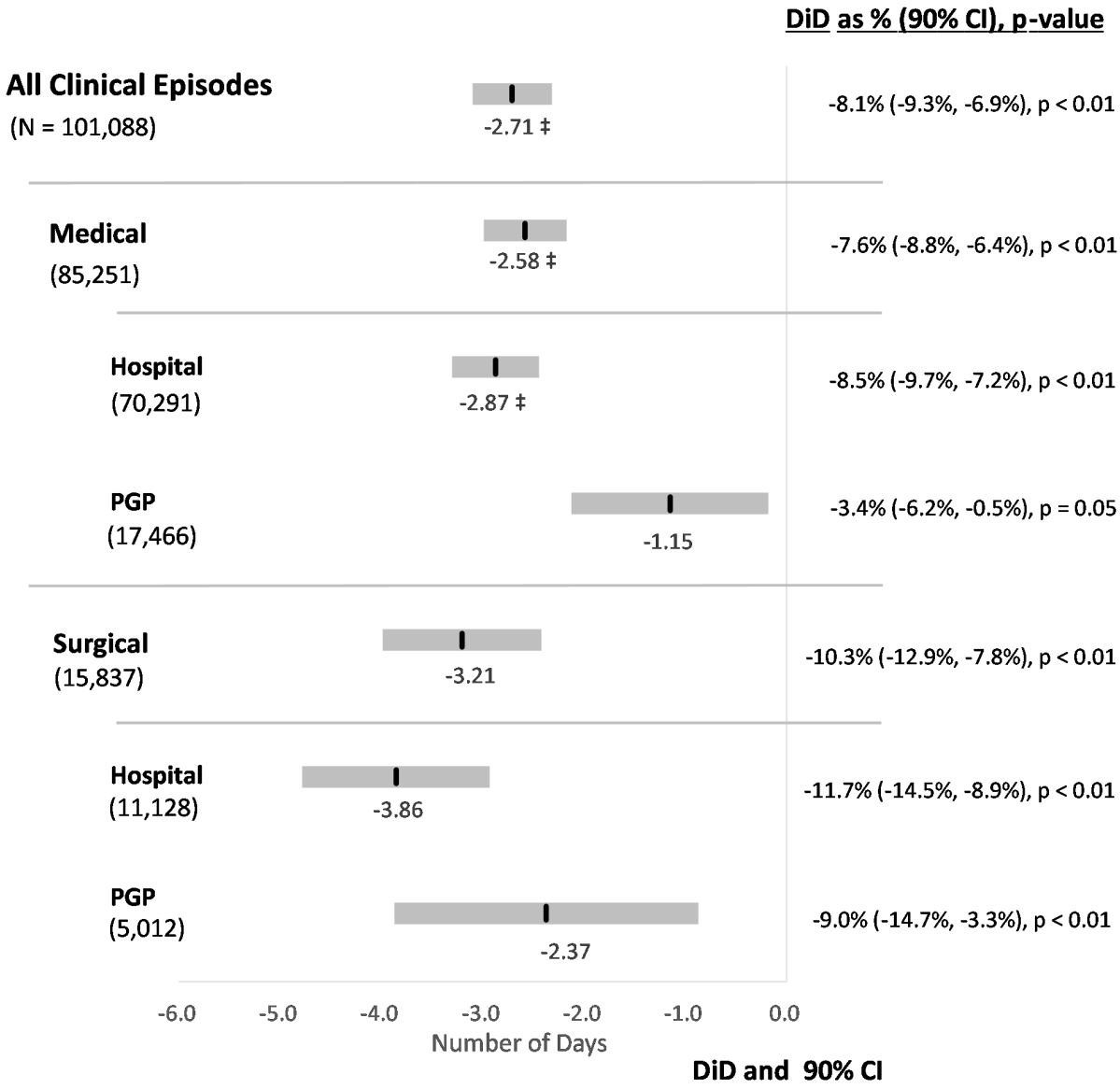
Exhibit 43: Impact of BPCI Advanced on First Discharge to Institutional PAC Setting, Hospital and PGP Episode Initiators, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of DiD models. The DiD estimates represent a percentage point change. Results are also presented as a percentage of the BPCI Advanced baseline average rate. The grey bars indicate the 90% confidence interval of the DiD estimate. The number of episodes in each subgroup may not sum to the total because individual episodes that were in both the hospital and PGP samples were only counted once when pooled together. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results. CI = confidence interval; DiD = difference-in-differences; PAC = post-acute care; PGP = physician group practice; pp = percentage point(s).

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Exhibit 44: Impact of BPCI Advanced on Number of SNF Days Through the 90-Day PDP, for Episodes With at Least 1 Day in SNF, Hospital and PGP Episode Initiators, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of DiD models. The DiD estimates represent a change in the number of days. Results are also presented as a percentage of the BPCI Advanced baseline average rate. The grey bars indicate the 90% confidence interval of the DiD estimate. The number of episodes in each subgroup may not sum to the total because individual episodes that were in both the hospital and PGP samples were only counted once when pooled together. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results.
CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; PGP = physician group practice.

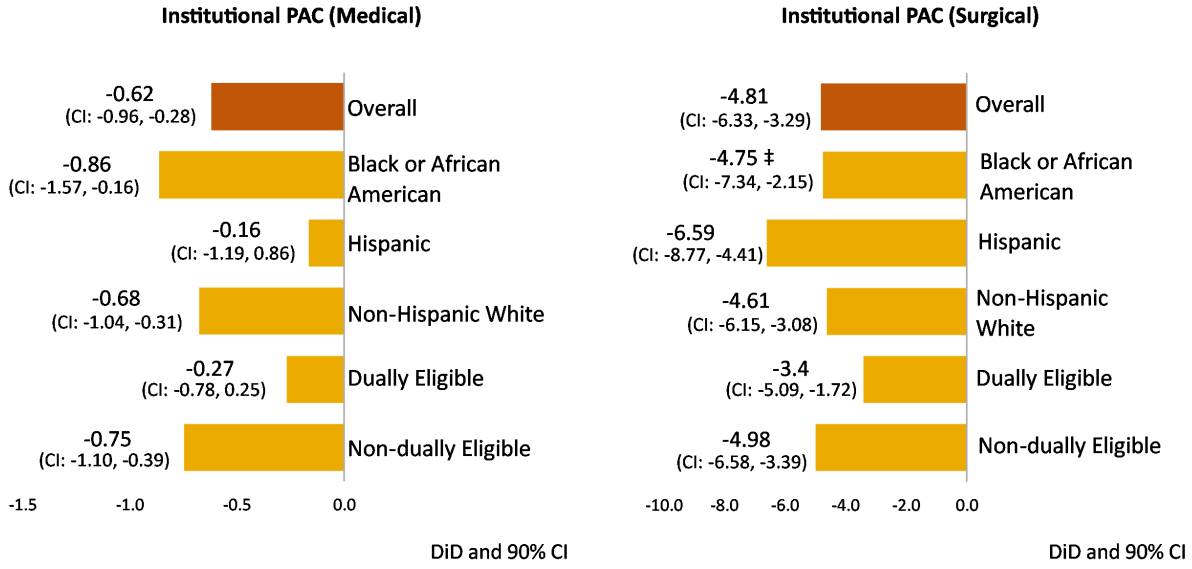
‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Impact on PAC Use by Beneficiary Subpopulation

As with PAC payment results, the impact on PAC utilization generally followed similar patterns to the overall model results (Exhibits 45 and 46). One exception was the share of episodes first discharged to institutional PAC settings for medical episodes, which had small and statistically insignificant declines for Hispanic and dually eligible BPCI Advanced beneficiaries relative to their comparison groups. As in the main results, we found reductions in SNF days for both medical and surgical episodes across beneficiary subpopulations, although the reduction in SNF days was not statistically significant for Black or African American beneficiaries with surgical episodes. The differences in impacts were not statistically significant for any of the subpopulation pairings tested for either outcome.

Exhibit 45: Impact of BPCI Advanced on First Discharge to Institutional PAC Setting, Hospital and PGP Episode Initiators, Medical and Surgical Episodes by Beneficiary Subpopulation, Model Year 4 (2021)

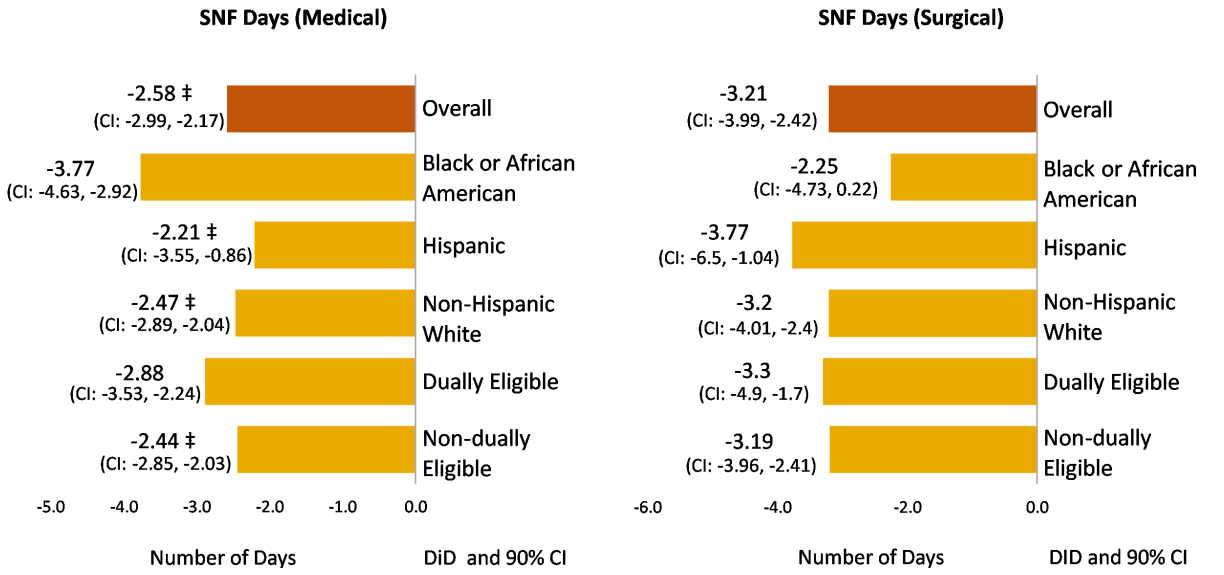


Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The results are the DiD estimates, which represent the percentage point change. Results for Non-Hispanic White beneficiaries are from the DiDiD for Black or African American beneficiaries and Non-Hispanic White beneficiaries. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results.
CI = confidence interval; DiD = difference-in-differences; PAC = post-acute care; PGP = physician group practice.

‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

Exhibit 46: Impact of BPCI Advanced on Number of SNF Days Through the 90-Day PDP, Episodes With at Least 1 Day in SNF, Hospital and PGP Episode Initiators, Medical and Surgical Episodes by Beneficiary Subpopulation, Model Year 4 (2021)



Note: The estimates in this exhibit are the results of a difference-in-difference-in-differences (DiDiD) model. The results are the DiD estimates, which represent the change in the number of days. Results for Non-Hispanic White beneficiaries are from the DiDiD for Black or African American beneficiaries and Non-Hispanic White beneficiaries. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Medicare Beneficiary Summary File. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix J** for more detailed results.
CI = confidence interval; DiD = difference-in-differences; PDP = post-discharge period; PGP = physician group practice; SNF = skilled nursing facility.

‡ We rejected the null hypothesis that BPCI Advanced and matched comparison providers had parallel trends for this outcome (with 90% confidence). See **Appendix K** for parallel trends test results.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers.

D. Discussion

1. Have Patient Characteristics Changed Under the BPCI Advanced Model From the Baseline Period to Model Year 4 Relative to the Comparison Group?

Consistent with prior model years, in Model Year 4, we found no widespread changes in patient mix or in the distribution of race and ethnicity for beneficiaries treated by BPCI Advanced hospitals and PGPs relative to the comparison group. Only one change was greater than 1 pp relative to the comparison group, which was a relative decrease in the proportion of surgical episodes in which the beneficiary had prior HH use. As these analyses are unadjusted, we cannot conclude whether changes in sample composition are the result of the BPCI Advanced Model or external factors.

2. How Did the BPCI Advanced Model Affect Total Episode Payments and Claims-Based Quality Measures?

Consistent with prior model years, we found that in Model Year 4, hospitals and PGPs in the BPCI Advanced Model reduced total episode payments relative to comparison hospitals and PGPs, both overall and in medical and surgical episodes. These reductions were primarily driven by reductions in SNF and IRF payments, with SNF payments being a larger driver for medical episodes and IRF payments being a slightly larger driver for surgical episodes, although reductions in HH payments also contributed to the reduction in episode payments for PGP surgical episodes. In addition, we found reductions in episode payments when analyzing the model by episode initiator type (hospital and PGP) and by beneficiary subpopulation (Black or African American beneficiaries, Hispanic beneficiaries, Non-Hispanic White beneficiaries, and dually eligible beneficiaries).

The impact on quality of care was varied in Model Year 4. Overall, the BPCI Advanced Model had little to no impact on the mortality rate during the anchor stay or 90-day PDP, but we did find a pattern of relative reductions in the mortality rate for medical episodes and statistically significant declines for PGP medical episodes and for medical episodes for dually eligible beneficiaries. These reductions in the mortality rate were concentrated during the anchor hospitalization.

There were no statistically significant increases in the mortality rate during the anchor stay and 90-day PDP for any beneficiary subpopulation analyzed relative to their comparison group in Model Year 4. However, we found a small increase in the mortality rate for Black or African American beneficiaries with BPCI Advanced medical episodes relative to the comparison group and a small decrease in the mortality rate for Non-Hispanic White beneficiaries. Although the difference in the impacts was not statistically significant in Model Year 4, we had found a similar pattern in the mortality rate in Model Year 3, where the difference was statistically significant. We also observed some indications of unfavorable impacts on the readmission rate during the 90-day PDP for medical episodes. The readmission rate fell from baseline to Model Year 4 by a larger amount for medical episodes in the comparison group than for BPCI Advanced. This pattern of relative increases in readmission rates for medical episodes was also observed for Hispanic beneficiaries, dually eligible beneficiaries, and Non-Hispanic White beneficiaries (each of these results was statistically significant). Given the Innovation Center's objective to advance health equity, our findings emphasize the importance of continuing to monitor for potential harm or unintended consequences under BPCI Advanced for beneficiaries from underserved populations.

3. What Are the Implications of These Changes for Care Transformation?

BPCI Advanced hospitals and PGPs continued to reduce episode payments through declines in PAC use without adverse consequences for claims-based quality of care at the model level. Both hospitals and PGPs reduced the share of episodes first discharged to an institutional PAC setting as well as the number of days in a SNF among beneficiaries with at least 1 day in a SNF during the 90-day PDP. The mechanisms for the reductions in PAC use may differ for BPCI Advanced hospitals and PGPs, as hospitals tended to reduce days in a SNF by a larger amount, whereas PGPs tended to have larger relative reductions in the share of episodes first discharged to an institutional PAC facility. We also found reductions in SNF payments, IRF payments, and, in some cases, HH payments, consistent with relative declines in PAC use. These changes in payments and utilization align with increased discharge planning and changes in beneficiary and provider expectations reported by episode initiators and participants. However, there was evidence that readmission rates may have declined more for medical episodes in the comparison group than in BPCI Advanced, though the result was not statistically significant. This may have been the result of too large of a reduction in PAC use for some beneficiaries, or it may suggest that care transformation strategies that are successful for some patient populations may not work as well for others. Decreases in the mortality rate during the anchor stay and increases in the readmission rate could also be related, whereby readmissions are associated with more clinically severe patients surviving the initial admission. Whether this was the case could not be discerned given that factors related to patient health status or clinical severity may not be captured well in claims data.

4. What Do These Findings Mean for CMS Objectives?

In Model Year 4, a variety of changes to the BPCI Advanced Model took effect, including changes in the target price methodology, episode definitions, and the shift to CESLGs. Under these model changes, we found that BPCI Advanced continued to reduce episode payments. Reductions in payments may lead to improved beneficiary affordability of care by reducing unnecessary services and beneficiary out-of-pocket responsibilities.

The BPCI Advanced Model was not designed with a health equity focus, but the model design and resulting care transformation may affect beneficiary subpopulations in different ways. We did not detect a statistically significant difference in impacts for total allowed payments or mortality during the anchor stay or post-discharge period for Black or African American beneficiaries compared with Non-Hispanic White beneficiaries, Hispanic beneficiaries compared with Non-Hispanic White beneficiaries, or dually eligible beneficiaries compared with non-dually eligible beneficiaries. However, the relative increase in mortality for Black or African American beneficiaries, though not statistically significant, was also found in Model Year 3.

For readmission rates, we found larger relative increases for Hispanic beneficiaries with medical episodes compared with Non-Hispanic White beneficiaries and for dually eligible beneficiaries with medical episodes compared with non-dually eligible beneficiaries in Model Year 4. We also observed these patterns in prior years. While we did not detect statistically significant differences in the impacts on the readmission rates for these beneficiary subpopulations in Model Year 4, the continued pattern suggests that the model may have resulted in less favorable changes for these populations. For Black or African American beneficiaries, we observed a reduction in the readmission rate, which was not statistically significant. However, the difference in impacts between Black or African American beneficiaries and Non-Hispanic White beneficiaries was

statistically significant, indicating a larger relative decline in the readmission rate for Black or African American beneficiaries.

Advancing health equity is a key Innovation Center priority. The BPCI Advanced evaluation will continue to assess model impacts on subpopulations and triangulate multiple sources of data, including beneficiary surveys and interviews, to interpret results and determine whether the model may be less likely to benefit certain subpopulations. These analyses will allow the Innovation Center to uncover any model mechanisms or aspects of care redesign activities that may lead to differential impacts and potential unintended consequences.

VI. Patient-Reported Functional Status, Care Experiences, and Overall Satisfaction With Care

BPCI Advanced was designed to improve care coordination and care transitions for medical and surgical episodes. As such, changes made by BPCI Advanced participants in response to the model may have improved patients' functional status, care experiences, and satisfaction with care. We used a modified version of the survey instrument developed for the BPCI initiative evaluation to measure these clinical outcomes from the patient's perspective (see **Appendix C** for details of the survey design and power to detect differences and **Appendix P** for the survey instrument). The survey can uncover potential unintended consequences that cannot be captured by other data sources. This is particularly important given the documented impact of the model on reductions in institutional post-acute care (PAC) use. Reduced institutional PAC use may affect patient functional recovery if care is excessively reduced. Reductions in institutional PAC use may also adversely affect patient satisfaction if changes in PAC use are inconsistent with patient expectations or increase caregiver burden.

This chapter presents changes in patient functional status, patient care experiences, and satisfaction with care from the beneficiary survey for episodes initiated in Model Years 4 (2021) and 5 (2022), that is, under the new model design. The survey measures differences between Medicare beneficiaries cared for by BPCI Advanced providers and similar beneficiaries whose providers did not participate in BPCI Advanced (*comparison respondents*). We analyzed hospital- and physician group practice (PGP)-initiated episodes separately because hospitals and PGPs may differ in their response to the model. We analyzed results for medical and surgical episodes separately because the typical patient population and corresponding care redesign strategies may vary between medical episodes, which are generally unplanned, and surgical episodes, which may be planned, depending on the procedure. Full results for all clinical episode service line groups (CESLGs) that were powered for analysis are reported in **Appendix M**.

The analysis combines survey data collected in Model Years 4 and 5 (collected in June and July of 2021 and 2022, respectively). Model Year 4 results were separately reported in the Fourth Evaluation Report. Findings from the survey conducted prior to the new model design (Model Year 2) were reported in the Second Evaluation Report.[41] The same survey instrument was administered via mail to BPCI Advanced and comparison beneficiaries in all survey waves.

Survey measures are based on categorical items such that differences in measures represent substantive differences in outcomes (such as "agree" vs. "disagree" and "some help needed" vs. "complete help needed"). Therefore, small differences between BPCI Advanced and comparison respondents should be interpreted as "a small probability of substantive differences" rather than "small differences in outcomes." Additional detail about the measures is in **Appendix C**.

We applied non-response and sampling weights to all observations used in estimation. Estimated differences between the BPCI Advanced and matched comparison respondents were risk-adjusted for characteristics of the beneficiary, hospital, and neighborhood. Because survey data were only collected during the intervention period and analyzed using a cross-sectional design, we cannot distinguish whether differences between BPCI Advanced and comparison respondents were caused

[41] Prior BPCI Advanced evaluation reports are available for download at https://www.cms.gov/priorities/innovation/innovation-models/bpci-advanced.

by BPCI Advanced or whether they existed prior to the model. We present detail on the survey measures, sample selection, weighting, and risk adjustment in **Appendix C**.

To evaluate whether experiences associated with the model varied for beneficiaries from underserved populations, we analyzed survey responses of beneficiaries from underserved populations with a sufficient sample size to yield a minimum detectable difference of at least 10.0 pp: (1) beneficiaries with hospital-initiated episodes who are Black or African American, Hispanic, or dually eligible for Medicare and Medicaid (of any race or ethnicity) and (2) beneficiaries with PGP-initiated episodes who are dually eligible for Medicare and Medicaid (of any race or ethnicity).[42]

We estimated differences between BPCI Advanced and comparison respondents within each subpopulation. We also compared the difference between BPCI Advanced and comparison Black or African American respondents with the difference between BPCI Advanced and comparison Non-Hispanic White respondents. Similarly, we compared the difference between BPCI Advanced and comparison Hispanic respondents with the difference between BPCI Advanced and comparison Non-Hispanic White respondents, and we compared the difference between BPCI Advanced and comparison dually eligible respondents with the difference between BPCI Advanced and comparison non-dually eligible respondents.

A. Key Findings

Patient-Reported Outcomes Under BPCI Advanced

- Analysis of the beneficiary survey results did not find a consistent relationship between the BPCI Advanced Model and patients' functional status improvement, care experiences, and satisfaction with care in Model Year 4 (2021) and Model Year 5 (2022).
- In subgroup analyses, findings were varied, with favorable and unfavorable results for beneficiaries with dual eligibility, Hispanic beneficiaries, and Black or African American beneficiaries.

B. Survey Sample (Model Years 4 and 5)

BPCI Advanced hospitals and PGPs could select one or more CESLGs in which to participate in Model Years 4 and 5. We collected survey data from all clinical episodes in which hospitals and PGPs participated. The survey response rates were roughly 27% to 30% and varied for BPCI Advanced and comparison respondents with hospital- and PGP-initiated episodes (Exhibit 47). The response rates for BPCI Advanced were higher than for comparison respondents for PGP-initiated episodes and lower than comparison respondents for hospital-initiated episodes. The survey results for beneficiaries with hospital-initiated episodes are based on 7,579 BPCI Advanced responses and 7,910 comparison group responses. The survey results for beneficiaries with PGP-initiated episodes are based on 3,767 BPCI Advanced responses and 3,594 comparison group responses. In total, we sent surveys to 37% of all beneficiaries with a BPCI Advanced episode (hospital or PGP)

[42] Sample sizes were insufficient to analyze outcomes for Black or African American respondents with PGP-initiated episodes or for Hispanic respondents with PGP-initiated episodes.

during the 4 months covered by our survey sample and received a response from 10% of all beneficiaries with a BPCI Advanced episode during that period.

Exhibit 47: BPCI Advanced Beneficiary Survey Sample, Model Years 4 and 5

Episode Type	BPCI Advanced			Comparison Group		
	Episodes Sampled	Responses Received	Response Rate (%)	Episodes Sampled	Responses Received	Response Rate (%)
Hospital-Initiated Episodes	27,398	7,579	27.7	27,395	7,910	28.9
Medical	20,730	4,849	23.4	20,729	5,044	24.3
Surgical	6,668	2,730	40.9	6,666	2,866	43.0
PGP-Initiated Episodes	12,546	3,767	30.0	12,544	3,594	28.7
Medical	9,280	2,303	24.8	9,280	2,169	23.4
Surgical	3,266	1,464	44.8	3,264	1,425	43.7

Note: Survey responses are weighted to reflect the initial population from which we drew the sample, all episodes available. Medical episodes are weighted more heavily for estimates that include both medical and surgical episodes because medical episodes represent a larger share of the initial population than of the sample of responses received. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced episodes with discharges or procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

Our survey analysis also included subgroups from underserved populations with a sufficient sample size to yield a minimum detectable difference of at least 10.0 pp: Black or African American beneficiaries with hospital-initiated episodes, Hispanic beneficiaries with hospital-initiated episodes, dually eligible beneficiaries with hospital-initiated episodes, and dually eligible beneficiaries with PGP-initiated episodes. We sampled beneficiaries from these populations across all clinical episodes, and we analyzed responses separately for hospital- and PGP-initiated episodes. Response rates were 12.7% to 18.3% (Exhibit 48).

Exhibit 48: BPCI Advanced Beneficiary Survey Sample—Underserved Populations, Model Years 4 and 5

Episode Initiator Type	Population	BPCI Advanced			Comparison Group		
		Episodes Sampled	Responses Received	Response Rate (%)	Episodes Sampled	Responses Received	Response Rate (%)
Hospital	Black or African American	4,094	720	17.6	4,072	745	18.3
Hospital	Hispanic	3,703	611	16.5	3,706	667	18.0
Hospital	Dually Eligible	7,661	973	12.7	7,724	1,103	14.3
PGP	Dually Eligible	3,029	430	14.2	3,020	412	13.6

Note: The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Master Beneficiary Summary File. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced episodes for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

C. Patient-Reported Functional Status Under BPCI Advanced (Model Years 4 and 5)

The exhibits in this section present the differences in patient-reported functional status between BPCI Advanced and comparison respondents for the survey measures. In the exhibits, values to the left of zero indicate unfavorable results, and values to the right of zero indicate favorable results. For example, when BPCI Advanced respondents were more likely to report a decline in the functional status measure (unfavorable), the result is displayed on the left. When BPCI Advanced respondents were less likely to report a decline (favorable), the result is displayed on the right. The p-values for functional status results indicate joint significance for differences in the proportion of beneficiaries indicating one of three categories: improvement in (or maintained highest function), decline in (or maintained lowest function), or stayed the same (not shown in figure). The difference between BPCI Advanced and comparison respondents in the category "stayed the same" is the sum of the "improvement in" and "decline in" categories for each measure in the figure. **Appendix M** includes more detailed results, including estimates for all three categories. **Appendix C** provides details of the risk-adjustment methodology, outcome definitions, and additional information on methods.

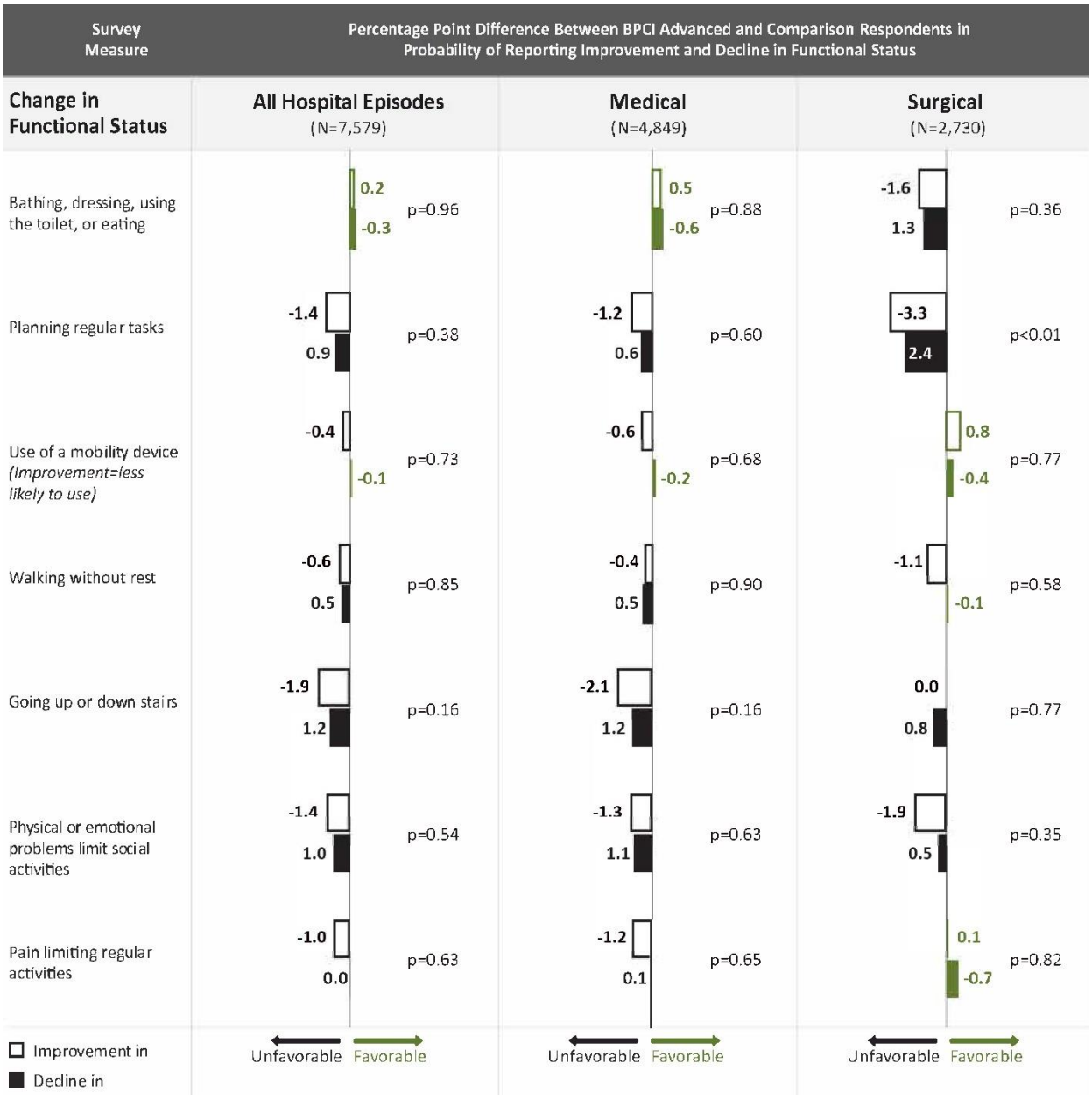
1. Hospital-Initiated Episodes

a. Overall Differences in Functional Status for Hospital-Initiated Episodes

For hospital-initiated episodes, we found no statistically significant differences in change in functional status between BPCI Advanced and comparison respondents when examining medical and surgical episodes together (Exhibit 49). There were also no statistically significant differences in change in functional status when examining responses across all hospital-initiated medical episodes. When pooling across hospital-initiated surgical episodes, differences were not statistically significant for six of the seven functional status measures, but BPCI Advanced respondents with hospital-initiated episodes were 3.3 percentage points (pp) less likely to report improvement and 2.4 pp more likely to report a decline in planning regular tasks ($p < 0.01$).[43]

[43] For brevity, we do not report 90% confidence intervals for functional status outcomes in this chapter. Statistical significance of these measures is based on a joint hypothesis test across all three possible changes in function. Therefore, the confidence interval for one category (such as probability of improvement) will not match the overall significance of the measure. See **Appendix M** for the corresponding confidence intervals and more detailed results.

Exhibit 49: Differences in Patient-Reported Change in Functional Status Between BPCI Advanced and Comparison Respondents, Hospital-Initiated Episodes, Model Years 4 and 5



***Note*:** The estimates in this exhibit are the result of a cross-sectional, risk-adjusted multinomial logistic regression model for trinary indicators. All responses were weighted for non-response and sampling design. Reported sample sizes reflect the number of BPCI Advanced survey respondents. Comparison sample sizes were roughly similar. Values to the left of zero indicate unfavorable results. Values to the right of zero indicate favorable results. The p-values for functional status results indicate joint significance for differences in the proportion of beneficiaries indicating one of three categories: improvement in (or maintained highest function), decline in (or maintained lowest function), or stayed the same (not shown in figure). The difference between BPCI Advanced and comparison respondents in the category "stayed the same" is the sum of the "improvement in" and "decline in" categories for each measure in the figure. Results are reported in percentage point terms.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced beneficiary survey responses for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

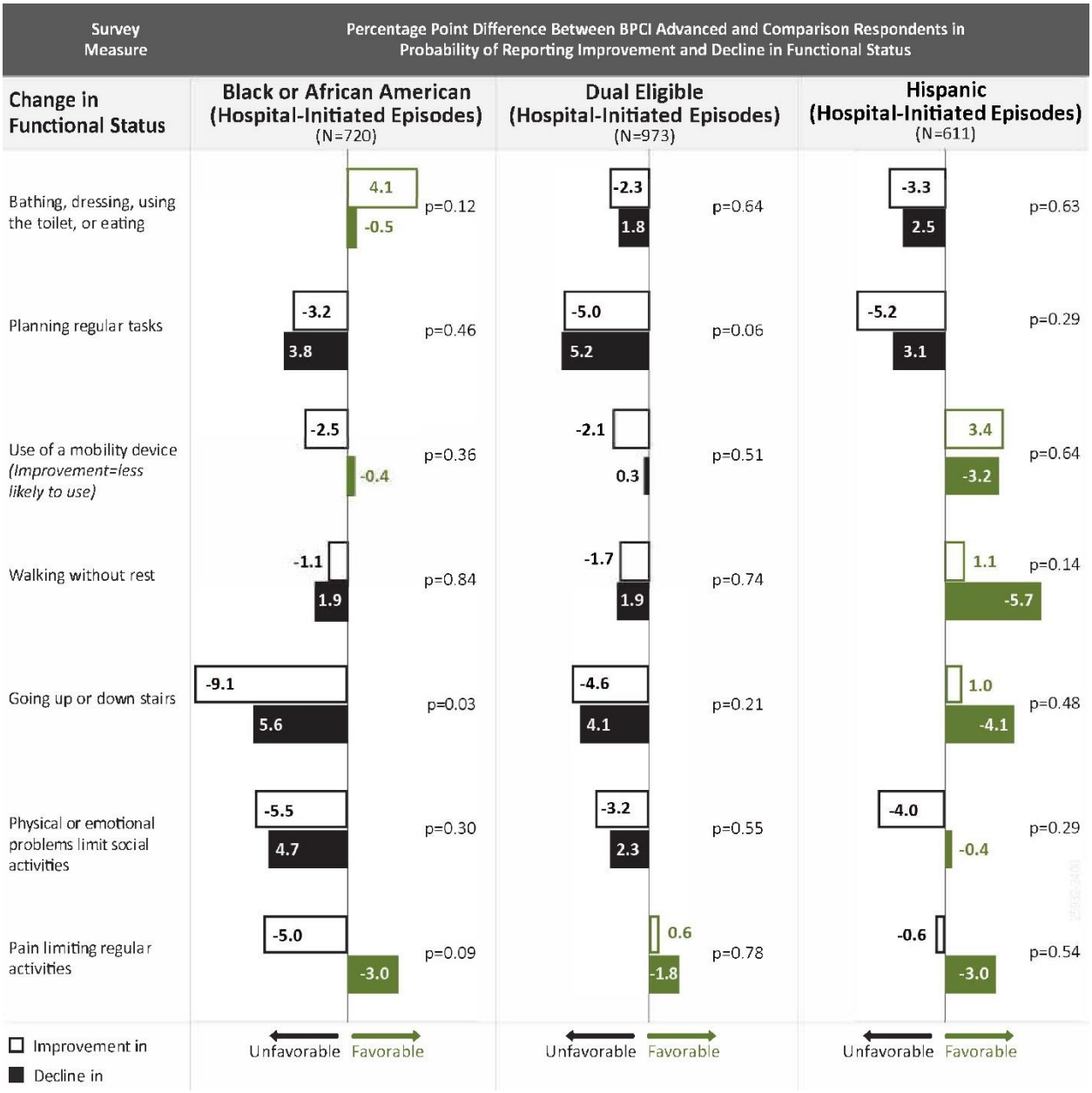
b. Differences in Functional Status for Hospital-Initiated Episodes by Beneficiary Subpopulation

Among Black or African American respondents with hospital-initiated episodes, BPCI Advanced respondents were less likely to report favorable changes in functional status relative to comparison respondents for six of seven measures (Exhibit 50). We examined results for Non-Hispanic White patients as well, and among this population, BPCI Advanced respondents were also less likely than comparison respondents to report favorable changes in functional status for five of seven measures. BPCI Advanced was not associated with more unfavorable changes in functional status for Black or African American respondents relative to Non-Hispanic White respondents (**Appendix M**).

Hispanic BPCI Advanced respondents with hospital-initiated episodes saw varied responses for functional status measures relative to comparison respondents, with no statistically significant differences (Exhibit 50). When comparing these results to the functional status results for Non-Hispanic White respondents, we found that BPCI Advanced was not associated with more unfavorable changes in functional status for Hispanic respondents relative to Non-Hispanic White respondents with hospital-initiated episodes (**Appendix M**).

Dually eligible BPCI Advanced respondents with hospital-initiated episodes were less likely to report favorable changes in functional status across six of seven measures relative to dually eligible comparison respondents, with one statistically significant difference (Exhibit 50). We also examined results for respondents who were not dually eligible. Results for functional status for non-dually eligible BPCI Advanced respondents with hospital-initiated episodes were varied and not statistically significant relative to non-dually eligible comparison respondents. BPCI Advanced was thus associated with more unfavorable changes in functional status among dually eligible respondents with hospital-initiated episodes relative to non-dually eligible respondents (**Appendix M**).

Exhibit 50: Differences in Patient-Reported Functional Status Between BPCI Advanced and Comparison Respondents Who Are Black or African American, Dually Eligible, or Hispanic, Hospital-Initiated Episodes, Model Years 4 and 5



Note: The estimates in this exhibit are the result of a cross-sectional, risk-adjusted multinomial logistic regression model for trinary indicators. All responses were weighted for non-response and sampling design. Estimates were pooled across all BPCI Advanced clinical episodes. Sample sizes reflect the number of BPCI Advanced responses included in the analysis. Comparison sample sizes were roughly similar. Values to the left of zero indicate unfavorable results. Values to the right of zero indicate favorable results. The p-values for functional status results indicate joint significance for differences in the proportion of beneficiaries indicating one of three categories: improvement in (or maintained highest function), decline in (or maintained lowest function), or stayed the same (not shown in figure). The difference between BPCI Advanced and comparison respondents in the category "stayed the same" is the sum of the "improvement in" and "decline in" categories for each measure in the figure. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Master Beneficiary Summary File. Results are reported in percentage point terms.

***Source*:** The BPCI Advanced evaluation team's analysis of BPCI Advanced beneficiary survey responses for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

2. PGP-Initiated Episodes

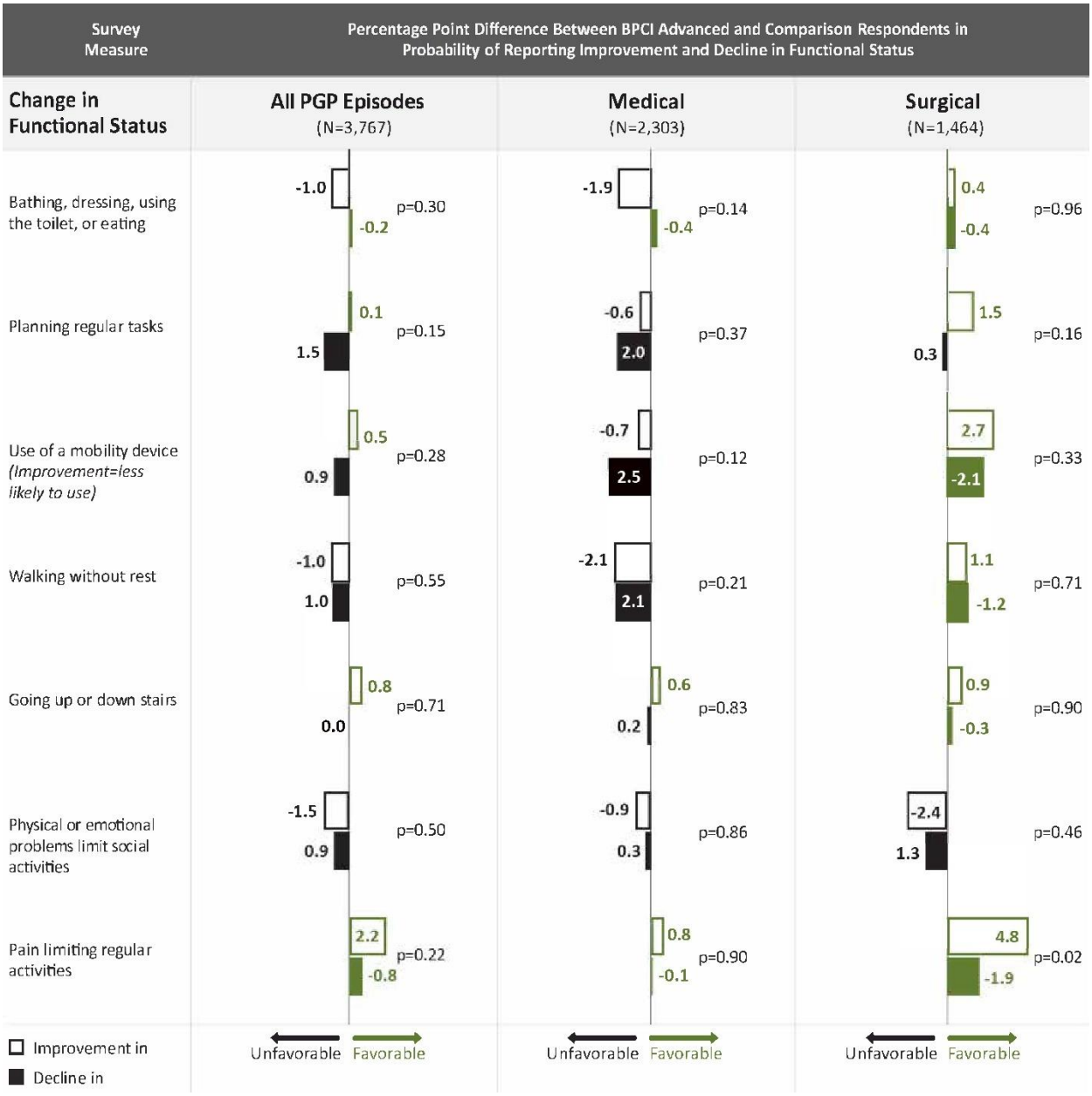
a. Overall Differences in Functional Status for PGP-Initiated Episodes

For PGP-initiated episodes, differences in patient-reported changes in functional status between BPCI Advanced and comparison respondents were not statistically significant. This was also the case when analyzing PGP-initiated medical episodes (Exhibit 51). Among PGP-initiated surgical episodes, however, BPCI Advanced respondents were more likely than comparison respondents to report favorable changes in functional status for six out of seven measures. One result was statistically significant: BPCI Advanced respondents were 4.8 pp more likely to report improvement in pain limiting regular activities ($p = 0.02$).

b. Differences in Functional Status for PGP-initiated Episodes for Beneficiaries Who Are Dually Eligible

Dually eligible BPCI Advanced respondents with PGP-initiated episodes were less likely to report favorable changes in functional status across six of seven measures relative to dually eligible comparison respondents, with one difference being statistically significant (Exhibit 52). Results on patient-reported functional status for non-dually eligible BPCI Advanced respondents were varied and not statistically significant relative to non-dually eligible comparison respondents. BPCI Advanced was thus associated with more unfavorable changes in functional status among dually eligible respondents with PGP-initiated episodes relative to non-dually eligible respondents (see **Appendix M** for detailed results).

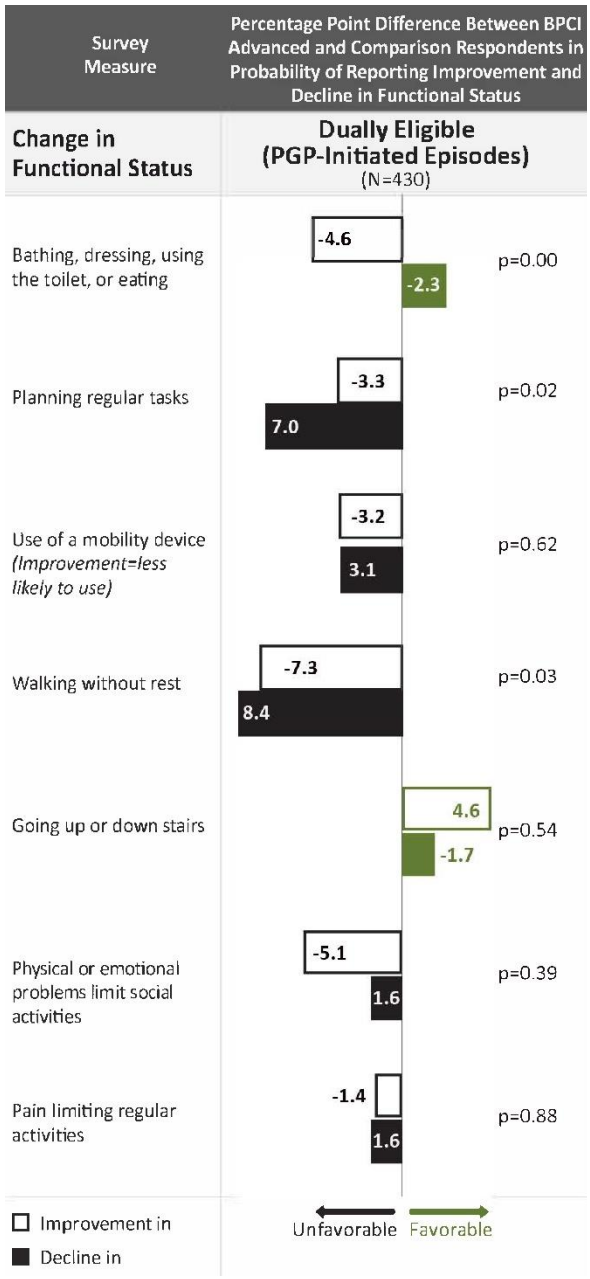
Exhibit 51: Differences in Patient-Reported Change in Functional Status Between BPCI Advanced and Comparison Respondents, PGP-Initiated Episodes, Model Years 4 and 5



***Note*:** The estimates in this exhibit are the result of a cross-sectional, risk-adjusted multinomial logistic regression model for trinary indicators. All responses were weighted for non-response and sampling design. Reported sample sizes reflect the number of BPCI Advanced survey respondents. Comparison sample sizes were roughly similar. Values to the left of zero indicate unfavorable results. Values to the right of zero indicate favorable results. The p-value for functional status results indicates joint significance for differences in proportion of beneficiaries indicating one of three categories: improvement in (or maintained highest function), decline in (or maintained lowest function), or stayed the same (not shown in figure). The difference between BPCI Advanced and comparison respondents in the category "stayed the same" is the sum of the "improvement in" and "decline in" categories for each measure in the figure. Results are reported in percentage point terms. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced beneficiary survey responses for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

Exhibit 52: Differences in Patient-Reported Functional Status Between BPCI Advanced and Comparison Respondents Who Are Dually Eligible, PGP-Initiated Episodes, Model Years 4 and 5



Note: The estimates in this exhibit are the result of a cross-sectional, risk-adjusted multinomial logistic regression model for trinary indicators. All responses were weighted for non-response and sampling design. Estimates were pooled across all BPCI Advanced clinical episodes. Sample sizes reflect the number of BPCI Advanced responses included in the analysis. Comparison sample sizes were roughly similar. Values to the left of zero indicate unfavorable results. Values to the right of zero indicate favorable results. The p-values for functional status results indicate joint significance for differences in the proportion of beneficiaries indicating one of three categories: improvement in (or maintained highest function), decline in (or maintained lowest function), or stayed the same (not shown in figure). The difference between BPCI Advanced and comparison respondents in the category "stayed the same" is the sum of the "improvement in" and "decline in" categories for each measure in the figure. Results are reported in percentage point terms. PGP = physician group practice.

***Source*:** The BPCI Advanced evaluation team's analysis of BPCI Advanced beneficiary survey responses for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

D. Patient-Reported Care Experiences and Satisfaction (Model Years 4 and 5)

The exhibits in this section present the differences in patient-reported care experiences and satisfaction between BPCI Advanced and comparison respondents for the survey measures. In the exhibits, values to the left of zero indicate unfavorable results, and values to the right of zero indicate favorable results.

1. Hospital-Initiated Episodes

a. Overall Differences in Care Experiences and Satisfaction for Hospital-Initiated Episodes

For hospital-initiated episodes, BPCI Advanced respondents were less likely than comparison respondents to report favorable care experiences for seven of eight measures, and two results were statistically significant (Exhibit 53). BPCI Advanced respondents with hospital-initiated episodes were less likely to agree that their preferences were taken into account in deciding health care services received after leaving the hospital (-2.3 pp; 90% confidence interval: -4.1, -0.5; p = 0.03), and they were less likely to agree that medical staff discussed with them whether they would have the necessary help when they got home (-2.4 pp; 90% confidence interval: -4.1, -0.6; p = 0.02).

The results for hospital-initiated medical episodes were nearly identical to the results for hospital-initiated episodes pooled across medical and surgical episodes, with BPCI Advanced respondents less likely to report favorable care experiences for the same seven of eight measures.

The results for hospital surgical episodes were also unfavorable for seven of eight measures, although differences were typically less than 1 pp and only one difference was statistically significant. Specifically, BPCI Advanced respondents with hospital-initiated surgical episodes were less likely to agree that they have been able to manage their health needs since returning home (-1.1 pp; 90% confidence interval: -2.0, -0.1; p = 0.06).

Among the two measures of satisfaction, BPCI Advanced respondents with hospital-initiated episodes were less likely than comparison respondents to report the highest levels of satisfaction with care across both satisfaction measures, although only one difference was statistically significant. Specifically, BPCI Advanced respondents were 2.8 pp less likely than comparison respondents to report the highest ratings of care received after leaving the hospital (90% confidence interval: -5.0, -0.5; p = 0.06). Results were similarly large for both medical and surgical episodes. BPCI Advanced respondents with hospital-initiated surgical episodes were also 2.4 pp less likely than comparison respondents to report the highest levels of satisfaction with recovery (90% confidence interval: -4.6, -0.1; p = 0.08).

Exhibit 53: Differences in Patient-Reported Care Experiences and Satisfaction With Care Between BPCI Advanced and Comparison Respondents, Hospital-Initiated Episodes, Model Years 4 and 5

***Note*:** The estimates in this exhibit are the result of a cross-sectional, risk-adjusted multinomial logistic regression model for binary indicators. All responses were weighted for non-response and sampling design. Reported sample sizes reflect the number of BPCI Advanced survey respondents. Comparison sample sizes were roughly similar. The p-value for satisfaction with all care received after leaving the hospital indicates joint significance for differences in the proportion of beneficiaries indicating one of three categories: 9–10 rating, 7–8 rating, or 0–6 rating. Results are reported in percentage point terms.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced beneficiary survey responses for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

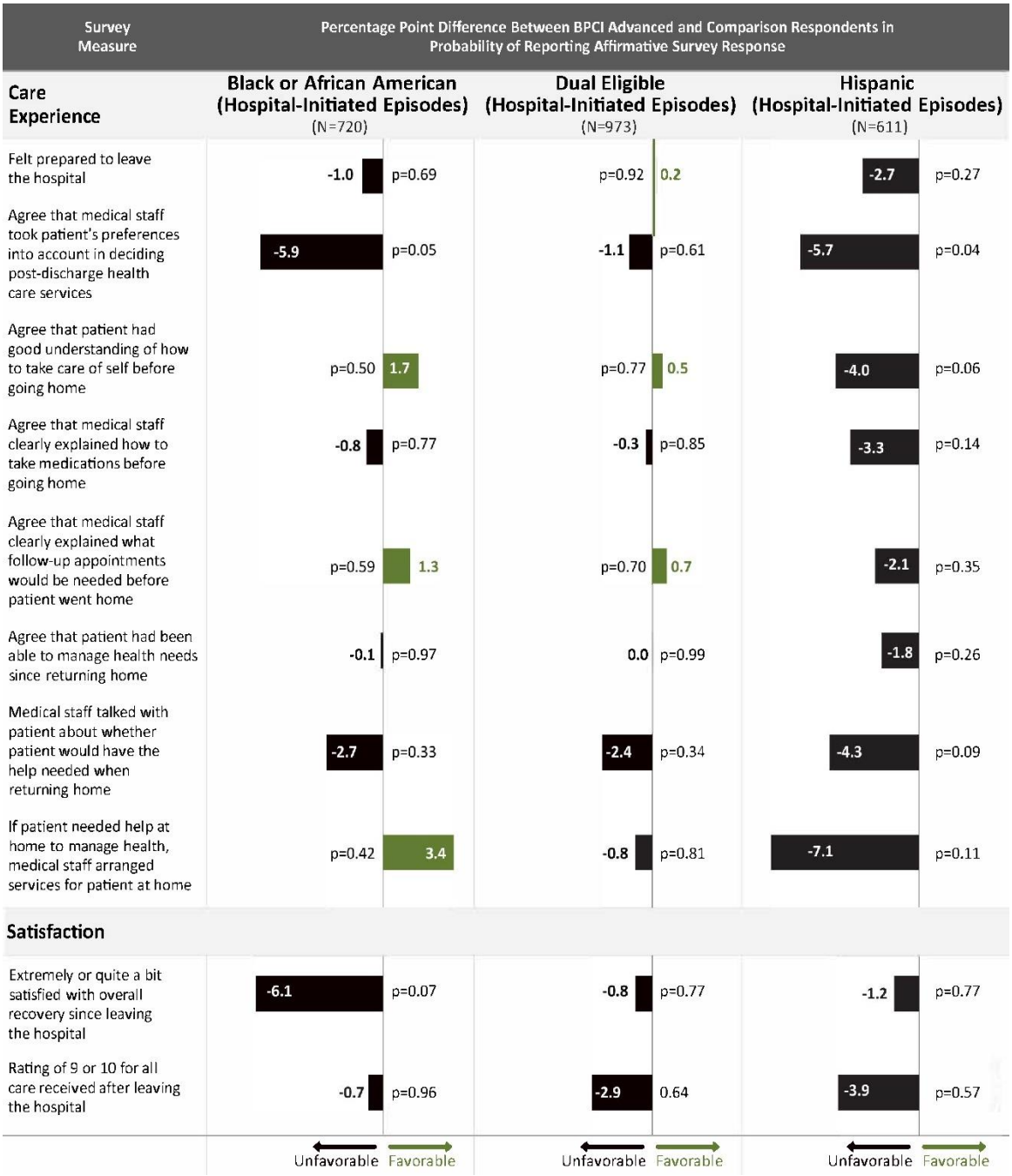
b. Differences in Care Experiences and Satisfaction for Hospital-Initiated Episodes by Beneficiary Subpopulation

Among Black or African American respondents with hospital-initiated episodes, BPCI Advanced respondents reported less favorable care experiences than comparison respondents for five of eight measures, including one statistically significant result (Exhibit 54). Black or African American BPCI Advanced respondents with hospital-initiated episodes were also statistically significantly less satisfied than comparison respondents with their recovery since leaving the hospital. Among Non-Hispanic White respondents with hospital-initiated episodes, BPCI Advanced respondents reported less favorable care experiences and satisfaction with care than comparison respondents across nearly all measures, including two that were statistically significant. BPCI Advanced hospital-initiated episodes were not associated with more unfavorable care experiences and satisfaction for Black or African American respondents than for Non-Hispanic White respondents (**Appendix M**).

Among Hispanic respondents with hospital-initiated episodes, BPCI Advanced respondents reported less favorable care experiences for all eight measures, including three statistically significant results (Exhibit 54). Hispanic BPCI Advanced respondents with hospital-initiated episodes were also less satisfied than comparison respondents with their recovery since leaving the hospital, although this result was not statistically significant. BPCI Advanced hospital-initiated episodes were associated with more unfavorable care experiences and satisfaction for Hispanic respondents than for Non-Hispanic White respondents across nearly all measures, while none of the differences between Hispanic and Non-Hispanic White respondents were statistically significant (**Appendix M**).

For dually eligible respondents with hospital-initiated episodes, differences in care experiences and satisfaction between BPCI Advanced and comparison respondents were varied and not statistically significant (Exhibit 54). However, they were unfavorable for non-dually eligible BPCI Advanced respondents with hospital-initiated episodes relative to non-dually eligible comparison respondents. This finding suggests that BPCI Advanced was less likely to be associated with unfavorable care experiences and satisfaction for dually eligible beneficiaries with hospital-initiated episodes than for non-dually eligible beneficiaries.

Exhibit 54: Differences in Care Experiences and Satisfaction Between BPCI Advanced and Comparison Respondents Who Are Black or African American, Dually Eligible, or Hispanic, Hospital-Initiated Episodes, Model Years 4 and 5



***Note*:** The estimates in this exhibit are the result of a cross-sectional, risk-adjusted multinomial logistic regression model for binary indicators. All responses were weighted for non-response and sampling design. Estimates were pooled across all BPCI Advanced clinical episodes. Sample sizes reflect the number of BPCI Advanced responses included in the analysis. Comparison sample sizes were roughly similar. Values to the left of zero indicate unfavorable results. Values to the right of zero indicate favorable results. The p-value for satisfaction with post-discharge care indicates joint significance for differences in the proportion of beneficiaries indicating one of three categories: 9–10 rating, 7–8 rating, or 0–6 rating. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Master Beneficiary Summary File. Results are reported in percentage point terms.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced beneficiary survey responses for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

2. PGP-Initiated Episodes

a. Overall Differences in Care Experiences and Satisfaction for PGP-Initiated Episodes

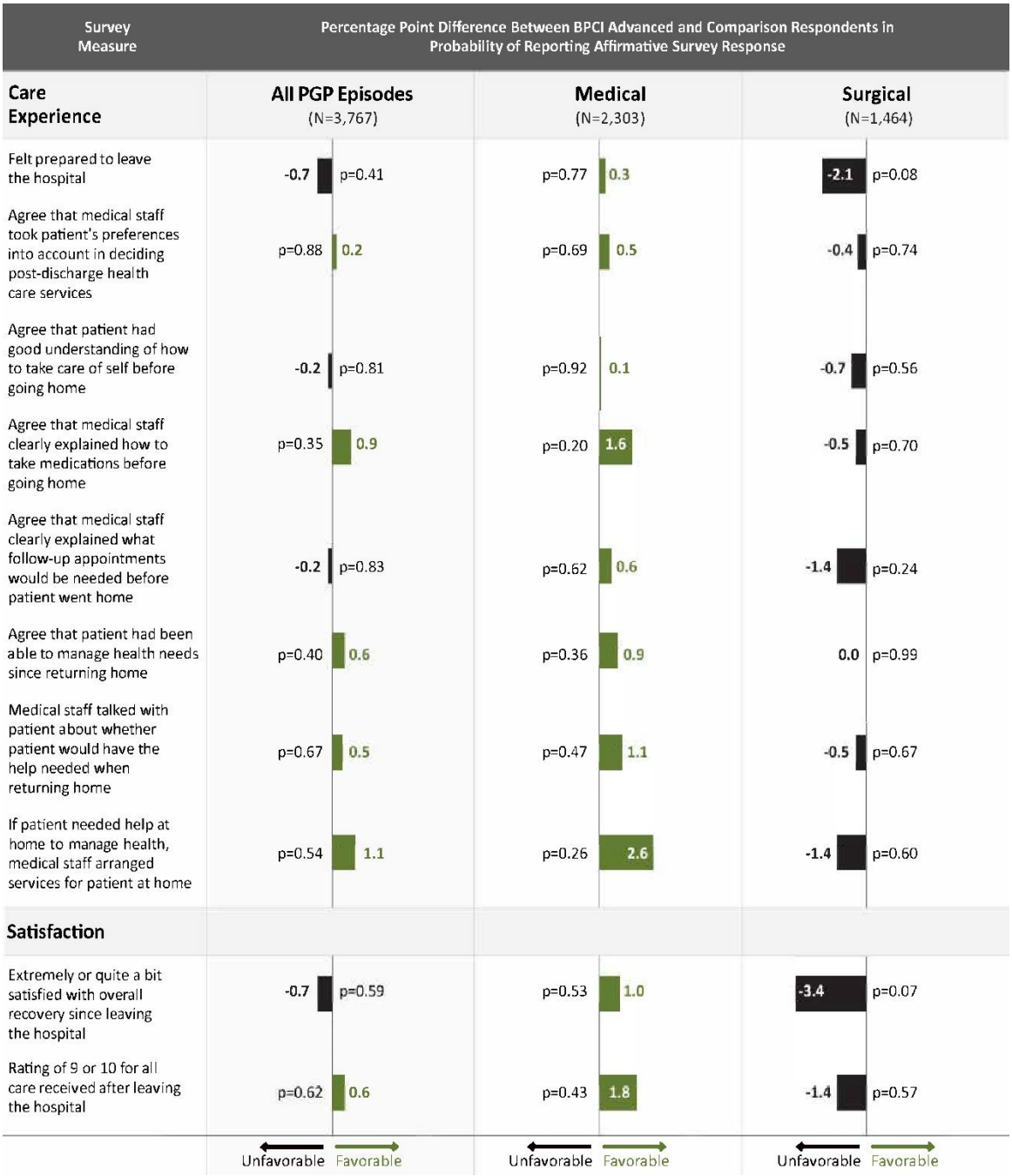
For PGP-initiated episodes, differences between BPCI Advanced and comparison respondents for most measures of care experiences were minimal (less than or equal to 1.0 pp), with roughly half favorable and half unfavorable (Exhibit 55). However, these varied results were due to offsetting results across medical and surgical episodes. For respondents with PGP-initiated medical episodes, all eight measures of care experiences indicated more favorable outcomes for BPCI Advanced respondents, although differences were not statistically significant. BPCI Advanced respondents with PGP-initiated surgical episodes reported less favorable care experiences for seven of eight measures, and one result was statistically significant. BPCI Advanced respondents with PGP-initiated surgical episodes were 2.1 pp less likely than comparison respondents to report they felt prepared to leave the hospital (90% confidence interval: -4.1, -0.1; p = 0.08).

Differences between BPCI Advanced and comparison respondents in the probability of reporting the highest levels of satisfaction were not statistically significant when pooling across all PGP-initiated episodes or for the subset of medical episodes. However, for PGP-initiated surgical episodes, BPCI Advanced respondents were less likely than comparison respondents to report the highest levels of satisfaction with recovery for both measures, including one statistically significant difference. Specifically, BPCI Advanced respondents with PGP-initiated surgical episodes were 3.4 pp less likely to report the highest levels of satisfaction with recovery (90% confidence interval: -6.4, -0.3; p = 0.07).

b. Differences in Care Experiences and Satisfaction for PGP-Initiated Episodes for Beneficiaries Who Are Dually Eligible

Among dually eligible respondents with PGP-initiated episodes, BPCI Advanced respondents reported more favorable care experiences and satisfaction than the comparison respondents for nine of 10 measures, although differences were not statistically significant (Exhibit 56). Among non-dually eligible respondents with PGP-initiated episodes, differences between BPCI Advanced and comparison respondents were small and varied. Our results suggest that BPCI Advanced was associated with more favorable care experiences and satisfaction for dually eligible respondents with PGP-initiated episodes relative to non-dually eligible respondents (**Appendix M**).

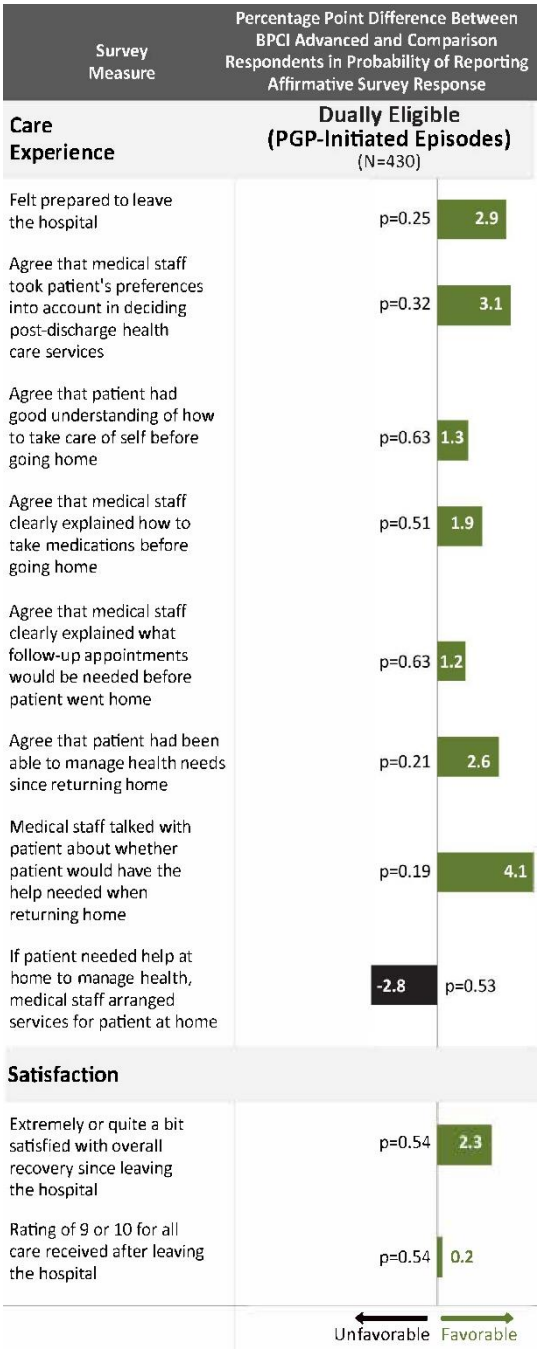
Exhibit 55: Differences in Patient-Reported Care Experiences and Satisfaction With Care Between BPCI Advanced and Comparison Respondents, PGP-Initiated Episodes, Model Years 4 and 5



***Note*:** The estimates in this exhibit are the result of a cross-sectional, risk-adjusted multinomial logistic regression model for binary indicators. All responses were weighted for non-response and sampling design. Reported sample sizes reflect the number of BPCI Advanced survey respondents. Comparison sample sizes were roughly similar. Values to the left of zero indicate unfavorable results. Values to the right of zero indicate favorable results. The p-value for satisfaction with post-discharge care indicates joint significance for differences in proportion of beneficiaries indicating one of three categories: 9–10 rating, 7–8 rating, or 0–6 rating. Results are reported in percentage point terms. PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced beneficiary survey responses for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

Exhibit 56: Differences in Care Experiences and Satisfaction Between BPCI Advanced and Comparison Respondents Who Are Dually Eligible, PGP-Initiated Episodes, Model Years 4 and 5



***Note*:** The estimates in this exhibit are the result of a cross-sectional, risk-adjusted multinomial logistic regression model for binary indicators. All responses were weighted for non-response and sampling design. Estimates were pooled across all BPCI Advanced clinical episodes. Sample sizes reflect the number of BPCI Advanced responses included in the analysis. Comparison sample sizes were roughly similar. Values to the left of zero indicate unfavorable results. Values to the right of zero indicate favorable results. The p-value for satisfaction with post-discharge care indicates joint significance for differences in the proportion of beneficiaries indicating one of three categories: 9–10 rating, 7–8 rating, or 0–6 rating. Results are reported in percentage point terms.
PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of BPCI Advanced beneficiary survey responses for hospital discharges or outpatient procedures that occurred in July or August 2021 (during Model Year 4) or July or August 2022 (during Model Year 5).

E. Discussion

1. Was the BPCI Advanced Model Associated With Differences in Patient-Reported Functional Status and Care Experiences in Model Years 4 and 5?

Our analysis of the beneficiary survey did not find a consistent relationship between the BPCI Advanced Model and patient-reported outcomes in Model Years 4 and 5. These varied results, which reflected treatment received under the new model design, were in line with results from the beneficiary survey administered in Model Year 2. Given the lack of consistent evidence supporting more favorable or less favorable outcomes among BPCI Advanced respondents across multiple waves of the survey, we cannot conclude that BPCI Advanced respondents had different changes in functional status or care experiences from comparison group respondents.

The survey results from Model Years 4 and 5 for respondents from underserved populations were also varied, with some favorable and some unfavorable results. Potentially concerning results were found for Hispanic respondents and dually eligible respondents with hospital-initiated episodes. Hispanic respondents reported less favorable care experiences and satisfaction under BPCI Advanced than the comparison group for hospital-initiated episodes. These results were more unfavorable than results for Non-Hispanic White respondents. Respondents with dual eligibility reported less favorable changes in functional status under BPCI Advanced than the comparison group for hospital-initiated episodes. On the other hand, dually eligible respondents were more likely to report favorable care experiences and higher satisfaction than comparison respondents for PGP-initiated episodes.

Results should be interpreted in light of the survey's limitations. First, we do not have data on patient-reported outcomes from the period prior to the start of the model. Unlike the BPCI Advanced claims analysis, which uses a difference-in-differences design to study the causal relationship between the model and outcomes, the beneficiary survey employs a cross-sectional design. Thus, we cannot rule out the possibility that any differences in patient-reported outcomes between BPCI Advanced and comparison respondents reflect existing differences between BPCI Advanced and comparison hospitals and PGPs rather than the true impacts of the model. Survey non-response is also a limitation; fewer than one in three patients responded to the survey. Although we implemented survey weights to better reflect all patients who received care under BPCI Advanced, we cannot be sure that our results are generalizable to the overall population or whether unobserved differences between respondents and non-respondents may be biasing our results. Additional considerations limit interpretation of the findings, including the wide variety of clinical episodes that are measured with a single survey instrument and the substantial heterogeneity of patient acuity within clinical episodes, which is difficult to adequately account for with the data available. Lastly, the ongoing COVID-19 public health emergency and health care workforce shortages may have resulted in differential experiences and care for BPCI Advanced and comparison respondents. Unmeasured patient, provider, or external factors that differ across groups may also be responsible for observed differences. A strength of our analysis is that we pooled survey data across 2021 and 2022, which provided a more robust sample size to detect differences under the new model design.

2. What Are the Implications of These Findings for Care Transformation?

The BPCI Advanced beneficiary survey analysis results suggest that patient-reported outcomes under the model are largely varied. This finding has implications for care transformation under future bundled payment models. Specifically, it suggests that BPCI Advanced care redesign activities,

which have focused on reducing institutional PAC use, have achieved reductions in episode expenditures without compromising patient functional outcomes and care experiences in aggregate.

Results from the beneficiary survey signal that the model impact on patient-reported outcomes may differ by the provider type (hospital or PGP) that initiated the episode. Our analysis of qualitative data from site visits and key informant interviews (Chapter IV) found that PGPs may have more flexibility to implement new care processes compared with hospitals. PGPs may also be more able than hospitals to select the patients they care for, so there may be differences in patient mix for the two provider types, some of which cannot be accounted for using survey or claims data.

The beneficiary survey results also suggest differences in patient-reported outcomes for medical versus surgical episodes. This finding is consistent with the qualitative data analysis summarized in Chapter IV, which found differences in the care redesign activities employed for medical versus surgical episodes. For example, most surgical episodes included care redesign activities prior to the hospitalization or procedure (planned procedures only), whereas care redesign activities for medical episodes typically began during the hospitalization.

3. What Do These Findings Mean for CMS Objectives?

Advancing health equity is a strategic objective of Innovation Center models. Our analysis found some indication that the model may have had unfavorable results for functional status outcomes for dually eligible beneficiaries with hospital-initiated episodes. This relative decrease in functional status is consistent with some results from our claims analysis, which found an increased readmission rate for dually eligible beneficiaries with medical episodes relative to the comparison group. However, our claims analysis also found a decrease in the mortality rate for dually eligible beneficiaries with medical episodes relative to the comparison group, which may mean surviving BPCI Advanced beneficiaries were sicker or more complex than comparison beneficiaries in ways not measurable through claims. These results together may be varied, but it is important to consider potentially differential model impacts for dually eligible beneficiaries. Dually eligible beneficiaries may be more sensitive to care redesign efforts aimed at reducing institutional PAC services or may derive less incremental benefit from improved care coordination. In future models, it may be worth considering adding elements to model design to address the unique needs of dually eligible patients.

Our results suggest that value-based payment models can have both favorable and unfavorable outcomes for underserved populations concurrently, adding complexity to our understanding of health equity impacts. BPCI Advanced may have incentivized screening and addressing health-related social needs, which could have led to more favorable care experiences and higher satisfaction for dually eligible respondents with PGP-initiated episodes than for dually eligible comparison respondents. Thus, some model incentives may disproportionately improve quality for underserved populations despite not being specifically tailored to do so.

These findings have implications for future similar bundled payment models. Reduced PAC use and gross spending were not consistently associated with adverse changes in functional status overall, which may suggest that previous levels of PAC use were providing little additional value or that the care and services under BPCI Advanced is of higher value than usual care. However, underserved subpopulations may have different experiences with the model, including some unfavorable outcomes. Tailoring model design to the needs of specific underserved populations may be important to ensure existing health inequities are reduced and not worsened.

VII. Medicare Program Savings

Achieving Medicare program savings is a critical objective of the BPCI Advanced Model and a key component of the BPCI Advanced evaluation. The Secretary of Health and Human Services has the authority to expand Innovation Center models that reduce federal spending while maintaining or improving quality for beneficiaries; therefore, evaluation estimates of the net savings or losses to Medicare due to BPCI Advanced may influence decisions related to future similar bundled payment models. In response to losses in the first 3 model years of BPCI Advanced, CMS introduced changes to the model design in Model Year 4 (2021) that had the potential to lead to net savings to Medicare.

This chapter presents estimates for Medicare program savings for Model Year 4 of the BPCI Advanced Model. We present Medicare program savings results for episodes pooled across all clinical episodes evaluated and pooled across medical and surgical episodes to provide a high-level overview of whether the Model is achieving the objective of savings. We also present clinical episode-level estimates of net savings to better understand the implications of changes to the target price methodology in Model Year 4. **Appendix N** details net savings and losses for each clinical episode and clinical episode service line group (CESLG) by episode initiator type.

Medicare savings estimates differ from the episode payment impact estimates (Chapter V) because the savings estimates account for reconciliation payments made to or received from participants. Medicare savings estimates also differ from payment impact estimates because the savings estimates are based on *non-standardized payments*, or actual Medicare fee-for-service (FFS) payments to providers. The payment impact estimates are based on *standardized Medicare paid amounts*, which exclude the wage and other adjustments that CMS makes when paying providers.

We conceptualized net Medicare program savings as the savings to Medicare from participants transforming care in response to the model minus what Medicare paid (or received) in financial incentives. Specifically, we calculated net savings as the estimated reduction in episode payments (non-standardized) due to the model minus the reconciliation payments Medicare paid to or received from participants. We calculated the reduction in non-standardized episode payments by converting the difference-in-differences (DiD) impact estimates on total standardized Medicare paid amounts to non-standardized payments.[44] We extrapolated the reduction in episode payments to represent all episodes in the clinical episodes evaluated. Total reconciliation payments for the clinical episodes evaluated were then subtracted to obtain net Medicare savings expressed in dollars. To calculate per-episode savings, we divided net savings by the count of BPCI Advanced episodes in Model Year 4 that were evaluated. See **Appendix C** for additional details.

We calculated two different versions of total reconciliation amounts, *adjusted* and *unadjusted*.[45] We used adjusted reconciliation amounts to calculate net savings to Medicare for the pooled

[44] Non-standardized Medicare payments reflect actual FFS payments from Medicare to providers for services furnished, as they include adjustments for wages, practice expenses, and other initiatives (for example, medical education), and they exclude beneficiary cost sharing. See **Appendix C** for more details.

[45] The adjusted reconciliation amounts account for stop-gain and stop-loss adjustments and Composite Quality Scores. They more closely represent the actual amounts that Medicare paid to or received from participants. We had to approximate the final adjusted reconciliation amounts because the adjustments to reconciliation are applied across all of the clinical episodes a participant is involved in, but the evaluation only includes a subset of clinical episodes

groupings and CESLG-level results. We used unadjusted reconciliation amounts to calculate the net savings to Medicare at the clinical episode level because target prices are created at the clinical episode level. Both of these reconciliation amounts reflect payments owed to CMS and to participants and do not account for any amounts that were not collected by the government.

Counterfactual: Represents our best estimate of what would have happened to episode payments for BPCI Advanced participants had the model not existed.

The evaluation calculates the counterfactual as the average BPCI Advanced non-standardized episode payment in the baseline plus the change in the average non-standardized episode payment for the comparison group from baseline to intervention.

To compare the net savings estimates across clinical episode types and by hospital and physician group practice (PGP), we expressed Medicare program savings estimates from the evaluation and the reduction in non-standardized payments as a percentage of the counterfactual (what Medicare payments would have been if the BPCI Advanced Model had not occurred). See **Appendix C** for additional details on the definitions and calculations of savings.

A. Key Findings

Medicare Program Savings Under BPCI Advanced

- During Model Year 4 (2021), the BPCI Advanced Model resulted in an estimated net savings to the Medicare program for the first time since the model's inception.
  - The model resulted in an estimated $464.7 million in net Medicare savings. The savings may have ranged from $376.6 million to $552.8 million based on a 90% confidence interval.
  - The net savings to Medicare represented 3.4% of Medicare payments under the counterfactual (what Medicare payments would have been if the BPCI Advanced Model had not occurred).
  - Medical episodes comprised the majority of BPCI Advanced episodes and thus accounted for the majority of net savings due to the model. For medical episodes, the model resulted in an estimated net savings of $306.0 million. For surgical episodes, the model resulted in an estimated net savings of $147.1 million.
- Per-episode net savings were larger for surgical episodes than medical episodes ($1,624 vs. $762 per-episode net savings).
- Both hospital- and PGP-initiated episodes generated net savings.

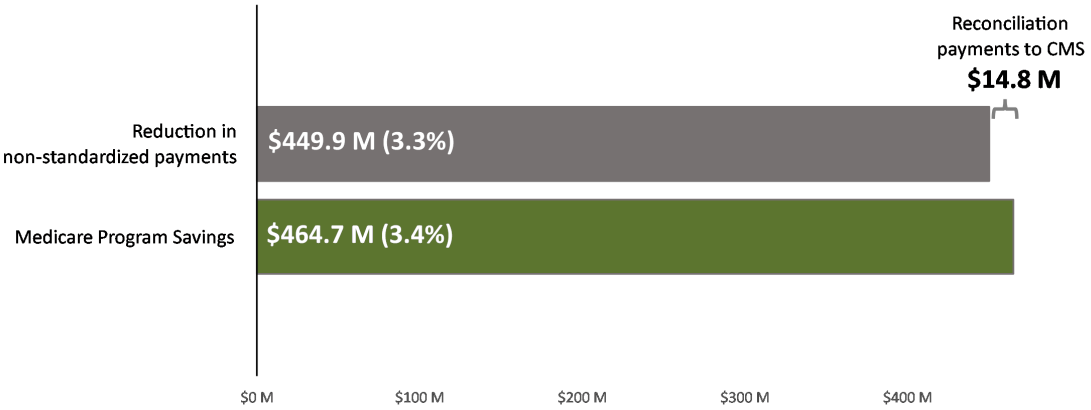
that had enough volume for estimation. To calculate adjusted reconciliation amounts at the clinical episode and episode initiator level, we converted unadjusted clinical episode- and episode initiator-level reconciliation amounts by a conversion factor and aggregated across all clinical episodes evaluated. See **Appendix C** for more details.

B. Medicare Program Savings During Model Year 4

1. Pooled Episodes

For the first time since BPCI Advanced started in 2018, the evaluation found that the model resulted in net savings to Medicare. Savings to Medicare are due to reconciliation amounts paid to CMS from participants and reductions in episode payments. During Model Year 4, the BPCI Advanced Model resulted in $464.7 million in savings, or 3.4% of the estimated payments under the counterfactual (Exhibit 57). These savings resulted from a reduction in episode payments by an estimated $449.9 million, or about 3.3% of payments under the counterfactual, and from the $14.8 million in reconciliation payments paid to CMS from participants. When accounting for the 90% confidence interval of the DiD impact estimate, net Medicare savings may have ranged from $376.6 million to $552.8 million. See **Appendix N** for more details.

Exhibit 57: Medicare Savings due to BPCI Advanced, Model Year 4 (2021)



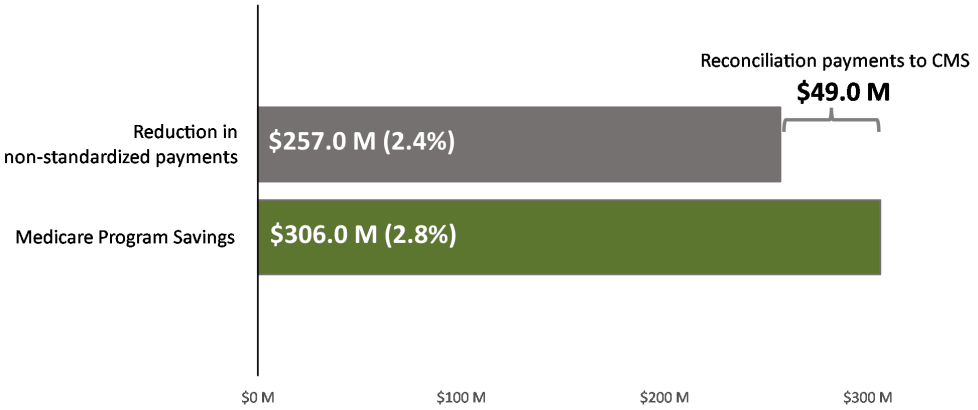
Note: Medicare savings and its components are calculated only for the clinical episodes evaluated, which account for 99.0% of all episodes initiated by hospitals and 95.3% of all episodes initiated by PGPs. The estimated reduction in non-standardized payments is based on DiD models of standardized Medicare paid amounts. We calculated the net savings to Medicare as the estimated reduction in non-standardized payments minus reconciliation amounts. The estimates are also presented as a percentage of payments under the counterfactual, or what payments would have been if the BPCI Advanced Model had not occurred, which is estimated as the average BPCI Advanced baseline payment amount plus the average change in the episode payment amount for the comparison group from baseline to intervention. Reconciliation amounts are adjusted for quality adjustments and the stop-gain/stop-loss adjustment to better reflect the final reconciliation amounts exchanged between CMS and participants. See **Appendix C** for details of the DiD methodology, reconciliation adjustment methodology, outcome definitions, and additional information on methods. See **Appendix N** for detailed results of net Medicare savings. DiD = difference-in-differences; M = million; PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers, as well as CMS reconciliation data from the same period.

In prior model years, BPCI Advanced resulted in net losses to Medicare for medical episodes. In contrast, in Model Year 4, medical episodes resulted in savings. Given that medical episodes accounted for the greatest share of BPCI Advanced Model Year 4 episode volume, the savings from medical episodes were a large driver of the estimated net savings overall. For medical episodes, BPCI Advanced reduced episode payments by an estimated $257.0 million, or 2.4% of payments under the counterfactual (Exhibit 58). After accounting for $49.0 million in reconciliation payments paid to CMS from participants, we found that the model resulted in an estimated net savings of $306.0 million, or 2.8%, for medical episodes, with a per-episode savings

of $762. Estimated net Medicare savings for medical episodes may have ranged from $237.5 million to $374.5 million based on a 90% confidence interval.

Exhibit 58: Medicare Savings due to BPCI Advanced, Medical Episodes, Model Year 4 (2021)

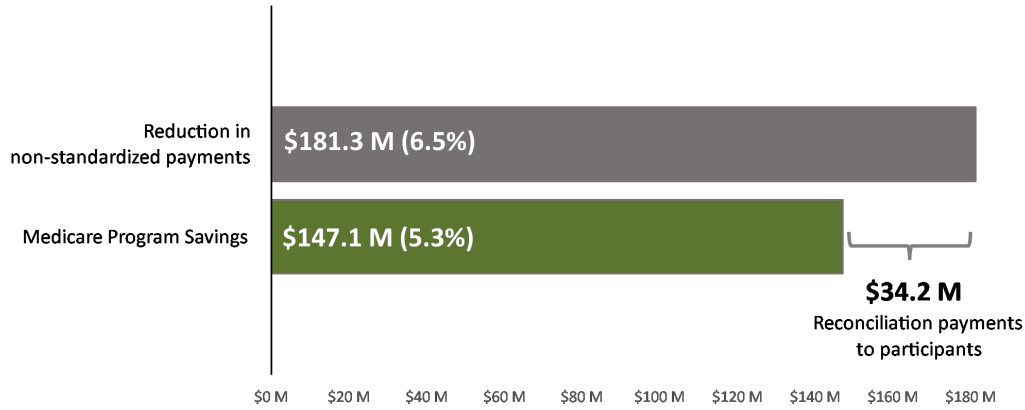


Note: The estimated reduction in non-standardized payments is based on DiD models of standardized Medicare paid amounts. We calculated the net savings to Medicare as the estimated reduction in non-standardized payments minus reconciliation amounts. The estimates are also presented as a percentage of payments under the counterfactual, or what payments would have been if the BPCI Advanced Model had not occurred, which is estimated as the average BPCI Advanced baseline payment amount plus the average change in the episode payment amount for the comparison group from baseline to intervention. Reconciliation amounts are adjusted for quality adjustments and the stop-gain/stop-loss adjustment to better reflect the final reconciliation amounts exchanged between CMS and participants. See **Appendix C** for details of the DiD methodology, reconciliation adjustment methodology, outcome definitions, and additional information on methods. See **Appendix N** for detailed results of net Medicare savings. DiD = difference-in-differences; M = million.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers, as well as CMS reconciliation data from the same period.

In prior model years, BPCI Advanced resulted in net savings for surgical episodes, although the savings were not enough to offset the losses for medical episodes. In Model Year 4, both surgical and medical episodes resulted in net savings to Medicare. For surgical episodes, the BPCI Advanced Model reduced episode payments by an estimated $181.3 million, or about 6.5% of payments under the counterfactual (Exhibit 59). After accounting for $34.2 million in reconciliation payments paid to participants from CMS, we found that Medicare saved an estimated $147.1 million, or 5.3%, with a per-episode Medicare savings of $1,624. The net savings estimated for surgical episodes may have ranged from $111.7 million to $182.5 million based on a 90% confidence interval. In contrast to medical episodes, on net, CMS paid reconciliation amounts to participants for surgical episodes. However, surgical episodes still resulted in net savings because the reduction in surgical episode payments exceeded the reconciliation amounts paid back to participants.

Exhibit 59: Medicare Savings due to BPCI Advanced, Surgical Episodes, Model Year 4 (2021)



Note: The estimated reduction in non-standardized payments is based on DiD models of standardized Medicare paid amounts. We calculated the net savings to Medicare as the estimated reduction in non-standardized payments minus reconciliation amounts. The estimates are also presented as a percentage of payments under the counterfactual, or what payments would have been if the BPCI Advanced Model had not occurred, which is estimated as the average BPCI Advanced baseline payment amount plus the average change in the episode payment amount for the comparison group from baseline to intervention. Reconciliation amounts are adjusted for quality adjustments and the stop-gain/stop-loss adjustment to better reflect the final reconciliation amounts exchanged between CMS and participants. See **Appendix C** for details of the DiD methodology, reconciliation adjustment methodology, outcome definitions, and additional information on methods. See **Appendix N** for detailed results of net Medicare savings. DiD = difference-in-differences; M = million.

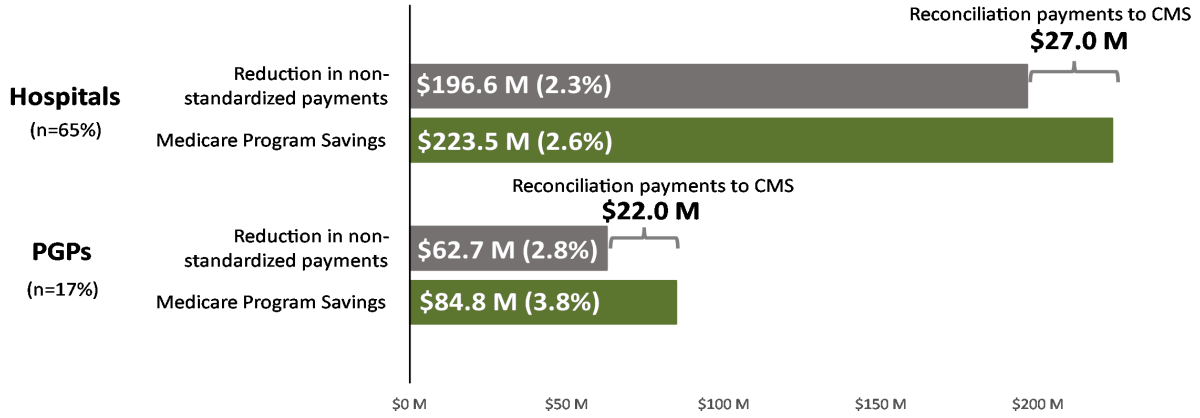
Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers, as well as CMS reconciliation data from the same period.

2. Medical Episodes for Hospitals and Physician Group Practices

For hospital-initiated medical episodes, the BPCI Advanced Model reduced episode payments by an estimated $196.6 million, or about 2.3% of payments under the counterfactual (Exhibit 60). After accounting for $27.0 million in net reconciliation payments paid to CMS from participants, we found that the model resulted in an estimated net savings of $223.5 million, or 2.6%, with a per-episode savings of $702. Estimated net Medicare savings for hospital-initiated medical episodes may have ranged from a savings of $164.6 million to $282.5 million based on a 90% confidence interval.

For PGP-initiated medical episodes, the BPCI Advanced Model reduced episode payments by an estimated $62.7 million, or about 2.8% of payments under the counterfactual (Exhibit 60). After accounting for $22.0 million in net reconciliation payments paid to CMS from participants, we found that the model resulted in an estimated net savings of $84.8 million, or 3.8%, with a per-episode savings of $1,015. Net Medicare savings for PGP-initiated medical episodes may have ranged from a savings of $52.5 million to $117.0 million based on a 90% confidence interval. Most of the savings for medical episodes came from hospitals, but PGPs had higher per-episode savings.

Exhibit 60: Medicare Savings due to BPCI Advanced, Medical Episodes for Hospitals and PGPs, Model Year 4 (2021)



Note: The estimated reduction in non-standardized payments is based on DiD models of standardized Medicare paid amounts. We calculated the net savings to Medicare as the estimated reduction in non-standardized payments minus reconciliation amounts. The estimates are also presented as a percentage of payments under the counterfactual, or what payments would have been if the BPCI Advanced Model had not occurred, which is estimated as the average BPCI Advanced baseline payment amount plus the average change in the episode payment amount for the comparison group from baseline to intervention. Reconciliation amounts are adjusted for quality adjustments and the stop-gain/stop-loss adjustment to better reflect the final reconciliation amounts exchanged between CMS and participants. The sample size (n=) refers to the percentage of total episode volume for all clinical episodes used to calculate the reduction in non-standardized payments. See **Appendix C** for details of the DiD methodology, reconciliation adjustment methodology, outcome definitions, and additional information on methods. See **Appendix N** for detailed results of net Medicare savings. DiD = difference-in-differences; M = million; PGP = physician group practice.

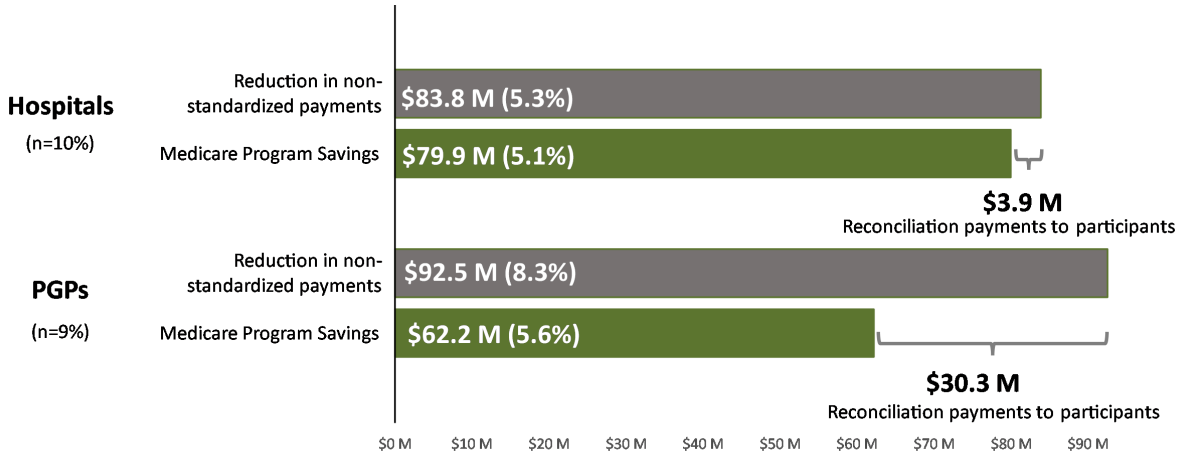
Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers, as well as CMS reconciliation data from the same period.

3. Surgical Episodes for Hospitals and Physician Group Practices

For hospital-initiated surgical episodes, the BPCI Advanced Model reduced episode payments by an estimated $83.8 million, or about 5.3% of payments under the counterfactual (Exhibit 61). After accounting for $3.9 million in reconciliation payments that CMS paid to participants, for hospital-initiated surgical episodes, the model resulted in an estimated net savings of $79.9 million, or 5.1%, with a per-episode savings of $1,682. Estimated net Medicare savings for hospital-initiated surgical episodes may have ranged from a savings of $56.0 million to $103.9 million based on a 90% confidence interval.

For PGP-initiated surgical episodes, the BPCI Advanced Model reduced episode payments by an estimated $92.5 million, or about 8.3% of payments under the counterfactual (Exhibit 61). After accounting for $30.3 million in reconciliation payments that CMS paid to participants, the model resulted in an estimated net savings of $62.2 million, or 5.6%, for PGP-initiated surgical episodes, with a per episode savings of $1,444. Estimated net Medicare savings for PGP-initiated surgical episodes may have ranged from a savings of $35.9 million to $88.4 million based on a 90% confidence interval.

Exhibit 61: Medicare Savings due to BPCI Advanced, Surgical Episodes for Hospitals and PGPs, Model Year 4 (2021)



Note: The estimated reduction in non-standardized payments is based on DiD models of standardized Medicare paid amounts. We calculated the net savings to Medicare as the estimated reduction in non-standardized payments minus reconciliation amounts. The estimates are also presented as a percentage of payments under the counterfactual, or what payments would have been if the BPCI Advanced Model had not occurred, which is estimated as the average BPCI Advanced baseline payment amount plus the average change in the episode payment amount for the comparison group from baseline to intervention. Reconciliation amounts are adjusted for quality adjustments and the stop-gain/stop-loss adjustment to better reflect the final reconciliation amounts exchanged between CMS and participants. The sample size (n=) refers to the percentage of total episode volume for all clinical episodes used to calculate the reduction in non-standardized payments. See **Appendix C** for details of the DiD methodology, reconciliation adjustment methodology, outcome definitions, and additional information on methods. See **Appendix N** for detailed results of net Medicare savings. DiD = difference-in-differences; M = million; PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers, as well as CMS reconciliation data from the same period.

C. Comparison of Medicare Program Savings in Model Year 4 and Model Years 1 Through 3

The BPCI Advanced Model resulted in net savings to Medicare in Model Year 4 for the first time since the model started in October 2018, with a net savings of $464.7 million (Exhibit 62). Losses totaled $113.7 million, or 0.8% of payments under the counterfactual, for Model Year 3, and $65.7 million, or 0.4%, for Model Years 1 and 2. The BPCI Advanced net savings in Model Year 4 ($464.7 million) exceeded the net losses in Model Years 1 through 3 combined ($179.5 million). The net savings in Model Year 4 may reflect Model Year 4 design changes that were intended to help Medicare achieve savings, including the shift to CESLGs and the use of retrospectively adjusted target prices. The reduction in episode payments in Model Year 4 was slightly smaller than the reduction in Model Year 3, overall ($449.9 million vs. $514.1 million) and by episode type (medical episodes: $257.0 million vs. $305.1 million; surgical episodes: $181.3 million vs. $193.5 million).

In Model Years 1 through 3, in aggregate, reconciliation amounts were paid to participants from CMS across both medical and surgical episodes, and only surgical episodes resulted in net savings to Medicare. In Model Year 4, both medical and surgical episodes resulted in net savings to Medicare, but participants owed reconciliation payments back to Medicare for their medical episodes, in aggregate.

Exhibit 62: Medicare Savings, BPCI Advanced Hospitals and PGPs, Model Year 3 (2020) Versus Model Year 4 (2021)

Clinical Episodes	Model Year 3			Model Year 4		
	Reduction in Non-standardized Payments (M)	Reconciliation Payments (M)	Savings to Medicare (M)	Reduction in Non-standardized Payments (M)	Reconciliation Payments (M)	Savings to Medicare (M)
All Evaluated Clinical Episodes	$514.1	$627.8	-$113.7	$449.9	-$14.8	$464.7
Medical	$305.1	$505.6	-$200.5	$257.0	-$49.0	$306.0
Hospitals	$197.8	$364.4	-$166.6	$196.6	-$27.0	$223.5
PGPs	$80.8	$141.2	-$60.4	$62.7	-$22.0	$84.8
Surgical	$193.5	$122.2	$71.3	$181.3	$34.2	$147.1
Hospitals	$29.9	$23.6	$6.3	$83.8	$3.9	$79.9
PGPs	$157.1	$98.6	$58.6	$92.5	$30.3	$62.2

Note: The estimated reduction in non-standardized payments is based on DiD models of standardized Medicare paid amounts for evaluated clinical episodes. The estimates for the two episode initiator types (hospitals and PGPs) do not sum to the pooled estimate for a given clinical episode type (medical and clinical) and the estimates for medical and surgical do not sum to the estimate for all evaluated clinical episodes because each estimate is derived from a different DiD model. We calculated the net savings to Medicare as the estimated reduction in non-standardized payments minus reconciliation payments. Model Year 4 reconciliation payments are adjusted for model reconciliation adjustments (for example, stop-gain/stop-loss, Composite Quality Score), whereas Model Year 3 reconciliation payments do not include these adjustments. See **Appendix C** for details of the DiD methodology, outcome definitions, and additional information on methods. See **Appendix N** for detailed results of net Medicare savings. DiD = difference-in-differences; M = million; PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2015, and ending on or before September 30, 2018 (baseline period) and episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators and matched comparison providers, as well as CMS reconciliation data from the same period. Model Year 3 results are reported in the BPCI Advanced Third Evaluation Report, available for download at https://innovation.cms.gov/innovation-models/bpci-advanced.

D. Medicare Program Savings and Target Prices

Under the BPCI Advanced Model, CMS constructed target prices so the Medicare program would save money. In Model Year 4, CMS used a 3% discount of the calculated benchmark to construct target prices for each clinical episode and hospital. CMS calculates the benchmark by incorporating hospital historical expenditures, patient case mix, peer group trends, and other factors. In Model Year 4, CMS began to adjust target prices retrospectively using realized peer group trends to account for changes during the performance period that are not captured by the prospective peer group trends. During Model Years 1 through 3 (2018 through 2020), CMS used prospectively trended target prices, using baseline trends to forecast future peer group trends. Prospectively trended target prices cannot account for unforeseen changes in practice or policy during the performance period or for random changes due to unanticipated circumstances. Also, the baseline period to calculate target prices is brought forward each model year to generate subsequent reductions in episode payments. Starting in Model Year 4 and going forward, the target

price baseline period overlaps with the BPCI Advanced intervention, so target prices may include reductions caused by the model.[46]

The realization of net savings to Medicare in Model Year 4 suggests that the changes introduced in Model Year 4 may have resolved issues in the target price methodology that previously led to losses to Medicare. In this regard, Model Year 4 target pricing was successful in accomplishing the model's objective of achieving net Medicare savings.

Because target prices are calculated separately for each clinical episode, we calculated net savings to Medicare for each clinical episode separately for hospitals and PGPs (**Appendix N**). As with other results, we calculated net savings to Medicare both as a dollar amount and as a percentage of the counterfactual. Expressing Medicare savings as a percentage of the counterfactual allows us to compare net savings across clinical episodes and samples.

We found substantial variation in Medicare savings across clinical episodes for both hospitals and PGPs. For hospitals, the clinical episodes with the largest net savings as a percentage of the counterfactual were coronary artery bypass graft, with a net savings of 8.2%; spinal fusion, with a net savings of 7.3%; and major joint replacement of the lower extremity, with a net savings of 7.0%. However, a few clinical episodes had small net losses for hospitals: outpatient back and neck except spinal fusion, with a net loss of 1.0%, and major bowel procedures, with a net loss of 0.5%. For PGPs, the clinical episodes with the largest net savings as a percentage of the counterfactual were major joint replacement of the upper extremity, with a net savings of 7.8%; sepsis, with a net savings of 7.0%; and chronic obstructive pulmonary disease, bronchitis, and asthma, with a net savings of 6.0%. One PGP clinical episode, gastrointestinal hemorrhage, had a net loss of 1.0%. Thus, although the BPCI Advanced Model had net Medicare savings in aggregate for Model Year 4, additional changes to the model's target prices for certain clinical episodes may further improve pricing accuracy.

E. Discussion

1. What Are the Findings of This Chapter?

Achieving Medicare program savings is an intended outcome of the BPCI Advanced Model. For the first time since the model's inception, BPCI Advanced resulted in net savings to Medicare. The net savings in Model Year 4 ($464.7 million) exceeded the losses in Model Years 1 through 3 combined ($179.5 million). These net savings were observed across both medical and surgical episodes for both hospitals and PGPs.

2. What Are the Implications of These Findings on Care Transformation?

These findings imply that the BPCI Advanced Model can set target prices that financially incentivize hospitals and PGPs to invest in meaningful changes to care delivery to improve care transitions while also achieving net savings to Medicare. Setting appropriate target prices is important for encouraging care transformation under the model. If target prices are too high,

[46] For Model Year 4 and later years, the percentage of the counterfactual used to express the evaluation's net savings to Medicare is not directly comparable to the model's 3% discount rate. The evaluation is comparing the model with a counterfactual of no BPCI Advanced. On the other hand, in Model Year 4 and later years, the model's target prices are based on a rolling baseline that includes earlier years of the BPCI Advanced Model and model participants in the target price peer groups.

participants can be financially successful in the model without making changes and may not invest in new structures and processes that could improve care coordination and result in Medicare savings. If target prices are set lower than intended, and the model is voluntary, participants may leave the model or choose not to participate.

After accounting for differences in volume, the percentage of net savings for surgical episodes was larger than the percentage of net savings for medical episodes (5.3% vs. 2.8%). This may be due to differences between strategies employed for medical and surgical episodes, such as patient optimization and post-discharge practices. As reported by participants, controlling costs may be easier for certain planned surgical procedures than for medical episodes. In addition, the shift to CESGLs in Model Year 4 led to participant responsibility for a wider set of clinical episodes. This was particularly notable for medical CESLGs, which include diverse clinical episodes, in terms of episode volume, patient clinical severity, and care pathways.

3. What Do These Findings Mean for CMS Objectives?

CMS achieved net savings with the changes implemented in Model Year 4, which include changes to the target price methodology and the shift to CESLGs. The realization of savings directly supports the Innovation Center's strategic objectives to drive accountable care for episodes and address affordability of care.

However, several participants, particularly those with medical episodes, experienced losses because they had to repay Medicare reconciliation amounts. Participants may leave the model if they frequently owe reconciliation amounts to Medicare, which may make it difficult for the model to sustain net savings into future model years. The evaluation will continue to estimate net savings to Medicare to determine how savings shift as participation changes.

VIII. BPCI Advanced Overlap With Accountable Care Organizations

Like BPCI Advanced, Medicare Accountable Care Organizations (ACOs) are widely adopted Alternative Payment Models (APMs) serving Medicare fee-for-service (FFS) beneficiaries. The most popular Medicare ACO is the Medicare Shared Savings Program, which was established under the Patient Protection and Affordable Care Act in 2010.[47] Other Medicare ACOs are time-limited models operated through the Innovation Center, such as the Next Generation ACO Model. Enrollment in Medicare ACOs has grown over the past decade, with about 13 million Medicare beneficiaries participating in a Medicare ACO in 2023.[48]

Both BPCI Advanced and Medicare ACOs aim to reduce expenditures while maintaining or improving quality of care and health outcomes for Medicare beneficiaries, but they focus on different care settings. BPCI Advanced beneficiary episodes are triggered by an inpatient hospitalization or outpatient procedure, and the model incentivizes participants to reduce expenditures and improve quality during a patient's hospital stay and their 90-day post-discharge period. In contrast, beneficiaries are attributed to Medicare ACOs through visits with primary care providers, and Medicare ACO models have a broader focus to provide coordinated, high-quality care to people with Medicare. BPCI Advanced and Medicare ACOs may have unique approaches to care redesign that can be complementary. For example, Medicare ACOs may focus on chronic care management to prevent hospitalizations, while BPCI Advanced hospitals and physician group practices (PGPs) focus on improving care during and after hospitalizations or procedures and facilitating transitions to the next care setting. Participation in both value-based care initiatives could create additive effects on beneficiary outcomes because care is coordinated across multiple care settings.

As the Innovation Center seeks to better integrate primary and specialty care, understanding the overlap between BPCI Advanced and Medicare ACOs could inform how to approach achieving this goal. This chapter identifies the share of BPCI Advanced hospitals and PGPs that participated in a Medicare ACO in Model Year 4 (2021) and the percentage of BPCI Advanced episodes for beneficiaries attributed to Medicare ACOs. This chapter also summarizes differences in patient characteristics between BPCI Advanced beneficiaries who were attributed to a Medicare ACO and those who were not attributed to a Medicare ACO. Finally, the chapter summarizes interviews conducted with BPCI Advanced hospitals and PGPs that were participating in Medicare ACOs and the advantages and disadvantages of being in both initiatives concurrently. Findings inform how these two initiatives could be better aligned in the future.

We used the provider-level Research Identifiable Files (RIFs) to identify hospitals and PGPs in both the BPCI Advanced Model and the Next Generation Model or Shared Savings Program ACOs. We limited the sample of BPCI Advanced hospitals and PGPs to those with at least one Model Year 4 episode (that is, episodes whose anchor stays or procedures began on or after January 1, 2021, and ended on or before December 31, 2021). We excluded other ACO initiatives, such as the Comprehensive End-Stage Renal Disease Care (CEC) Model and the Vermont All-

[47] Congress enacted the Patient Protection and Affordable Care Act (Pub.L. 111-148) on March 23, 2010. Section 3022 of the Affordable Care Act amended Section 1899 of the Social Security Act.

[48] Centers for Medicare & Medicaid Services. (2023). *CMS announces increase in 2023 in organizations and beneficiaries benefiting from coordinated care in accountable care relationship*. https://www.cms.gov/newsroom/press-releases/cms-announces-increase-2023-organizations-and-beneficiaries-benefiting-coordinated-care-accountable

Payer ACO Model (VTAPM), from this analysis because they had low participation levels among hospitals and PGPs or due to a lack of overlap with BPCI Advanced.

For the descriptive analysis of beneficiary overlap, we used Medicare FFS claims and enrollment data to define episodes whose anchor stays or procedures began on or after January 1, 2021, and ended on or before December 31, 2021 (Model Year 4) and the CMS Master Data Management (MDM) to determine beneficiary attribution to ACOs. The evaluation team identified a select group of ACO initiatives to analyze. ACOs of interest participated in the Shared Savings Program, the CEC Model, Next Generation ACO Model, VTAPM, and the Global and Professional Direct Contracting (GPDC) Model.[49] Although episodes for beneficiaries attributed to Next Generation ACO, VTAPM, CEC, or GPDC are not eligible for BPCI Advanced Model reconciliation due to model overlap rules, the evaluation creates episodes for all beneficiaries regardless of ACO attribution in order to measure beneficiary level overlap.

To learn about providers' experience participating in both BPCI Advanced and Medicare ACOs, the evaluation team conducted 19 key informant interviews (KIIs) in April and May 2023 with current and former BPCI Advanced Model hospitals and PGPs that also participated in a Medicare ACO. To build a sample of interviewees, the evaluation team used the CMS MDM provider extract to identify Model Year 5 (2022) and Model Year 6 (2023) BPCI Advanced hospitals and PGPs that also participated in a Medicare ACO (Share Savings Program and ACO REACH) at any point between January 2020 and February 2023.

A. Key Findings

BPCI Advanced Overlap With ACOs

- About 18% of BPCI Advanced episode initiators participated in a Medicare Shared Savings Program Accountable Care Organization (ACO) in Model Year 4 (2021), and about 4% participated in a Next Generation ACO.
- During Model Year 4, two in three beneficiaries who received care under the BPCI Advanced Model were not attributed to a Medicare ACO.
- BPCI Advanced beneficiaries who were not attributed to a Medicare ACO were more likely to be Black or African American and more likely to be dually eligible for Medicare and Medicaid compared with BPCI Advanced beneficiaries who were attributed to a Medicare ACO.
- Although some episode initiators reported advantages to being in both BPCI Advanced and a Medicare ACO, others felt that the initiatives did not align and were frustrated that episodes for beneficiaries attributed to certain ACOs were excluded from BPCI Advanced financial reconciliation.

[49] The GPDC Model was renamed the Accountable Care Organization Realizing Equity, Access, and Community Health (ACO REACH) Model in 2023.

B. Overlap Between Hospitals and PGPs Participating in BPCI Advanced and ACOs

In Model Year 4, 1,025 episode initiators participated in BPCI Advanced (that is, initiated at least one episode), including 679 hospitals and 346 PGPs. Of those episode initiators, 17.7% participated in a Shared Savings Program ACO and 3.7% participated in a Next Generation ACO in 2021 (Exhibit 63). A larger percentage of hospitals participated in a Shared Savings Program ACO compared with PGPs (21.9% vs. 9.2%). Hospitals may be better able to reach the Shared Savings Program requirement of serving at least 5,000 Medicare FFS beneficiaries.

Exhibit 63: Number of Model Year 4 (2021) BPCI Advanced Hospital and PGP Episode Initiators in Shared Savings Program and Next Generation ACOs

Episode Initiator Type	Number of Model Year 4 Episode Initiators	BPCI Advanced Episode Initiators Participating in the Shared Savings Program		BPCI Advanced Episode Initiators Participating in the Next Generation ACO Model	
		Number	Percent	Number	Percent
Hospital	679	149	21.9	23	3.4
PGP	346	32	9.2	15	4.3
Total	**1,025**	**181**	**17.7**	**38**	**3.7**

Note: The numbers of BPCI Advanced episode initiators are limited to the BPCI Advanced hospitals and PGPs with episode volume in Model Year 4. These numbers may not align with those presented elsewhere in the report as each analysis has unique exclusions for the sample analyzed. The evaluation team based ACO participation on the BPCI Advanced-attributed TIN. If a BPCI Advanced participant reported a different TIN on the ACO participation list, it was not identified as participating in both BPCI Advanced and an ACO. ACO = Accountable Care Organization; PGP = physician group practice; TIN = Taxpayer Identification Number.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (Model Year 4 intervention period) for BPCI Advanced episode initiators. The CMS Research Identifiable Files (RIFs) provided provider-level Medicare ACO participation data.

Hospitals and PGPs participating in Medicare ACOs do not exclusively treat patients who are attributed to their ACO. Of 521,960 total BPCI Advanced episodes in Model Year 4, a minority (127,837) were initiated by a hospital or PGP participating in a Shared Savings Program ACO (Exhibit 64). Hospitals and PGPs participating in a Shared Savings Program ACO had a 41.1% chance of having an episode with a beneficiary attributed to a Shared Savings Program ACO (either its own ACO or another Shared Savings Program ACO). Hospitals and PGPs not participating in a Shared Savings Program ACO had a 25.8% chance of having an episode with a beneficiary attributed to a Shared Savings Program ACO.

Exhibit 64: BPCI Advanced Episodes by Shared Savings Program Participation Status, Model Year 4 (2021)

BPCI Advanced and ACO Participation	Total BPCI Advanced Episodes	BPCI Advanced Episodes Attributed to a Shared Savings Program ACO	
	Number	Number	Percent
Hospitals and PGPs in BPCI Advanced and a Shared Savings Program ACO	127,837	52,506	41.1
Hospitals and PGPs in BPCI Advanced Only	394,123	101,506	25.8

Note: The numbers of BPCI Advanced episodes are for episodes initiated by BPCI Advanced hospitals and PGPs that initiated at least one episode in Model Year 4. These numbers may not align with those presented elsewhere in the report as each analysis has unique exclusions for the sample analyzed. ACO = Accountable Care Organization; PGP = physician group practice.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators. The CMS Master Data Management (MDM) provided beneficiary-level payment model data. The CMS Research Identifiable Files (RIFs) provided provider-level Medicare ACO participation data.

Only 16,900 of the total BPCI Advanced episodes in Model Year 4 were initiated by a hospital or PGP participating in a Next Generation ACO (Exhibit 65). Hospitals and PGPs participating in a Next Generation ACO had a 22.0% chance of having an episode with a beneficiary attributed to a Next Generation ACO.

Exhibit 65: BPCI Advanced Episodes by Next Generation ACO Participation Status, Model Year 4 (2021)

BPCI Advanced and ACO Participation	Total BPCI Advanced Episodes	BPCI Advanced Episodes Attributed to a Next Generation ACO	
	Number	Number	Percent
Hospitals and PGPs in BPCI Advanced and a Next Generation ACO	16,900	3,717	22.0
Hospitals and PGPs in BPCI Advanced Only	505,060	12,742	2.5

Note: Participation in the Next Generation ACO refers to BPCI Advanced hospitals and physician group practices that were also affiliated with the Next Generation ACO Model. The numbers of BPCI Advanced episodes are for episodes initiated by BPCI Advanced episode initiators that initiated at least one episode in Model Year 4. These numbers may not align with the numbers presented elsewhere in the report as each analysis has unique exclusions for the sample analyzed. ACO = Accountable Care Organization.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators. The CMS Master Data Management (MDM) provided beneficiary-level payment model data. The CMS Research Identifiable Files (RIFs) provided provider-level Medicare ACO participation data.

C. Overlap Between Beneficiaries Attributed BPCI Advanced and ACOs

In Model Year 4, there were more than 520,000 BPCI Advanced episodes of care. Two-thirds (66.1%) of those episodes were for beneficiaries not attributed to one of the Medicare ACOs assessed (CEC, GPDC, Next Generation, Shared Savings Program, VTAPM), suggesting that opportunities exist for BPCI Advanced to connect patients to ACOs (Exhibit 66). Episode overlap was more common in surgical episodes than in medical episodes (37.4% vs. 33.1%). Most episodes (29.5%) overlapped with Shared Savings Program ACOs, Medicare's largest ACO initiative. About 3.2% of episodes overlapped with Next Generation ACOs. The remaining Medicare ACOs had smaller shares of overlap. See **Appendix O** for the share of episode overlap by clinical episode service line group (CESLG).

Exhibit 66: BPCI Advanced Episodes by ACO Attribution, Model Year 4 (2021)

Clinical Episode Type	Number of BPCI Advanced Episodes	Percentage of BPCI Advanced Episodes for Beneficiaries Attributed to Medicare ACOs			
		All ACOs (%)	Shared Savings Program ACOs (%)	Next Generation ACOs (%)	Other ACOs (%)
All Clinical Episodes	521,960	33.9	29.5	3.2	1.3
Medical	417,256	33.1	28.7	3.0	1.3
Surgical	104,704	37.4	32.7	3.6	1.1

Note: "All ACOs" refers to episodes with beneficiaries attributed to the Comprehensive End-Stage Renal Disease Care Model, the Shared Savings Program, Next Generation ACO Model, Vermont All-Payer ACO Model, or Global and Professional Direct Contracting Model. Beneficiaries attributed to any Shared Savings Program ACO regardless of level or track were eligible to trigger BPCI Advanced episodes in Model Year 4. Beneficiaries attributed to Next Generation ACOs were not eligible to trigger BPCI Advanced episodes in Model Year 4 for purposes of reconciliation. These numbers may not align with the numbers presented elsewhere in the report as each analysis has unique exclusions for the sample analyzed. ACO = Accountable Care Organization.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (intervention period) for BPCI Advanced episode initiators. The Master Data Management (MDM) provided beneficiary-level payment model data.

D. Beneficiary Characteristics

Given the Innovation Center's strategic objective to advance health equity, we analyzed beneficiary characteristics by ACO participation status to illustrate which patient populations are being reached by BPCI Advanced and Medicare ACOs. We present the characteristics of BPCI Advanced episodes for beneficiaries who were not attributed to one of the ACOs assessed, CEC, GPDC, Next Generation, Shared Savings Program, VTAPM (referred to as "BPCI Advanced episodes without ACO attribution") compared with BPCI Advanced episodes for beneficiaries who were attributed to one of the ACOs assessed (referred to as "BPCI Advanced episodes with ACO attribution"). In Model Year 4, BPCI Advanced episodes without ACO attribution were more likely to be for beneficiaries who are dually eligible for Medicare and Medicaid compared with BPCI Advanced episodes with ACO attribution (25.0% vs. 15.3%) (Exhibit 67). A larger portion of BPCI Advanced episodes without ACO attribution lived in rural ZIP Codes compared to BPCI Advanced episodes with ACO attribution (7.3% vs. 5.0%), and BPCI Advanced episodes without ACO attribution also had a higher rate of dementia (24.6% vs. 19.7%).

Exhibit 67: Beneficiaries' Medical Complexity, Utilization, and Other Characteristics for BPCI Advanced Episodes by ACO Attribution, Model Year 4 (2021)

Measure	Among BPCI Advanced Episodes with ACO Attribution	Among BPCI Advanced Episodes without ACO Attribution	Difference
Dually Eligible	15.3%	25.0%	9.6 pp*
Dementia	19.7%	24.6%	4.9 pp*
Rural	5.0%	7.3%	2.2 pp*
Prior Admission	21.5%	22.9%	1.4 pp*
Share of Episodes With Prior ED Visits	30.5%	31.5%	1.0 pp*
Share of Episodes With PDP Admissions	24.9%	25.8%	0.9 pp*
Share of Episodes With ED Visits During the 90-Day PDP	20.4%	20.7%	0.4 pp*
Prior Admission Number of Days	1.8	2.2	0.3*
Super-Utilizer	16.6%	16.9%	0.3 pp*
Number of Admissions During the 90-Day PDP	2	2.2	0.2*
HCC Score	1.7	1.8	0.03*

Note: BPCI Advanced episodes with and without ACO attribution refer to BPCI Advanced episodes for beneficiaries who were or were not attributed one of the ACOs assessed (Comprehensive End-Stage Renal Disease Care Model, Global and Professional Direct Contracting Model, Next Generation ACO Model, Shared Savings Program, Vermont All-Payer ACO Model). The overall sample size included 521,960 episodes, which does not account for episodes with missing beneficiary data in the table above. The HCC score is based on the 6 months prior to the anchor hospitalization or procedure. The share of episodes with prior admissions and number of days are based on care at an acute care facility during the 180 days before the anchor stay or procedure. The share of episodes with PDP admissions is based on the beneficiary having any days in the hospital during the 90-day PDP. The share of episodes with prior ED visits is based on 180 days before the anchor date. The super-utilizer indicator is based on a beneficiary having four or more hospital admissions or ED visits during Model Year 4. An asterisk (*) indicates the difference in distribution or mean difference between BPCI Advanced episodes with ACO attribution and BPCI Advanced episodes without ACO attribution is statistically significant at the 10% level. ACO = Accountable Care Organization; ED = emergency department; HCC = hierarchical condition category; PDP = post-discharge period; pp = percentage point.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (Model Year 4 intervention period) for BPCI Advanced episode initiators. The CMS Master Data Management (MDM) provided beneficiary-level payment model data.

These results indicate that BPCI Advanced episodes without ACO attribution may have had slightly higher medical acuity compared with BPCI Advanced episodes with ACO attribution. During KIIs, some BPCI Advanced hospitals and PGPs echoed this sentiment, describing how

> *"I was looking at the sickest of the sick that were admitted on one side . . . Then, on the other side, I was looking at the ACO where we were trying to keep them out of the hospital . . . It was very different."*
>
> *– PGP Episode Initiator*

their BPCI Advanced patient population was higher acuity than their ACO population. These patient populations might vary in medical complexity because of attribution and design differences between the two models. For example, beneficiaries are attributed to a Shared Savings Program ACO based on the use of primary care services, whereas BPCI Advanced episodes begin when beneficiaries are hospitalized or undergo an outpatient procedure. In addition, hospitals are required to serve all patients that are admitted, some of whom are very sick and require urgent care, and a large portion of beneficiaries admitted to BPCI Advanced hospitals within their selected CESLGs will have episodes that are eligible for reconciliation. In contrast, ACOs may serve a large percentage of patients who do not require hospitalization and whose care and chronic conditions are actively being managed, resulting in a patient population that has lower medical complexity.

BPCI Advanced episodes with and without ACO attribution may also differ in their representation of patients from underserved populations. Beneficiaries receiving care under BPCI Advanced who were not attributed to a Medicare ACO were more likely to be Black or African American compared with BPCI Advanced episodes where the beneficiary was also attributed to an ACO (9.9% vs. 7.3%) (Exhibit 68). Similarly, a larger share of BPCI Advanced beneficiaries not attributed to an ACO were Hispanic compared with beneficiaries attributed to an ACO (6.4% vs. 4.4%). These findings suggest that the BPCI Advanced Model reached beneficiaries from underserved populations that ACOs did not reach. This could be because beneficiaries from underserved populations may not have received services from primary care providers that are part of ACOs to the same extent as other Medicare beneficiaries. See **Appendix O** for patient characteristics and race and ethnicity for medical and surgical episodes.

Exhibit 68: Beneficiary Race and Ethnicity for BPCI Advanced Episodes by ACO Attribution, Model Year 4 (2021)

Race and Ethnicity	Among BPCI Advanced Episodes with ACO Attribution (%)	Among BPCI Advanced Episodes without ACO Attribution (%)	Difference (pp)
Asian/Pacific Islander	1.6	2.1	0.6*
Black or African American	7.3	9.9	2.6*
Hispanic	4.4	6.4	2.0*
American Indian/Alaska Native	0.2	0.6	0.4*
Non-Hispanic White	84.6	79.0	-5.6*
Other	0.6	0.7	0.1*

Note: BPCI Advanced episodes with and without ACO attribution refer to BPCI Advanced episodes for beneficiaries who were or were not attributed one of the ACOs assessed (Comprehensive End-Stage Renal Disease Care Model, Global and Professional Direct Contracting Model, Next Generation ACO Model, Shared Savings Program, Vermont All-Payer ACO Model). The overall sample included 521,960 episodes, which does not account for episodes with missing beneficiary race and ethnicity data in the table above. The race and ethnicity data come from the Research Triangle Institute (RTI) race codes from the Master Beneficiary Summary File. An asterisk (*) indicates the difference in the distribution of race and ethnicity between BPCI Advanced episodes with ACO attribution and BPCI Advanced episodes without ACO attribution was statistically significant at the 10% level. ACO = Accountable Care Organization; pp = percentage point.

Source: The BPCI Advanced evaluation team's analysis of Medicare claims and enrollment data for episodes with anchor stays or procedures beginning on or after January 1, 2021, and ending on or before December 31, 2021 (Model Year 4 intervention period) for BPCI Advanced episode initiators. The CMS Master Data Management (MDM) provided beneficiary-level payment model data.

E. BPCI Advanced Participant Experiences With ACOs

To better understand how concurrent participation in BPCI Advanced and Medicare ACOs affects hospital and PGP episode initiators seeking to improve care for their patients, the evaluation team conducted KIIs with hospitals and PGPs that participated in BPCI Advanced during Model Year 5 (2022) or Model Year 6 (2023) and also participated in a Medicare ACO at any point between 2020 and 2023.

Provider engagement in ACOs. BPCI Advanced hospitals and PGPs had varying levels of engagement in their Medicare ACOs. For example, some PGPs helped establish their Medicare ACO and were part of their Medicare ACO's leadership team. Other BPCI Advanced hospitals and PGPs served as preferred providers instead of participating providers and did not directly hold the Medicare ACO contract. Although technically part of a Medicare ACO, some PGPs that provided specialty care reported that they were not asked to make any changes to patient care or coordination by their Medicare ACO and did not receive any revenue or shared savings from their ACO, which led to low levels of engagement.

> *"We really had no interactions whatsoever with the ACO even though we may have been a participant in it . . . we didn't get reimbursement with them; they didn't ask for our help."*
>
> *– Orthopedic PGP Episode Initiator*

Many interviewees reported that BPCI Advanced was a better way to engage specialists in value-based care compared with Medicare ACOs. Specialists felt more engaged by BPCI Advanced because they receive data on their performance, refine their care, and are financially rewarded for good outcomes. Some BPCI Advanced PGPs felt that it was more challenging to engage their physicians in Medicare ACOs because there was no link between care improvements and financial gain and all the savings went to hospitals or primary care physicians.

> *"Very rarely do you find the ACO has visibility into the acute episode."*
>
> *– PGP Episode Initiator*

Advantages to participation in both initiatives. Some interviewees felt that there were advantages to concurrent participation in BPCI Advanced and Medicare ACOs. One important advantage of concurrent participation in both models reported by hospitals and PGPs was access to data on acute episodes, including insight into specific service lines and discharges from post-acute care facilities. Some interviewees felt that concurrent participation in the programs enabled deeper participation by primary care and specialty physicians in value-based care efforts than if they had participated in one program exclusively. Others felt that being in both programs at the same time resulted in patients having "double coverage," or more staff paying attention to patient discharge and recovery. In addition, they noted how the infrastructure established for one program can be repurposed for both programs. Several participants reported that they established preferred skilled nursing facility (SNF) networks for either BPCI Advanced or their Medicare ACO, which benefited both initiatives in managing care and controlling costs in the post-acute care period.

Several interviewees felt that the two programs worked especially well in terms of connecting patients with providers after hospital discharge. One interviewee stated that being in both models concurrently encouraged them to connect patients with their primary care physician after the episode, something their organization had not been prioritizing before joining the BPCI Advanced Model. Another interviewee emphasized that transitioning patients back to their primary care doctor following a hospitalization is a critical part of closing the loop for patients and providing the full continuum of care.

> *"The advantages of being in both is it forced us to look outside of the four walls of our hospital. Previously, we just told patient to follow up with their PCP or cardiologist. Now we get that appointment scheduled before discharge."*
>
> *– Hospital Episode Initiator*

> *"We were doing well in the ACO, which is why we considered the bundle."*
>
> *– PGP Episode Initiator*

One interviewee mentioned the cost of hiring care navigators was more justifiable when participating in both programs because both programs use patient navigators to monitor patients in the post-discharge period. In fact, some interviewees reported treating BPCI Advanced patients and Medicare ACO patients identically due to similar post-discharge case management policies and difficulty identifying which patients would be attributed to which model in real time. A few interviewees reported that the same leadership team managed both their BPCI Advanced participation and their Medicare ACO participation. These examples help illuminate the potential for alignment between BPCI Advanced and Medicare ACOs.

Disadvantages to participation in both initiatives. However, some interviewees reported disadvantages of being in both initiatives concurrently. For example, when Medicare providers are allowed to participate in multiple CMS value-based care initiatives, CMS creates attribution rules for the beneficiaries they treat to reduce the potential for duplicate payments to providers. About 6.0% of BPCI Advanced episodes were not eligible for model reconciliation because these episodes were for beneficiaries attributed to the Next Generation ACO, VTAPM, CEC, or GPDC models (see **Appendix O**). In 2023, the GPDC Model became the ACO Realizing Equity, Access, and Community Health (REACH) Model. During KIIs in 2023, several interviewees expressed frustration with the attribution rules that exist between BPCI Advanced and Medicare ACOs, particularly ACO REACH. These attribution rules are a pain point because participating hospitals and PGPs devote substantial resources for care management and patient education to a group of patients who they assume will contribute toward their BPCI Advanced reconciliation volume. However, they may learn later that some patients they treated are attributed to an ACO and thus do not contribute to reconciliation and lower their episode volume. When volume is lower than expected, it can increase the influence of outlier episodes and put the participant at higher financial risk. One convener reported speaking with providers that wanted to join or rejoin BPCI Advanced in 2024, but these organizations were deterred by the ACO precedence issue given the growth of REACH ACOs (GPDC) in 2023.

> *"One of the frustrating parts of the BPCI [Advanced] program is that we act like a patient is in the program, manage them, care about their costs, care about the coordination of their care. But if they are involved in another entity's ACO, that work is benefiting that ACO and they are pulled out of our bundle and we essentially get no credit for that work."*
>
> *– PGP Episode Initiator*

Interviewees also noted that concurrent participation in both initiatives can result in "double work" for the organization—for example, having to learn and understand two different Medicare programs and stay abreast of changing rules and regulations for both initiatives. Some interviewees reported that they had duplicate boards or physician advisory committees because they joined BPCI Advanced and their Medicare ACO at different times. Several interviewees reported that they had separate navigators for their ACO and BPCI Advanced patients, which could result in confusion when beneficiaries received twice as many calls in the post-discharge period.

Impacts on quality of care. Most hospitals and PGPs reported that being in both BPCI Advanced and a Medicare ACO did not affect the quality of patient care. These interviewees reported that they provided the same quality of care to all patients regardless of insurance coverage or participation status in other Medicare value-based care programs. However, a few interviewees thought being in both programs did improve quality of care for patients because multiple teams were engaged with preventing readmissions, ensuring successful discharge, and monitoring patients during recovery.

> *"We had patients that were better geared towards having a successful discharge because they had been in the office more, were already being managed, already had their annual wellness visit."*
>
> *– PGP Episode Initiator*

> *"I think it will be a challenge for an ACO to manage the episode downstream perhaps unless they are really provided with some data support to manage that downstream."*
>
> *– Hospital Episode Initiator*

Future considerations. When asked about a future landscape where these value-based care initiatives might be merged, most interviewees were open to bundles being incorporated within ACOs if specialists were engaged and financially rewarded for good outcomes and attribution issues were solved. Many interviewees felt that it was important to ensure specialists can demonstrate their value and share in the savings. A few interviewees noted it would be hard for ACOs to manage episodes downstream without data; they said that CMS should give ACOs more data on all the patients who are admitted to the hospital and their episodic spending the next 90 days because this information helps the ACO manage the patient's 365-day care.

F. Discussion

1. What Are the Findings of This Chapter?

About 18% of Model Year 4 hospitals and PGPs participated in a Share Savings Program ACO, and two-thirds of Model Year 4 BPCI Advanced episodes were not attributed to a Medicare ACO, highlighting that opportunities exist for CMS to integrate primary and specialty care models and for BPCI Advanced to connect patients to ACOs. BPCI Advanced beneficiaries who were not attributed to a Medicare ACO were more likely to be dually eligible for Medicare and Medicaid, have a diagnosis of dementia, live in a rural area, or be Black or African American or Hispanic. Some hospital and PGP interviewees reported advantages to being in both BPCI Advanced and a Medicare ACO concurrently, including access to acute episode data that can otherwise be difficult for ACOs to obtain. Others were frustrated that episodes for beneficiaries attributed to certain Medicare ACOs were excluded from BPCI Advanced financial reconciliation and felt that CMS needed to address overlap policies.

2. What Are the Implications of These Findings on Care Transformation?

BPCI Advanced interviewees discussed advantages and disadvantages to participating in BPCI Advanced and Medicare ACOs. Some hospitals and PGPs could reuse the preferred SNF networks and care navigators established after joining a Shared Savings Program ACO to facilitate care transformation in BPCI Advanced. Because both initiatives encourage better care coordination in the post-discharge period, these investments were useful for both BPCI Advanced and Medicare ACOs in achieving care transformation. Some interviewees reported that concurrent participation in both initiatives led to providers having more data; specifically, ACOs gained data on acute care episodes and timing of discharges from post-acute care facilities. Hospitals and PGPs participating in both initiatives may benefit from having data covering beneficiary care across all care settings, which could facilitate improvements in patient care. Additionally, some hospitals and PGPs participating in both initiatives reported that they were increasingly connecting beneficiaries with primary care providers following discharge, which could also support care transformation in terms of connecting patients with accountable care relationships. That said, many interviewees were reluctant to state that being in both models led to additional improvements in quality of care.

3. What Do These Findings Mean for CMS Objectives?

The Innovation Center seeks to advance health equity through its models. BPCI Advanced beneficiaries who were not attributed to a Medicare ACO in Model Year 4 were more likely to be Black or African American or Hispanic and less likely to be dually eligible for Medicare and Medicaid compared with beneficiaries receiving care under both BPCI Advanced and a Medicare ACO. The Model Year 4 BPCI Advanced beneficiaries without ACO attribution were also more likely to have dementia, have multiple comorbidities, or have had a prior hospital readmission in the past 30 to 90 days compared with BPCI Advanced beneficiaries attributed to a Medicare ACO. BPCI Advanced may be reaching beneficiaries from underserved populations and clinically complex beneficiaries who are not being reached by Medicare ACOs. This difference could simply reflect model design because BPCI Advanced involves treatment of all Medicare beneficiaries who come to the hospital, many of whom are medically complex, whereas Medicare ACOs generally require the beneficiary to have a primary care visit to be attributed.

The overlap findings in this chapter represent a snapshot in time (Calendar Year 2021) and should be interpreted in the larger landscape of evolving Shared Savings Program regulations. The Shared Savings Program changed substantially in Performance Year 2019A with the implementation of "Pathways to Success," which streamlined and redesigned the participation options available under the Shared Savings Program to encourage ACOs to transition to performance-based risk more gradually and incrementally to increase savings for the Trust Funds.[50] These changes could have affected the type of providers in the program and the patients served by the Shared Savings Program.

As the Innovation Center considers a future landscape of accountable care relationships led by Medicare ACOs and APMs, it could be important to retain a bundled payment methodology that engages and rewards specialists. In interviews, we heard that specialists did not always feel

[50] Centers for Medicare & Medicaid Services. (2018). *Final rule creates pathways to success for the Medicare Shared Savings Program*. https://www.cms.gov/newsroom/fact-sheets/final-rule-creates-pathways-success-medicare-shared-savings-program

engaged or rewarded by their Medicare ACOs, but they did feel engaged by BPCI Advanced because they saw how their actions could lead to more successful patient outcomes and shared savings. Additionally, some interviewees reported frustration with losing BPCI Advanced episodes from reconciliation to REACH ACOs (formerly GPDC). In the April 2024 proposed rule updating Medicare payments and policies for inpatient hospitals and long-term care hospitals, CMS proposes the mandatory Transforming Episode Accountability Model (TEAM), which builds on prior bundled payment models, including BPCI Advanced and the Comprehensive Care for Joint Replacement Model.[51,52] TEAM supports CMS goals of driving accountable care through 30-day episodes and integrating specialty and primary care by requiring hospitals to refer patients with an eligible surgery to primary care following their hospitalization or procedure. In addition, CMS indicated that beneficiaries who receive eligible care from a hospital selected to participate in TEAM may be in an episode regardless of ACO attribution.

[51] Centers for Medicare & Medicaid Services. (2024). *CMS Proposes New Policies to Support Underserved Communities, Ease Drug Shortages, and Promote Patient Safety.* https://www.hhs.gov/about/news/2024/04/10/cms-proposes-new-policies-support-underserved-communities-ease-drug-shortages-promote-patient-safety.html

[52] Centers for Medicare & Medicaid Services. (2024). *Transforming Episode Accountability Model (TEAM).* https://www.cms.gov/priorities/innovation/innovation-models/team-model

IX. Discussion

The BPCI Advanced Model was designed to reduce Medicare expenditures while maintaining or improving the quality of care for beneficiaries during and after hospitalizations or procedures. In this voluntary model, participants agree to be held responsible for the costs and quality of care for Medicare fee-for-service (FFS) beneficiaries who receive care under their selected clinical episodes during each performance period. Bundled care episodes include a beneficiary's anchor hospital stay or outpatient procedure and their 90-day post-discharge period. CMS reconciles all FFS expenditures during these care episodes against a target price that is largely based on historical payments at the hospital where the patient was treated. If the hospital or physician group practice's (PGP's) episode payments are above the target price set by CMS, then the participant may owe CMS a reconciliation payment. Conversely, if the hospital or PGP's episode payments are below the target price, the participant may receive a reconciliation payment from CMS. This financial risk encourages providers to work across care settings to better coordinate care for Medicare beneficiaries and reduce unnecessary costs.

During the first 3 years of the model, participants proved successful at reducing episode payments when compared with similar hospitals and PGPs that do not participate in the model. The reductions in payments were twice as large for surgical episodes compared with medical episodes. Participants were able to decrease episode payments by reducing the use of institutional post-acute care (PAC) facilities, including skilled nursing facilities (SNFs) and inpatient rehabilitation facilities (IRFs). There were no indications of decreases in quality of care during the first 3 model years in terms of hospital readmissions or mortality. Results from a beneficiary survey fielded in Model Year 2 (2019) found that patient-reported changes in functional status from before to after the episode did not differ between BPCI Advanced and comparison respondents with hospital-initiated or PGP-initiated episodes, nor were there differences in patient-reported experience or satisfaction with care.

While participants were successful in reducing total episode payments during the first 3 years of the model, ultimately the model resulted in net losses to Medicare because the reconciliation payments to participants were larger than the decrease in episode payments. Medical episodes resulted in net losses to Medicare while surgical episodes resulted in net savings to Medicare. For both hospitals and PGPs, evidence suggested that target prices were too high for most medical clinical episodes but were more accurate for surgical clinical episodes. Because of these net losses, CMS sought to improve the accuracy of its target price methodology. In Model Year 4 (2021), CMS adjusted its calculation of target prices to include a retrospective trend adjustment; removed the PGP offset, which was used in target price construction; and included additional risk adjustments for the major joint replacement of the lower extremity clinical episode. CMS also required participants to select clinical episode service line groups (CESLGs) and participate in all clinical episodes within the service line group that met minimum volume thresholds. Additionally, CMS adjusted the episode overlap methodology and added an alternate quality measure set.

These changes to the BPCI Advanced Model design were made in part to help achieve net savings to Medicare. In Model Year 4, the first year of these changes, the BPCI Advanced Model resulted in $464.7 million in estimated net savings to the Medicare program. This was the first time that the model resulted in net savings to Medicare. The net savings in Model Year 4 were larger than the net losses in Model Years 1 through 3. These savings provide evidence that target prices were set

more appropriately in Model Year 4. However, the more appropriate target prices could have implications for participation in the model in future years. The model changes caused concerns among some participants that they might not be able to be as financially successful in the model as in prior years. The model design changes likely contributed to the 37.2% decrease in unique participants between Model Year 3 and Model Year 4, but the participants that stayed took on responsibility for a larger set of clinical episodes—almost double the number of clinical episodes for which they were accountable in Model Year 3. Many participants that chose to remain in the model sought to gain experience with bundled payments in anticipation of a mandatory bundled payment model in the future.

Like Model Year 3, the model's reach to underserved populations in Model Year 4 was greater among beneficiaries with medical episodes than beneficiaries with surgical episodes, reflecting differences in representation among hospital discharges and outpatient procedures nationwide. Representation of beneficiaries from underserved populations within BPCI Advanced episodes either declined (Black or African American and dually eligible beneficiaries) or stayed the same (Hispanic beneficiaries) in Model Year 4 when compared with previous evaluation years. Representation may have been lower among BPCI Advanced episodes in Model Year 4 than Model Years 1 through 3 for a variety of reasons, including differences in the patient demographics of BPCI Advanced participants or the clinical episodes or CESLGs in which they participated. It may also reflect differences in the demographics of episodes excluded from the reconciliation process, such as episodes with a COVID-19 diagnosis. In addition, it is important to note the decline in FFS enrollment for these three groups (as a share of all enrollees).

Like prior model years, participants lowered episode payments by reducing discharges to PAC facilities. The ongoing COVID-19 public health emergency (PHE) also likely contributed to the decline in admissions to institutional PAC facilities, as patients sought to avoid these facilities due to fears of contracting COVID-19 and as facilities experienced shortages of available beds. However, this decline would not bias our results because the comparison group would experience similar effects resulting from the PHE. Not only were initial discharges to PAC facilities reduced, but length of stay in these facilities also decreased as participants worked with PAC partners to reduce unnecessarily long SNF stays. Interviews with hospitals and PGPs indicated that many of their organizations built new relationships with high-quality SNFs in their local markets, sending these facilities care protocols to follow, holding weekly or monthly calls to review performance, and analyzing obstacles to discharge for BPCI Advanced patients. Some hospitals and PGPs even sent their own staff into PAC facilities to serve as medical directors or conduct rounds on BPCI Advanced patients. This close collaboration between PAC facilities and inpatient providers was one example of care transformation resulting from the model. Other examples of care transformation resulting from the model included resetting patient and provider expectations about discharge destinations and enhancing provider awareness of costs, utilization, and quality of care in acute and post-acute care settings. Participants also reported identifying and mitigating medical and social risk factors that could impede home recovery and increasingly connecting patients with primary care providers.

To understand the impact of the model on quality of care, the evaluation team analyzed hospital readmission and mortality rates. Overall, quality of care results were varied in Model Year 4. The readmission rate decreased for hospitals and PGPs in BPCI Advanced as well as comparison providers; however, the declines were slightly larger for the comparison group. This resulted in a

slight relative increase in the readmission rate for BPCI Advanced hospitals and PGPs relative to the comparison group, but the increase was not statistically significant. This was a change from Model Year 3, when the readmission rates declined for medical and surgical episodes, and the decrease was statistically significant for the overall sample. Subgroup analyses showed statistically significant increases in readmission rates for Hispanic, Non-Hispanic White, and dually eligible beneficiaries in medical episodes relative to comparison group beneficiaries in Model Year 4. BPCI Advanced had little to no impact on the mortality rate, although there was a pattern of reductions in mortality for dually eligible beneficiaries and for medical episodes initiated by PGPs.

There was some evidence of unfavorable quality results in the beneficiary survey data collected in Model Year 4 (2021) and Model Year 5 (2022). Among hospital-initiated episodes, BPCI Advanced respondents were less likely than comparison respondents to report favorable care experiences and the highest levels of satisfaction with care. For PGP-initiated episodes, results were varied; BPCI Advanced respondents with medical episodes reported less favorable care experiences and satisfaction than comparison respondents, while BPCI Advanced respondents with surgical episodes reported more favorable care experiences and satisfaction. The beneficiary survey also found that dually eligible BPCI Advanced respondents with hospital- and PGP-initiated episodes were less likely to report favorable changes in functional status relative to dually eligible comparison respondents. However, survey findings do not neatly translate to definitive conclusions about the association between BPCI Advanced and functional status or care experiences. There is substantial heterogeneity across and within clinical episodes that makes overall interpretation difficult. The evaluation team will continue to assess results, particularly for beneficiaries from underserved populations, and investigate any differences with the comparison group within this context.

A. What Do These Findings Mean for CMS Objectives?

The Innovation Center published a strategy refresh in 2021 that laid out a vision to drive health system transformation over the next decade. The refresh focused on five strategic objectives: (1) drive accountable care, (2) advance health equity, (3) support innovation, (4) address affordability, and (5) partner to achieve system transformation. Measuring progress toward achieving these goals will help the Innovation Center analyze the impact of its models on broader health system transformation.

1. Drive Accountable Care

The Innovation Center defines driving accountable care as increasing the number of people in a care relationship with accountability for quality and total cost of care. The BPCI Advanced Model provides beneficiaries with accountable relationships for episodes of care (vs. the annual accountability provided by Medicare Accountable Care Organizations, or ACOs). The reach of the model paired with its connections to primary care may allow this expansive model to serve as a bridge to ACOs for beneficiaries without an existing accountable primary care relationship.

BPCI Advanced is a national model with participants in 47 out of 50 states. One in five eligible hospitals and one in four eligible clinicians across the country participated in the model in Model Year 4. During site visits and interviews with model participants, BPCI Advanced hospitals and PGPs reported that they have increasingly connected patients with primary care providers to ensure a successful recovery from hospitalizations and procedures. While in the past, providers

simply encouraged patients to follow up with primary care providers, under the model, some hospitals and PGPs set up those appointments on behalf of patients prior to discharge and even identified new primary care providers for patients who did not have one prior to their anchor stay. During Model Year 4, nearly one in five BPCI Advanced participants were also in an ACO, but less than half of their BPCI Advanced beneficiaries were attributed to the ACO. To the extent that BPCI Advanced providers are connecting patients to primary care providers and Medicare ACOs, the model supports the Innovation Center's objective to drive accountable care. In future evaluation reports, the evaluation team will use claims data to quantify the extent to which BPCI Advanced hospitals and PGPs increase beneficiary connections to primary care clinicians to support qualitative findings.

2. Advance Health Equity

The Innovation Center aims to embed health equity in every aspect of its models and increase the number of beneficiaries from underserved communities in value-based payment models. Analyses show that the BPCI Advanced Model reached underserved populations, particularly in medical episodes. The representation of beneficiaries from underserved populations among BPCI Advanced medical episodes was higher than the representation of these beneficiaries in the overall FFS population. Further, our results are consistent with the notion that the BPCI Advanced Model reached underserved populations who were beyond the reach of ACOs. ACO attribution generally occurs through primary care visits, and use of primary care may be lower among some populations. BPCI Advanced beneficiaries who were not attributed to a Medicare ACO were more likely to be Black or African American and more likely to be dually eligible for Medicare and Medicaid compared with BPCI Advanced beneficiaries who were attributed to a Medicare ACO. BPCI Advanced has the potential to improve access to care by connecting beneficiaries from underserved populations with unplanned medical episodes to primary care and accountable care relationships through Medicare ACOs. Results from this evaluation suggest that inclusion of medical episodes in future model designs would be an effective strategy to reach beneficiaries from underserved populations whose only interaction with the health care system is through hospitalizations.

During interviews and site visits with model participants, hospitals and PGPs reported connecting patients with health-related social needs, such as food insecurity or lack of transportation, with social workers and community resources, such as Meals on Wheels or low-cost transportation options. Participants recognized that social needs were often drivers for hospital readmissions. Conveners offered platforms to their downstream episode initiators to help them identify resources in their communities to address social needs. If hospitals and PGPs are increasing screenings for health-related social risk factors and connecting patients with community resources, this could be an example of how BPCI Advanced helps advance health equity. While the model may have a nuanced impact on underserved populations, some hospitals and PGPs felt that the model provided the incentives and the funding (through reconciliation payments) to address beneficiary social needs.

Evaluation findings suggest that the model may have both favorable and unfavorable impacts on outcomes for underserved populations. One underserved population examined was beneficiaries dually eligible for Medicare and Medicaid. In Model Year 4, beneficiary subgroup analyses indicated both reduced mortality rates and smaller declines in readmission rates for beneficiaries with dual eligibility under medical episodes relative to comparison beneficiaries. Beneficiary

survey results were also varied. The survey found that dually eligible BPCI Advanced respondents with hospital-initiated episodes were less likely to report favorable changes in functional status but more likely to report favorable care experiences and satisfaction with care relative to dually eligible comparison group respondents. Based on varied findings from Model Year 4, it is not clear that the BPCI Advanced Model helps advance health equity nor that it exacerbates inequalities. The evaluation will consider additional measures to monitor for potential harm and assess outcomes for unintended consequences, including quality of care measures, such as healthy days at home, hospice use, and home health quality measures.

3. Support Innovation

The BPCI Advanced Model can also be assessed in terms of whether the model supports care innovations that enable integrated, patient-centered care. According to participants, the model has prompted new investments in technology, including enhancements to electronic health records, care management tools and platforms, and remote patient monitoring technology. Several hospitals and PGPs reported tracking their performance metrics more closely because of the model and conducting case reviews to learn from particularly expensive episodes or readmissions. The model is also inspiring hospitals and PGPs to offer new complex care management programs and home rehabilitation and mobile health programs where paramedics or nursing staff provide care to patients directly in their homes to avoid preventable hospital readmissions and avoidable emergency department use. Hospitals and PGPs reported increasing patient and caregiver education and engagement in their care plan to facilitate successful discharges and recoveries. A few hospitals mentioned that they set up palliative care programs for patients reaching the end stage of their disease progression. Some hospitals said that increased referrals to palliative care and conversations about end of life were inspired in part by BPCI Advanced and the advanced care planning quality measure.

Despite these reported efforts, it is difficult to distill what care transformation has resulted directly from the model when organizations are exposed to multiple models and initiatives to improve the value of health care. Many hospitals and PGPs are participating in other CMS or private payer initiatives, such as Medicare ACOs or commercial bundled payment initiatives, which can inspire similar care redesign efforts, such as the formation of a preferred PAC network. In the future, the evaluation team will collect additional data to understand what care redesign initiatives may be unique to BPCI Advanced participants.

4. Address Affordability

The Innovation Center aims to address affordability by implementing models that are designed to reduce unnecessary or duplicative care and to prevent urgent acute events. The BPCI Advanced Model has successfully reduced total episode payments and utilization of institutional PAC facilities. In Model Year 4, the BPCI Advanced Model achieved net savings as intended after changes to the target price methodology and the shift to participation in CESLGs. Medical episodes comprised the majority of model episodes and the majority of net savings due to the model. Similar to prior model years, hospitals and PGPs were more successful in reducing payments for surgical episodes compared with medical episodes.

A few factors may explain why reductions in payments for medical episodes have been more difficult to achieve than reductions in payments for surgical episodes. First, beneficiaries with

medical episodes may be more medically complex than beneficiaries with surgical episodes. Medical episodes during the baseline period (January 1, 2015, to September 30, 2018) had higher rates of prior institutional PAC use, a higher percentage of patients over the age of 80 years, a higher percentage of patients who are disabled and dually eligible, and patients had higher hierarchical conditions category (HCC) counts and HCC scores compared with patients in surgical episodes (see **Appendix I**). Second, surgical episodes are more likely to be planned than medical episodes, giving hospitals and PGPs the opportunity to optimize patients and mitigate risks ahead of time. Thus, reducing discharges to institutional PAC facilities may be more feasible for surgical episodes compared with medical episodes, as suggested by our results. We found that the BPCI Advanced Model reduced the share of episodes first discharged into an institutional PAC setting by less than 1 percentage point among medical episodes and nearly 5 percentage points among surgical episodes. Recognizing the challenges with reducing payments for medical episodes, CMS lowered the discount rate from 3% to 2% for medical episodes in Model Year 6.

Despite some differences in their approaches to the model, the evaluation revealed that both hospitals and PGPs were motivated by model incentives to reduce unnecessary care. Participants used data provided by CMS to identify inefficiencies and reduce unnecessary PAC spending. Several hospitals and PGPs reported conducting case reviews of costly episodes, which helped providers understand how to improve care moving forward. These activities collectively contributed to care transformation in terms of increasing value to patients and supporting the long-term affordability of health care for Medicare beneficiaries.

5. Partner to Achieve System Transformation

The Innovation Center aims to engage payers, providers, and beneficiaries in efforts to improve quality, achieve equitable outcomes, and reduce health care costs. The BPCI Advanced Model has contributed to new partnerships between providers across care settings. Many hospitals and PGPs used the CMS data to identify high-quality SNFs and home health agencies with which to partner on care protocols and other care redesign activities. Some hospitals and PGPs sent their physicians to these facilities to serve as medical directors, and others sent staff to conduct rounds on BPCI Advanced patients and ensure care protocols were being followed. The increased coordination between inpatient providers and PAC providers is one of the biggest examples of care transformation achieved by the model.

Other notable partnerships in the model include relationships between hospitals and PGPs and conveners and consultants. About 70% of hospitals and PGPs participated in the model in Model Year 4 under conveners, and many more rely on consultants or convener-like organizations to help track and analyze their performance data. Conveners also provide their downstream episode initiators with care management platforms and tracking tools and sometimes even care management staff. Many hospitals and PGPs reported that without the aid of consultants, they would have had difficulty understanding the data they received from CMS and making the feedback actionable.

The overlap between BPCI Advanced and Medicare ACOs can inform the Innovation Center's integration of primary and specialty care. Nearly one in five BPCI Advanced participants were also in a Shared Savings Program ACO, with episode initiators reporting varying levels of engagement in both models. Many episode initiators noted that BPCI Advanced was a better way to engage specialists in value-based care compared with Medicare ACOs because they receive data on their

performance, refine their care, and are financially rewarded for good outcomes under BPCI Advanced, whereas Medicare ACOs provide financial incentives and savings for hospitals or primary care physicians. Partnering with both specialists and Medicare ACOs or primary care providers will be a crucial aspect of ensuring that care transformation reaches all areas of the health care system.

In terms of partnering with beneficiaries and caregivers to achieve system transformation, results from interviews and site visits with model participants indicated that the model inspired education to patients, families, and caregivers about care plans and discharge plans. Hospitals and PGPs also reported resetting patient and caregiver expectations about discharge destination, often by engaging physicians to talk proactively with patients and families about the next care setting. Some hospitals reported more end-of-life conversations with patients as a component of BPCI Advanced care redesign and the BPCI Advanced quality measure for advance care planning. Thus, the model may be helping engage patients and make them more active participants in their care.

BPCI Advanced may also increase the burden on families and caregivers if more patients are recovering at home instead of post-acute care institutional facilities. Some hospitals and PGPs reported training caregivers to change dressings, empty drains and catheters, and help patients walk safely around the house. Findings from the beneficiary survey indicate that BPCI Advanced respondents with medical episodes were less likely than comparison respondents to report favorable care experiences and the highest levels of satisfaction with care. Additionally, dually eligible BPCI Advanced respondents with hospital-initiated episodes were less likely to report favorable changes in functional status relative to dually eligible comparison group respondents. It could be possible that not all patients recover well at home, and some may have difficulty recovering at home compared with an institutional PAC facility.

To better understand patient experiences in the model, the evaluation team conducted beneficiary interviews in Model Year 5. Interviews focused on beneficiary experiences during hospitalizations and procedures, during transitions to new care settings, and throughout their recovery. Most beneficiaries reported feeling ready to leave the hospital when they were discharged and appreciated the calls from care navigators and post-acute care services. The evaluation will continue to monitor and report beneficiary experiences to understand how care transformation is experienced by patients and families.

B. Limitations

There are limitations to the estimates and results we provide in this report. The limitations mentioned are not comprehensive of all possible limitations but include those we consider most impactful. See **Appendix C** for additional information on the methods used throughout the report.

1. Claims-Based Impact Analysis

We estimated the impact of the model using a difference-in-differences (DiD) design with a comparison group constructed via propensity-score matching. A DiD design is dependent on the validity of the comparison group reflecting what would have occurred absent the model (the counterfactual). We selected a matched comparison group that was similar to BPCI Advanced providers on key factors expected to influence payment, utilization, and quality outcomes; however, important factors exist for which there are no readily available data or the data for

which we did not have access to. This is especially important when evaluating a voluntary model such as BPCI Advanced, where participants could decide to participate after reviewing a variety of relevant model data. We extensively assessed and tested the quality and validity of our matched comparison group and believe our comparison group methodology appropriately addressed this selection into participating in the model. However, without a randomized control trial or natural experiment setting, we cannot be sure that our comparison group represents the true counterfactual absent the model.

The dynamic nature of the model led to challenges in finding suitable counterfactuals for hospitals and PGPs. As participation has expanded over the course of the model and as participants have been able to change their selection of clinical episodes and CESLGs, the pool of eligible comparison providers without prior BPCI Advanced affiliation shrank, resulting in fewer non-participating hospitals and PGPs that are similar to participants across key characteristics. Our estimates may be influenced by the imbalance of certain characteristics that resulted from the smaller eligible pool of comparison providers used to construct comparison groups. See **Appendix F** for the standardized mean differences of variables before and after matching. See **Appendix L** for a sensitivity analysis that used a comparison group of all eligible Medicare FFS episodes nationwide in place of our selected comparison group.

Lastly, we did not evaluate 100% of BPCI Advanced Model Year 4 episodes for various reasons. First, in our comparison group construction, a small subset of BPCI Advanced episode initiators had to be excluded to achieve balance across important baseline characteristics. Second, participating PGPs without episodes in the baseline period were excluded from our evaluation because having baseline data is required for our DiD design.[53] Third, we did not evaluate some clinical episodes due to their limited sample size and challenges in identifying a suitable matched comparison group. However, we were able to assess the impact of BPCI Advanced for a large subset of the 34 clinical episodes: 26 for hospital episode initiators and 18 for PGP episode initiators. The sample of Model Year 4 episodes we included in our impact estimates represents about 83.7% of the total BPCI Advanced Model Year 4 episodes.

2. Beneficiary Survey Analysis

Our analysis of the beneficiary survey results identified favorable, unfavorable, and negligible differences in responses between BPCI Advanced and comparison respondents. Because the survey data were only collected during the performance periods, we cannot determine whether these differences existed during the baseline period. Additionally, given the beneficiary survey's sample sizes, we may not be able to draw statistically significant conclusions for results that are small in magnitude. For analyses of individual CESLGs and underserved populations, we are sufficiently powered to estimate minimum detectable differences between BPCI Advanced and the comparison group in the range of 5 to 10 pp, but consistent differences of lesser magnitude may be meaningful and important.

[53] PGP episode initiators were able to form new Taxpayer Identification Numbers specifically to participate in BPCI Advanced. As a result, there were no baseline claims data to use for matching purposes for some PGP episode initiators. To preserve as many PGP episode initiators as we could in our sample, we linked new PGP episode initiators to baseline data when possible. See **Appendix C** for additional details.

The same beneficiary survey instrument was used for all clinical episodes. Different clinical episodes have unique aspects of recovery and medical needs post discharge. Although a common instrument was important for understanding the model as a whole, we may not be able to observe nuanced changes in patient-reported outcomes associated with model participation because we did not tailor the survey instrument to each clinical episode.

Furthermore, due to the nature of primary data collection, the beneficiary survey may not be representative of all BPCI Advanced beneficiaries. First, the beneficiary survey was collected from episodes spanning 2 months (July and August) of Model Year 4 and Model Year 5, which span the full calendar year (January through December 2021 and January through December 2022, respectively). Second, response rates for the beneficiary survey were approximately 27% for BPCI Advanced beneficiaries attributed to hospitals and 30% for BPCI Advanced beneficiaries attributed to PGPs and were generally lower among beneficiaries from underserved populations. Although we applied non-response and sampling weights to all observations to make our respondents reflect the overall BPCI Advanced population on key characteristics of beneficiaries, hospitals, and neighborhoods, we cannot guarantee that our results are generalizable to the remaining BPCI Advanced beneficiaries who did not respond to the survey.

3. Estimation of Medicare Program Savings

Our calculations of BPCI Advanced Medicare savings have a few minor limitations. First, we extrapolated our estimated reductions in episode payments (from the DiD impact) to hospitals and PGPs not included in our evaluation sample due to limitations identifying suitable matched comparison providers. This assumes that the BPCI Advanced hospitals and PGPs in the evaluation sample had a similar reduction in episode payments as those in the extrapolated sample. The evaluation sample represents the majority of all BPCI Advanced episodes (85.5%), and we have no evidence that payment reductions differ between the evaluation sample and the extrapolated sample. Second, we estimated net savings to Medicare for 26 hospital clinical episodes and 18 PGP clinical episodes and omitted clinical episodes we were unable to evaluate. Although these clinical episodes we included represent 98.0% of BPCI Advanced volume, they do not represent all reconciled episodes under the BPCI Advanced Model. Lastly, we calculated aggregate net savings using adjusted reconciliation amounts, which approximate adjustments for stop-gain or stop-loss and quality score adjustments. See **Appendix C** for more detail of how we calculated adjusted reconciliation amounts.

4. Analysis of Underserved Populations

For the claims analysis of underserved populations, we used the matched comparison groups selected for the main DiD analyses. This methodology relies on the assumption that the subpopulation in our comparison group is a valid counterfactual for the subpopulation in our BPCI Advanced group. However, because we constructed the comparison groups such that the BPCI Advanced and comparison groups would be balanced across the full sample of beneficiaries, we cannot guarantee that the subpopulations are also balanced. To assess the validity of using our comparison groups for our subpopulations, we empirically tested whether the BPCI Advanced and comparison group subpopulations had parallel trends for outcomes during the baseline period. For most outcomes and subpopulations, we concluded that BPCI Advanced and the comparison group were on parallel trends prior to the start of the BPCI Advanced Model, but some outcomes failed our parallel trends test for certain subpopulations (see **Appendix K**). For outcomes in

subpopulations that failed our parallel trends test, BPCI Advanced participants may have been moving in a favorable direction during the baseline period, prior to joining the model; if this trend continued, the estimated DiD impact for the subpopulation would lead us to overstate any favorable changes under the model.

We identified beneficiary race and ethnicity using the Research Triangle Institute (RTI) race code, which has known limitations identified by the researchers who originally developed the race and ethnicity imputation algorithm.[54] Race and ethnicity are treated as mutually exclusive in Medicare source data and therefore do not allow for overlap in categories. The RTI race code sought to improve the accuracy of coding for Hispanic (regardless of race) and Asian/Pacific Islander Medicare beneficiaries, but certain groups continue to have low validity when compared with patient-reported data. Many studies find high validity for the Black or African American race code.[55] We used the RTI race code in this analysis because alternative data sources covering both the baseline and the intervention period were not available. In 2021, CMS made available new data developed by RAND to improve the measurement of race and ethnicity. However, these data are not available for the BPCI Advanced evaluation baseline period, January 1, 2015, through September 30, 2018. We will continue to explore improved measures of race and ethnicity that can be used for evaluation purposes.

5. Analysis of BPCI Advanced Overlap With Accountable Care Organizations

Our analysis of participant overlap between BPCI Advanced and Medicare ACOs Model focused on the overlap with the Shared Savings Program and the Next Generation ACO because these had high overlap with BPCI Advanced. We may have undercounted the number of BPCI Advanced PGPs in the Shared Savings Program and in the Next Generation ACO Model because of PGPs' flexibility to use different Taxpayer Identification Numbers (TINs) to bill Medicare claims. We may have underrepresented BPCI Advanced hospitals in our key informant interviews because of limitations of the CMS Master Data Management provider extract, which we used to identify BPCI Advanced hospitals and PGPs participating in a Medicare ACO. The evaluation team has found an additional data source for identifying participation in Medicare ACOs using Provider-Level Research Identifiable Files (RIFs), which we used in our ACO overlap descriptive statistics and will continue to use in future analyses.

C. Conclusion

In Model Year 4, the BPCI Advanced Model resulted in Medicare program savings for the first time. These savings were the result of significant changes to the model in Model Year 4, including changes to the target price methodology and a shift from participation in individual clinical episodes to CESLGs. Although the model was able to achieve savings in Model Year 4, the model design changes may have contributed to the 37.2% drop in unique participants from Model Year 3. That said, the remaining participants took on responsibility for a broader set of clinical episodes in Model Year 4, and many participants elected to continue in the model in

[54] Eicheldinger, C., & Bonito, A. More accurate racial and ethnic codes for Medicare administrative data. *Health Care Financing Review, 29*(3), 27–42.

[55] For example, see Jarrín, O. F., Nyandege, A. N., Grafova, I. B.; Dong, X., & Lin, H. (2020). Validity of race and ethnicity codes in Medicare administrative data compared with gold-standard self-reported race collected during routine home health care visits. *Medical Care, 58*(1), e1–e8.

Model Year 5, citing the anticipation of a mandatory bundled payment model and a desire to gain experience with bundled payments.

Like prior model years, participants were able to lower episode spending by reducing discharges to PAC facilities and subsequently PAC spending. As in past years, reductions in total episode payments (relative to the comparison group) were twice as large for surgical episodes compared with medical episodes. Overall, quality of care was varied in Model Year 4. In Model Year 4, the readmission rate during the 90-day post-discharge period fell for both BPCI Advanced hospitals and PGPs and the comparison group, but the declines were slightly larger for the comparison group, resulting in a slight relative increase in the readmission rate under the BPCI Advanced Model for medical episodes. Although the increase was not statistically significant, these results differ from prior years, when we did not observe evidence of worsening results for readmissions. Regarding mortality, findings were similar overall in Model Years 3 and 4, and there was no consistent evidence that BPCI Advanced affected mortality. However, we found statistically significant declines in the mortality rate during the anchor stay for medical episodes initiated by PGPs as well as for dually eligible beneficiaries with medical episodes initiated by either hospitals or PGPs. There was evidence of unfavorable quality results in the beneficiary survey data collected in Model Year 4 and Model Year 5, but evidence has been inconsistent year over year.

Interviews with episode initiators indicated that care redesign activities may be leading to broader care transformation in terms of changes to organizational culture, structure, process, and relationships. Many hospitals and PGPs reported close collaboration with partners by building new relationships with high-quality SNFs in their local market and providing care protocols and staff, holding weekly or monthly calls to review performance, and analyzing obstacles to discharge. Other examples of care transformation resulting from the model included resetting patient and provider expectations about discharge destinations and enhancing provider awareness of costs, utilization, and quality of care in acute and post-acute care settings. Participants also reported identifying and addressing health-related social risk factors that could impede home recovery and increasingly connecting patients with primary care providers.

Looking ahead, CMS has the goal of having 100% of FFS beneficiaries in accountable care relationships by 2030. Beneficiaries can experience accountable care relationships mostly through advanced primary care or ACO models. When asked about a future landscape where these value-based care initiatives might be united, most episode initiators were open to bundles being incorporated within ACOs if specialists were engaged and financially rewarded for good outcomes and episode attribution issues were solved. The BPCI Advanced Model is supporting progress toward achieving accountable care, advancing health equity, supporting innovation, improving access to care by addressing affordability, and partnering to achieve system transformation. Future analyses will continue to inform the impact of the model on these strategic objectives.