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Independent Evaluation of Comprehensive Primary Care Plus (CPC+):

Second Annual Report Supplemental Volume

July 2020

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Independent Evaluation of Comprehensive Primary Care Plus (CPC+)

Second Annual Report, Supplemental Volume

July 2020

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CONTENTS

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TABLES

FIGURES

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ACRONYMS

AAAHC	Accreditation Association for Ambulatory Health Care
ACO	Accountable Care Organization
AHC	Accountable Health Community
BHI	behavioral health integration
BI	business intelligence
BPCI	Bundled Payment for Care Improvement
CAH	Critical Access Hospital
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CBT	cognitive behavioral therapy
CCM	chronic care management
CCW	Chronic Conditions Warehouse
CEHRT	Certified Electronic Health Record Technology
CFA	confirmatory factor analysis
CMA	Certified Medical Assistant
CMF	care management fee
CMM	comprehensive medication management
CMMI	Center for Medicare & Medicaid Innovation
CMS	Centers for Medicare & Medicaid Services
CNA	Certified Nursing Assistant
CNS	Clinical Nurse Specialist
CPC+	Comprehensive Primary Care Plus
CPCP	Comprehensive Primary Care Payment
CPT	Current Procedural Terminology

DME	durable medical equipment
DO	Doctor of Osteopathic Medicine
eCQM	electronic clinical quality measure
ED	emergency department
EDB	Medicare Enrollment Database
EHR	electronic health record
E&M	evaluation and management
ESRD	end-stage renal disease
FFS	fee-for-service
FQHC	Federally Qualified Health Center
HCC	hierarchical condition category
HCPCS	Health Care Common Procedure Coding System
HIE	Health Information Exchange
HMO	health maintenance organization
HRR	hospital referral region
IOM	Institute of Medicine
IT	information technology
LCSW	Licensed Clinical Social Worker
LPN	Licensed Practical Nurse
LTI	long-term institutionalization
MA	Medical Assistant
MAPCP	Multi-payer Advanced Primary Care Practice
MBSF	Master Beneficiary Summary File
MD	Doctor of Medicine
MDM	master data management system

MOU	memorandum of understanding
NAM	National Academy of Medicine
NCQA	National Committee for Quality Assurance
NLC	National Learning Community
NP	Nurse Practitioner
NPI	National Provider Identifier
NPPES	National Plan and Provider Enumeration System
NQF	National Quality Forum
PA	Physician Assistant
PBIP	Performance-based Incentive Payment
PBPM	per beneficiary per month
PCMH	patient-centered medical home
PCP	primary care practitioner
PFAC	Patient and Family Advisory Council
PMPM	per member per month
PST	problem-solving therapy
PY	Program Year
QI	quality improvement
QPP	Quality Payment Program
RHC	Rural Health Clinic
RING	Regional Implementation Networking Group
RN	Registered Nurse
SBIRT	Screening, Brief Intervention, and Referral to Treatment
SNAP	Supplemental Nutrition Assistance Program
SNF	Skilled Nursing Facility

SSP	Medicare Shared Savings Program
TANF	Temporary Assistance for Needy Families
TCPI	Transforming Clinical Practice Initiative
TIN	Tax Identification Number
TJC	The Joint Commission
URAC	Utilization Review Accreditation Commission

1. INTRODUCTION

Comprehensive Primary Care Plus (CPC+) is the largest and most ambitious primary care payment and delivery reform effort tested to date in the United States. The Center for Medicare & Medicaid Innovation of the Centers for Medicare & Medicaid Services (CMS) launched CPC+ in January 2017 and increased its scope in 2018 (Sessums et al. 2016).

This report provides a detailed look at Program Year (PY) 2 of CPC+ in regions that joined CPC+ in 2017, and the practices and Medicare fee-for-service (FFS) beneficiaries that started in those regions. We also report on differences between findings from PY 1 for regions that joined CPC+ in 2018 and regions in the initial cohort. Our first annual report presented information about the implementation experience and impacts of CPC+ in PY 1 for the practices and beneficiaries that started CPC+ in 2017 (Peikes et al. 2019; Anglin et al. 2019).

This chapter provides an overview of CPC+ and our ongoing independent evaluation.

1.1. Overview of Comprehensive Primary Care Plus

Through CPC+, CMS is testing whether multipayer payment reform, robust learning supports, actionable data feedback, and health IT vendor support will enable primary care practices to transform how they deliver care. CMS hypothesizes this transformation will improve access to primary care services and the quality and efficiency of the care patients receive. Ultimately, these changes are intended to produce better health outcomes for patients at a lower cost. As described below, CPC+ builds on the promising experience and lessons learned from the CPC initiative (known as "CPC Classic[1]"), a four-year initiative that ran from fall 2012 to the end of 2016 (Dale et al. 2016; Peikes et al. 2018a, 2018b, 2018c).

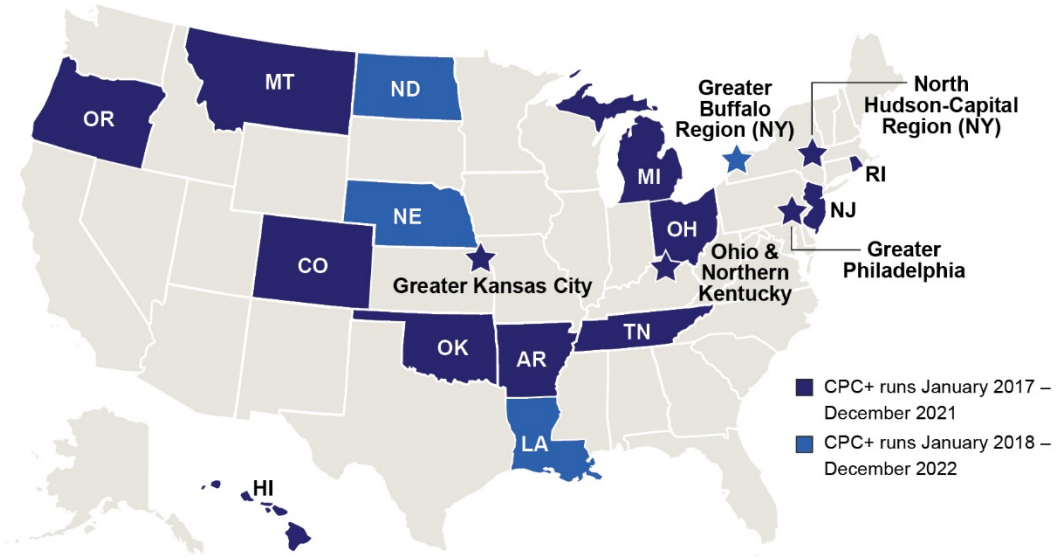
CMS kicked off CPC+ in a diverse set of 14 regions across the United States in January 2017 and added 4 more regions in January 2018 (Figure 1.1). Across the 18 CPC+ regions, CMS partnered with a total of 79 payers.[2] CMS' payer partners agreed to provide CPC+ practices with enhanced and alternative payments and data feedback, and to align quality measurement to support primary care transformation.

A total of 2,905 practices joined CPC+ in 2017 and 165 more joined in 2018. Each cohort of practices can participate in CPC+ for five years from their starting date. (See Chapter 2 for a more detailed description of who was involved in CPC+ in 2018 and how and why that involvement changed since the start of CPC+.) The CPC+ practices that were accepted fell approximately evenly into two practice tracks: Track 1 (51 percent of practices that started in 2017 and 2018) and Track 2 (49 percent of practices that started in 2017 and 2018).

[1] CPC+ builds on the experience and lessons learned from the CPC initiative (known as "CPC Classic"), a four-year initiative that ran from fall 2012 to the end of 2016. Information about CPC Classic and evaluation reports are available at https://innovation.cms.gov/initiatives/comprehensive-primary-care-initiative/.

[2] Payers are entities—such as health insurance companies, private employers, and governments—that pay providers for health care services. Payers are counted separately for each region in which they partnered because some payers that partner in multiple regions vary their CPC+ approach across regions.

Figure 1.1. CPC+ regions, payer partners, practices and practitioners



Stakeholders involved in CPC+ in PY 1

2017 regions		2018 regions		Total	
Regions:	14	Regions:	4	Regions:	18
Payers:	71[a]	Payers:	8	Payers:	79
Practices:	2,905	Practices:	165	Practices:	3,070
Practitioners:	13,209	Practitioners:	1,135	Practitioners:	14,344
Patients:	16.3M	Patients:	1.1M	Patients:	17.4M
Health IT vendors:	66[b]	Health IT vendors:	8[b]	Health IT vendors:	68[b]

Source: Mathematica's analysis of 2017 and 2018 CPC+ practice and payer tracking data provided by CMS.

[a] Payer partners that operate in more than one region are counted separately for each region in which they participate. Seventy-one payers have partnered with CMS in the 14 original CPC+ regions. Sixty-three payers joined CPC+ in these regions in 2017 and eight more payers joined CPC+ in 2018.

[b] CMS requires Track 2 practices to use enhanced health IT functionalities to advance their work on CPC+. Track 2 practices partner with health IT vendors that committed to providing health IT functionalities and supporting practices in using them. In PY 1, 60 vendors partnered only with practices in 2017 regions, 2 partnered only with practices in 2018 regions, and 6 partnered with practices in both 2017 and 2018 regions.

IT = information technology; M = million; PY = Program Year.

Selecting CPC+ regions, payer partners, and practices

CMS invited payers and practices to join CPC+ through a two-step solicitation process.

First, CMS solicited CPC+ applications from payers nationwide. CMS grouped payers that applied for CPC+ and were operating in the same marketplace together to identify potential geographic regions for CPC+. CMS then focused the selection process on regions in which Medicare FFS and other applying payers together made up 50 percent or more of the health insurance market. Then, in regions that met this criterion, CMS assessed the degree to which each payer's plan to provide CPC+ practices with supports including enhanced and alternative payments and data feedback aligned with CMS' approach for CPC+. CMS selected the final CPC+ regions and payers based on a combination of the regional market penetration and payer alignment scores.

Next, after selecting regions and payer partners, CMS invited practices that provide primary care within the selected regions to apply to participate. Across all 18 regions, 4,599 practices applied to participate. CMS accepted 3,070 applicants that it felt had the best opportunity to transform and meet CPC+ goals based on their experience using health information technology (IT), their prior experience with primary care transformation, and the proportion of their patients covered by payer partners, among other factors (Anglin et al. 2019).

To provide a framework for transformation, CMS offers CPC+ practices a set of care delivery requirements, which are minimum requirements and get progressively more advanced over each of the five CPC+ program years:

Access and continuity requires practices to ensure the availability of health services when patients need and want them. It also encourages practices to create long-term, trusting relationships between patients and their primary care practitioner and/or care team.

Care management involves practices working closely with patients to proactively address their health care needs. Practices provide shorter-term "episodic" care management for patients who experience acute care events, such as emergency department (ED) visits or hospitalizations, and longer-term care management for patients with complex, ongoing needs. Services include supporting patients as they transition between care settings (such as from a hospital to their home), reviewing and reconciling patients' medications, and educating patients about their conditions and how to manage them.

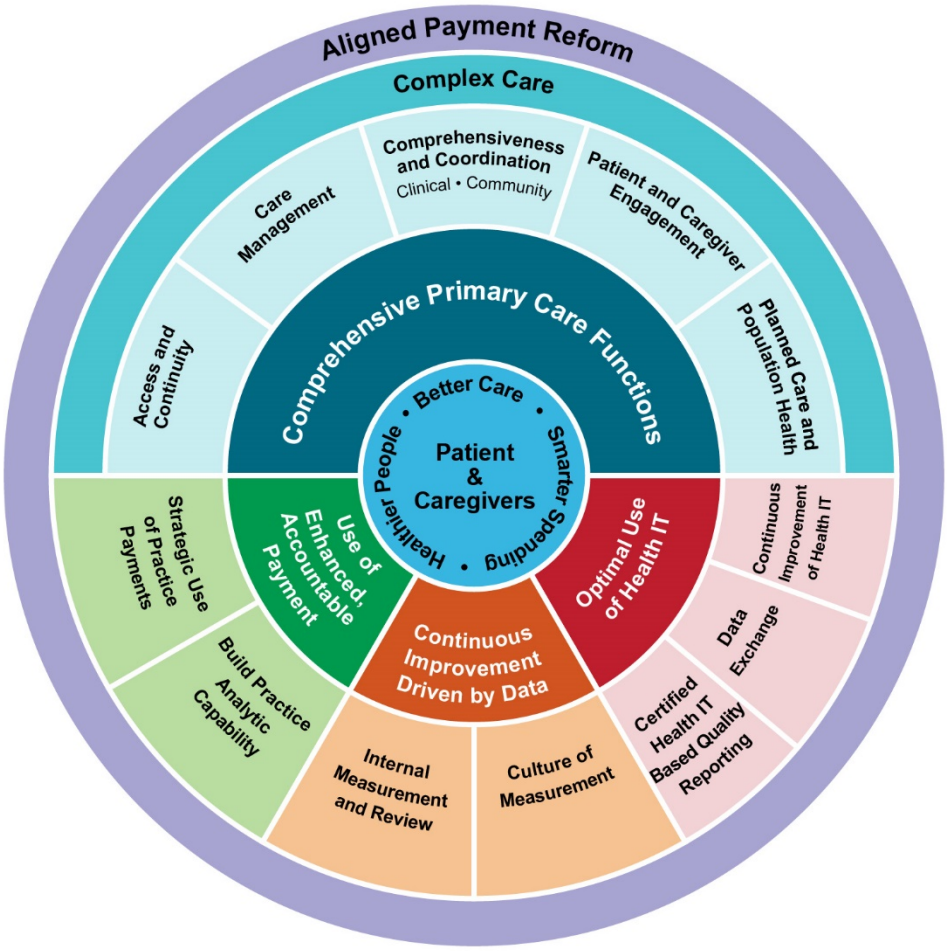
Comprehensiveness and coordination refers to primary care practices' capacity to address most of their patients' medical, behavioral, and health-related social needs to help all patients meet their health goals. It also refers to the practices' central role in helping patients and caregivers navigate the health care system.

Patient and caregiver engagement requires practices to involve patients and caregivers in efforts to guide practice improvement. It also requires practices to enhance patients' willingness and ability to manage their own health care and engage patients in advance care planning so they can specify the care they would want to receive should they become unable to speak for themselves.

Planned care and population health refers to practices organizing health care delivery to meet the needs of all of their patients. It calls for practices to use data and team-based care to proactively identify the needs of their patients and efficiently manage their care.

CMS considers these functions to be primary drivers to improve patient outcomes (Figure 1.2).

Figure 1.2. CMS' CPC+ driver diagram



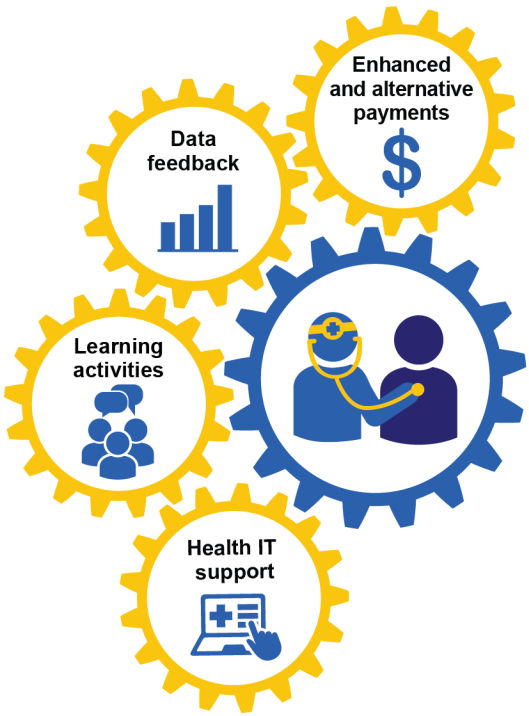
Source: Center for Medicare & Medicaid Innovation (CMMI). "2018 CPC+ Implementation Guide: Guiding Principles and Reporting." CMMI, Centers for Medicare & Medicaid Services, January 30, 2018.

Practices have flexibility to decide how to implement the five functions and associated care delivery requirements. For example, practices can decide which care delivery requirements to implement first, which staff should be involved, and how to monitor change. (See Chapter 4 for the care delivery requirements and a detailed description of how practices approached CPC+ care delivery in 2018.)

CPC+ includes two tracks with different levels of care delivery requirements and payment approaches to meet the diverse needs of participating practices. Track 2 practices are required to provide more enhanced care delivery approaches to better support patients with complex needs.

They received additional financial support and a greater shift from FFS toward population-based payment. These payments support the expanded breadth and depth of services that Track 2 practices are required to provide and give them the flexibility to deliver care in ways that may better address patients' needs and align with their preferences for care.

To support practice transformation, CPC+ enables practices to receive enhanced and alternative payments, data feedback, individualized and group learning activities, and health information technology (IT) vendor support. (See Chapter 3 for a detailed description of the supports practices receive from CMS, CPC+ payer partners, and health IT vendors.)



Enhanced and alternative payments. CMS and payer partners agreed to provide practices enhanced and alternative payments to increase their resources and flexibility to deliver the Comprehensive Primary Care Functions.

Enhanced payments. CMS and payer partners agreed to provide CPC+ practices with enhanced payments in addition to their usual payments for services. These enhanced payments include *care management fees* paid for participating in CPC+ and *payments for performance* that reward practices for improving quality and/or reducing expenditures or utilization. Payer partners agreed to pay Track 2 practices larger enhanced payments than Track 1 practices, because Track 2 practices have additional advanced care delivery requirements to support patients with complex needs.

Alternative payments. Additionally, for Track 2 practices, payer partners agreed to change the way they pay for services. Specifically, payer partners agreed to use an alternative to the historically common FFS payment approach. Under FFS, practices are paid for each visit or service they provide. Under alternative approaches, payer partners provide lump sum payments to practices in advance regardless of the number or type of visits they provide. Correspondingly, payer partners reduce or eliminate FFS payments.

Data feedback. CMS and payer partners also committed to providing practices with data feedback to help them better manage population health and to support continuous quality improvement. All payer partners committed to providing practices with data about their patients' utilization of services or total cost of care at least quarterly. Some payer partners also provide practices with quality data. To help streamline the information practices receive, CMS and payer partners committed to developing a common approach to quality measurement and data feedback.

Learning activities. CMS provides a range of learning activities to help practices implement CPC+. All practices can participate in peer-to-peer learning opportunities, webinars, a social networking platform (called "CPC+ Connect"), and in-person meetings. Practices identified as needing additional support to meet CPC+ requirements also receive support through one-on-one and/or small group coaching.

Health IT support. Practices also receive support from health IT vendors. When Track 2 practices applied to participate in CPC+, they were required to partner with one or more health IT vendors. Health IT vendor partners committed to helping Track 2 practices effectively use their products to support the Comprehensive Primary Care Functions. To do so, health IT vendors may show practices how to use existing health IT functionalities or, if needed, may develop new functionalities to support the practices' transformation work.

Closer look: Connection between CPC+ and CPC Classic

Most CPC Classic payer partners and practices joined CPC+:

- Of the 36 payers that partnered with CMS in CPC Classic, 28 (78 percent) went on to participate in CPC+.
- Of the 479 practices that joined CPC Classic and were located in CPC+ regions, 427 (89 percent) joined CPC+.

Compared to CPC Classic, CPC+:

- Is larger (CMS selected 3,070 practices to participate in CPC+, compared to 502 practices in CPC Classic).
- Specifies two (rather than one) practice tracks to reflect variations in practices' readiness for practice transformation.
- Allows practices to participate in both CPC+ and the Medicare Shared Savings Program to enable CMS to test the effects of comprehensive primary care within an accountable care organization, where all providers face incentives to generate savings.
- Places greater emphasis on primary care practices' capacity to address more of their patients' behavioral and health-related social needs, in addition to their medical needs.
- More explicitly acknowledges the integration of health IT as a support for practice change by involving health IT vendors and requiring Track 2 practices to use health IT to meet care delivery requirements.
- Uses practice-level (instead of region-level) performance to calculate CPC+ performance-based payments to further incentivize practices to improve outcomes.
- Moves further away from traditional FFS payments toward value-based payments for Track 2 practices.

1.2. Design of the independent evaluation of CPC+

CPC+ is testing a model of primary care payment and delivery reform on an unprecedented scale. On behalf of CMS, Mathematica is conducting a rigorous, objective evaluation of CPC+ to understand its implementation and impacts on Medicare FFS (and, when and where possible, Medicaid FFS) utilization, expenditures, and quality, and on patient and physician experience. Our evaluation will estimate how final results may generalize to regions and practices nationwide, although we are not reporting findings by region. This evaluation is designed to support decisions about certification of CPC+ by CMS' Office of the Actuary and decisions by the Secretary of Health and Human Services regarding whether and how to expand the duration and scope of CPC+. The Secretary can expand CPC+ under one of three scenarios for success: (1) quality improves and cost is neutral; (2) quality is neutral and cost is reduced; (3) quality improves and cost is reduced.

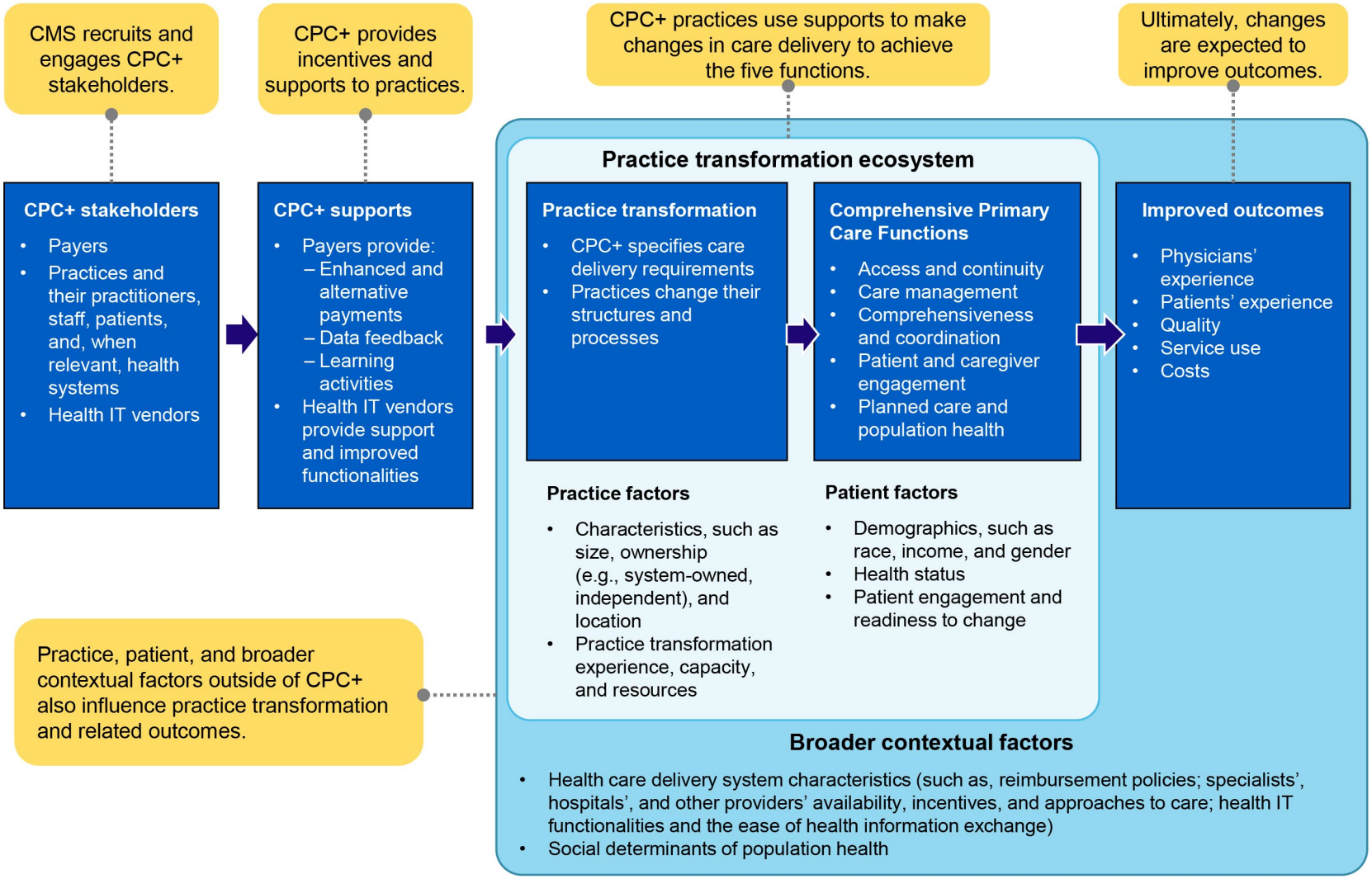
The high-level evaluation logic model in Figure 1.3 depicts the CPC+ components and the hypothesized relationships between model components and key outcomes such as reduced expenditures and improved quality of care. It also reflects that the implementation and impact evaluation of CPC+ are occurring within a complex "practice transformation ecosystem" that has the potential to affect outcomes.

Recognizing that primary care practices are one actor in a complex health care market, this evaluation will answer the following research questions to understand the relationships depicted in the logic model:

- Which regions, payer partners, practices, and health IT vendors are involved in CPC+? Why did they partner with or join CPC+? What characteristics distinguish them? How and why does involvement change over the course of CPC+?
- What payment, data feedback, learning activities, and support did CMS, CPC+ payer partners, and health IT vendors provide? How did practices use these supports?
- How did practices and health systems change the way they delivered care, and what facilitated or impeded progress?
- What were the effects on primary care physicians' experience; Medicare FFS beneficiaries' experience; and quality, service use, and expenditures for attributed Medicare FFS beneficiaries and (where feasible) Medicaid FFS beneficiaries?
- What factors account for the varying degrees of success in achieving the goals of the initiative, or the speed with which participants reached these goals?
- To what extent will practices, health systems, payer partners, and health IT vendors sustain CPC+ after it ends? How is the model spreading to stakeholders that were not involved in CPC+?

Figure 1.3. Logic model for the CPC+ evaluation

This high-level evaluation logic model depicts the components of CPC+ and the hypothesized relationships between program elements and key outcomes. It also indicates that the implementation and evaluation of CPC+ are occurring within a complex "practice transformation ecosystem" that has the potential to affect outcomes.



Primary care practice transformation—as supported by multipayer payment reform, optimal use of health IT, and continuous improvement driven by data feedback and a robust learning system—is a complex process that takes time to implement. Further, changes in care delivery take time to result in improvements in patients' health and reductions in health care utilization and expenditures. This means that we expect that some research questions, including those described above, may be more relevant at different points during the CPC+ evaluation. In addition, we expect the direction of some program effects may change as CPC+ is implemented (for example, the utilization of some types of services would increase before decreasing, as patients with unmet needs for care are identified and newly treated).

This report primarily focuses on the first three research questions above. It provides detailed information about the foundations of practice transformation as identified in the logic model (Figure 1.3): stakeholder engagement, practice transformation supports, and changes in care delivery to date resulting from CPC+. The report also includes findings from analyses of early impacts. However, given the complexity of primary care practice transformation, we did not expect to see favorable effects of CPC+ on Medicare FFS expenditures after only two years of the five-year model. If CPC+ is successful, at this stage, we might expect to see improvements in quality-of-care indicators and utilization measures that primary care can affect in the short to medium term (such as emergency department [ED] visits, process-of-care measures for patients with diabetes, or patient-reported access to care). Thus, in this report, we focus on the implementation of CPC+ in regions that started in 2017, and also report early impacts in these regions.

Data sources and methods

We rely on a range of quantitative and qualitative data sources to address our research questions. As indicated in Table 1.1, this second annual report draws on data that were available for analysis as of August 2019. Future reports will continue to draw on these data sources and incorporate findings from other data sources as they become available.

We use rigorous analytical techniques. These include, as appropriate, weighting survey responses to account for sampling, survey nonresponse, and matching, and using a trained team of qualitative researchers to collect data and code interview transcripts. To estimate the impact of CPC+, we compare patient outcomes over time for CPC+ practices relative to those of similar matched comparison practices.

For both our implementation and impact analyses, we report findings by CPC+ track, and separately for practices that participate in CPC+ and the Medicare Shared Savings Program versus those that participate in CPC+ only. We also report findings for subgroups of practices (such as those that are owned by a health system or hospital, or are in rural areas) and beneficiaries (such as those who are high risk). We do not report findings separately by region.

Table 1.1. CPC+ evaluation data sources

Data source	Description	Included in second annual report?
CMS and its contractors		
Interviews with CMS and its contractors	We interview CMS staff and its contractors responsible for implementing CPC+ to gain insight into the payment, data feedback, and learning supports provided to practices, and the factors that help or hinder their ability to provide those supports. Interviews occur annually.	✓
Data on CPC+ payments provided by CMS	We analyze data on CPC+ payments for Medicare FFS beneficiaries provided by CMS to understand the level of enhanced and alternative payments practices receive.	✓
CPC+ program documentation	We analyze program documentation from CMS, including (but not limited to) samples of CPC+ data feedback for Medicare FFS beneficiaries, detailed information on CPC+ learning activities, and data on which practices downloaded data feedback and participated in learning activities.	✓
Observations of learning activities	We observe CPC+ learning activities to understand how they are implemented.	✓
CPC+ payer and health IT vendor partners		
Payer surveys	We field an annual survey to all payer partners, which covers patient attribution, and the payment, data feedback, and learning supports provided to CPC+ and non-CPC+ practices.	✓
Interviews with CPC+ payer partners	We conduct interviews with payer partners (and contractors, as applicable) to understand their CPC+ design decisions, the factors that help or hinder their ability to support practices, and their overall perspectives about CPC+. We conduct interviews in the first, third, and final years after a payer joins CPC+.	✓
Review of payer partner data feedback	We review the data feedback reports provided by payer partners to CPC+ practices, which informs our understanding of the content and structure of those reports.	✓
Interviews with health IT vendors	We interview health IT vendors to understand their CPC+ health IT functionalities, the support they provide to practices using existing functionalities, and the factors that help or hinder their ability to improve functionalities and support practices. We interview up to 15 health IT vendors at three points in time (2017, 2019, and 2021).	
Interviews with exiting and nonparticipating payers and vendors	We interview a sample of payers and health IT vendors that decided not to join CPC+ or that withdrew to provide perspectives on their reasons for not joining and any alternative plans for supporting primary care practices.	✓

Table 1.1. ***(continued)***

Data source	Description	Included in second annual report?
CPC+ practices and practitioners		
Practice application data	We examine information from practice applications to provide an understanding of CPC+ practices' baseline characteristics.	✓
Practice and practitioner tracking data	We examine monthly practice tracking data from CMS and its contractors to understand changes in practice participation (such as withdrawals) and practitioner participation.	✓
Practice survey	We field a practice survey that includes a modified Patient-Centered Medical Home Assessment (M2-PCMH-A) tool, which Mathematica adapted for the CPC+ evaluation to capture practices' approaches to care delivery. The survey also asks practices about staffing, practice revenues, use of health IT and data feedback, and their experiences with and perspectives on CPC+. The survey is fielded annually with CPC+ practices and at up to three points in time with comparison practices.	✓
Physician survey	We field a survey to a sample of primary care physicians in CPC+ practices that joined in 2017 and their comparison practices.[a] The survey assesses physicians' experiences delivering primary care and experiences with CPC+. The survey is fielded in 2019 and 2021.	
Interviews with deep-dive practices	We collect qualitative data from up to 72 practices annually, proportionally split across CPC+ tracks. Respondents include a practice practitioner lead, other practitioners, CPC+ project coordinators, care managers, practice managers, health IT vendors, and, when relevant, health system-level representatives. These data provide information on how practices implemented changes related to each CPC+ function, associated factors that help or hinder implementation, and experiences with CPC+. We will conduct site visits or telephone interviews with practices in their first through fourth years participating in CPC+.	✓
Site visits to exemplar practices	Site visits to "exemplar" practices that have improved patient outcomes substantially will identify factors that may be associated with those improvements. We will interview exemplar practices that substantially reduced hospitalization rates or emergency department utilization. Site visits will be conducted with up to 20 practices in 2020 and up to 20 practices in 2022.	
Interviews with exiting practices	We continuously conduct interviews with a sample of practices exiting CPC+, which provide perspectives on their reasons for withdrawal or termination and their future plans to improve primary care delivery.	✓
Practice-reported financial data	We examine CPC+ practices' self-reported financial data to CMS to provide insight into the magnitude of payments CPC+ payer partners make to CPC+ practices.	✓
CPC+ care delivery reporting data	CPC+ practices submit data on how they approached the Comprehensive Primary Care Functions and related care delivery requirements to CMS. Data were submitted quarterly in 2017 and 2018 and twice per year starting in 2019.	✓

Table 1.1. ***(continued)***

Data source	Description	Included in second annual report?
Electronic clinical quality measures (eCQMs)	CPC+ practices submit eCQM data annually for year-long performance periods. We will use these data to (1) assess how well the practices meet the CPC+ quality reporting requirements each year, and (2) track improvements over time in quality of care.	
CPC+ patients		
Beneficiary survey	We field a survey to assess Medicare FFS beneficiaries' experiences and satisfaction with CPC+ care. It is fielded in 2018, 2019, and 2021 to beneficiaries attributed to CPC+ practices that started in 2017 and their comparison practices.[a]	✓
Interviews with beneficiaries	In 2019, we conducted telephone interviews with Medicare FFS beneficiaries who receive care from deep-dive practices.	
Claims, enrollment, and other data		
Medicare FFS	We use Medicare FFS enrollment and claims data for up to four years before CPC+ began and during all years of the CPC+ model to select the comparison group and estimate the impacts of CPC+ on expenditures, utilization, and selected measures of quality of care for Medicare FFS beneficiaries.	✓
Administrative data	To measure the characteristics of practices and their beneficiaries, we use data from SK&A, NPPES, MDM, NCQA, TJC, AAAHC, URAC, state-specific sources, CMS, and the Area Resource File on practice- and market-level characteristics.	✓
Medicaid FFS	In regions where analysis is feasible, we will use Medicaid FFS claims data to estimate the impact of CPC+ on expenditures, utilization, and quality of care for Medicaid FFS beneficiaries.	

Note: The second annual report draws on data that were available for analysis as of August 2019. Future reports will continue to draw on these data sources and will incorporate findings from other data sources as they become available. Data sources included in the second annual report are indicated with a check mark.

[a] The CPC+ physician and beneficiary surveys are only fielded to physicians or beneficiaries in CPC+ practices that started in 2017. Given that only 5 percent of practices joined CPC+ in 2018, CMS and Mathematica decided the cost and respondent burden that would be incurred by fielding these surveys to those who joined CPC+ in 2018 outweigh the benefits of doing so. Mathematica fields the practice survey to and collects qualitative data from practices that started in 2017 and 2018.

AAAHC = Accreditation Association for Ambulatory Health Care; ACO = accountable care organization; CMS = Centers for Medicare & Medicaid Services; FFS = fee-for-service; health IT = health information technology; MDM = master data management system; NCQA = National Committee for Quality Assurance; NPPES = National Plan & Provider Enumeration System; SSP = Medicare Shared Savings Program; TJC = The Joint Commission; URAC = Utilization Review Accreditation Commission.

1.3. Road map to this report

The findings in this report provide a rigorous, objective evaluation of CPC+ in its first two years, which is critical to understanding early implementation among practices, payer partners, and health IT vendors, and impacts on Medicare FFS beneficiaries' utilization, expenditures, and quality, and on patient experience.

- In Chapter 2, we describe the number and characteristics of the regions, payer partners, practices, patients, and health IT vendors that were involved in CPC+.
- In Chapter 3, we describe the payment, data feedback, learning, and health IT supports provided to CPC+ practices by CMS, payer partners, and health IT vendors.
- In Chapter 4, we detail how practices changed the way they deliver care and the factors that facilitated or hindered their efforts.
- In Chapter 5, we examine how CPC+ was affecting the experiences of Medicare FFS beneficiaries.
- In Chapter 6, we report estimates of the impact of CPC+ on a wide array of claims-based outcomes for Medicare FFS beneficiaries served by these practices, including expenditures, service use, and claims-based quality of care.

The Appendices to this report are in a separate volume and provide further information relevant to each chapter's findings (Ghosh et al. 2020). Our main report focuses on the key findings from the second year of our evaluation (Anglin et al. 2020). Subsequent annual reports will cover additional years of CPC+ and will include additional analyses, such as the findings from the physician survey, qualitative interviews with patients, interviews with exemplar practices, and Medicaid FFS analyses in selected regions.

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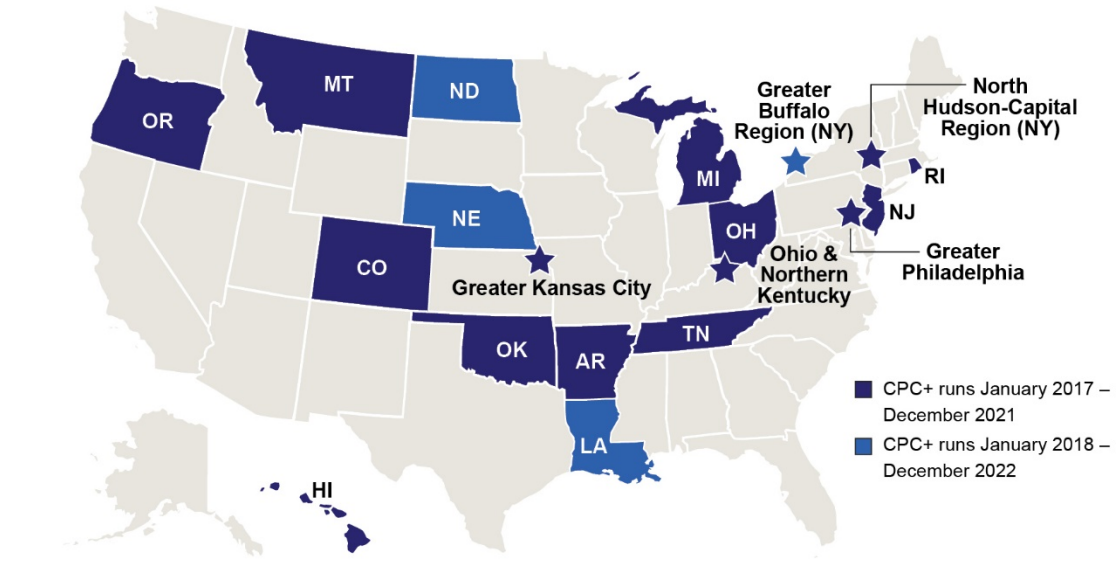
2. PAYER PARTNER, PRACTICE, AND HEALTH IT VENDOR INVOLVEMENT IN CPC+

CMS launched CPC+ in January 2017 in 14 regions and added another cohort of 4 regions in January 2018. Across these 18 regions, CMS has partnered with more than 70 payers to support about 3,000 primary care practices' efforts to achieve the Comprehensive Primary Care Functions (Figure 2.1). To help support their work, these practices coordinate closely with their health information technology (IT) vendors.

Figure 2.1. CPC+ regions, payer partners, practices, and practitioners



Stakeholders involved in CPC+ in PY 1

2017 regions	
Regions:	14
Payers:	71[a]
Practices:	2,905
Practitioners:	13,209
Patients:	16.3M
Health IT vendors:	66[b]

2018 regions	
Regions:	4
Payers:	8
Practices:	165
Practitioners:	1,135
Patients:	1.1M
Health IT vendors:	8[b]

Total	
Regions:	18
Payers:	79
Practices:	3,070
Practitioners:	14,344
Patients:	17.4M
Health IT vendors:	68[b]

Source: Mathematica's analysis of 2017 and 2018 CPC+ practice and payer tracking data provided by CMS.

[a] Payer partners that operate in more than one state are counted separately for each region in which they participate. Seventy-one payers have partnered with CMS in the 14 original CPC+ regions. Sixty-three payers joined CPC+ in these regions in 2017 and eight more payers joined in 2018.

[b] CMS requires Track 2 practices to use enhanced health IT functionalities (the tasks practices perform using the software) to advance their work on CPC+. Track 2 practices partner with health IT vendors that committed to providing health IT functionalities and supporting practices in using them. In PY 1, 60 vendors partnered only with practices in 2017 regions, 2 only with practices in 2018 regions, and 6 with practices in both 2017 and 2018 regions.

IT = information technology; M = million; PY = Program Year.

In this chapter, we describe the payer partners, practices, and health IT vendors that are involved in CPC+ and how their involvement has changed over time. Section 2.1 provides an overview of the key findings on stakeholder involvement and Section 2.2 highlights our methods. In Sections 2.3 to 2.5, we focus our analysis on the involvement of payer partners, practices, and health IT vendors working in the first cohort of CPC+ regions (2017 regions) during the first two years of CPC+. In callout boxes marked with a 2018 region icon throughout the chapter, we also highlight findings for the first program year of CPC+ (PY 1) in the regions that joined CPC+ in 2018 (2018 regions).

In the first annual report, we provided additional details on how CMS selected CPC+ payer partners and practices and on the baseline characteristics of CPC+ payer partners, practices, and health IT vendors in 2017 regions (Peikes et al. 2019; Anglin et al. 2019). The Appendices to this report, which are in a separate volume, provide further details about the numbers and characteristics of payer partners and practices in CPC+ in the 2018 regions and provide an analysis of participation patterns in the 2017 and 2018 regions combined (Ghosh et al. 2020).

2.1. Key takeaways on CPC+ stakeholder involvement

Payer partners

- Sixty-three payer partners joined CPC+ in the 14 original CPC+ regions in January 2017 and an additional eight payers joined in these regions in January 2018. The total number of payers that have *ever* partnered in these regions is 71.
- Of these 71 payer partners, 64 were still partnering in the 2017 regions at the end of PY 2. The seven payers that withdrew were small, regional payers. These payers cited various reasons for withdrawing, including a lack of return on investment, not having enough lives attributed to CPC+, and competing organizational priorities.
- CPC+ payer partners include a mix of lines of businesses in CPC+—most commonly commercial and Medicaid managed care—and range in size. In PY 2, 10 payer partners attributed fewer than 10,000 lives to CPC+ practices, whereas the 5 largest CPC+ payer partners each attributed more than 165,000 patients to CPC+ practices.

Practices

- Most of the 2,905 practices that started CPC+ in 2017 remained in CPC+ for the first two years. As of the end of PY 2, 222 practices (7.6 percent) had left CPC+. Ninety-three of these practices voluntarily withdrew from CPC+, 29 were terminated by CMS for failing to comply with CPC+ requirements, and 100 closed or merged with another CPC+ practice.
- The 2,683 practices that remained at the end of PY 2 had 13,455 practitioners. These practitioners served about 15.8 million patients during PY 2. These patients included about 1.9 million Medicare fee-for-service (FFS) beneficiaries and 3.3 million patients attributed to CPC+ practices by other payer partners.
- While they differ from primary care practices that did not participate in the model, the CPC+ practices are diverse. They range from small (one to two practitioners) to large (six or more practitioners); include independent and system-owned practices;

are located in rural, urban, and suburban areas; and have varying levels of prior transformation experience.

- As anticipated given their smaller size, practices that exited CPC+ received fewer care management fees from CMS and other payer partners, on average, than those that remained in CPC+. Many practices that voluntarily withdrew from CPC+ or were terminated by CMS reported that their primary reason for leaving CPC+ was that they struggled with insufficient resources (both payments and staff) to support their work on the Comprehensive Primary Care Functions.

Health IT vendors

- Track 2 practices that joined CPC+ in 2017 partnered with 66 distinct health IT vendors in PY 1. By the end of PY 2, that number had decreased to 52 vendors.
- The five largest vendors at the end of PY 2 partnered with 81 percent of Track 2 practices, whereas 33 vendors worked with fewer than 10 practices each.
- Among the 52 vendor partners that remained at the end of PY 2, 56 percent offered a full-feature electronic health record (EHR). Thirty-three percent provided population health or analytic software for panel management, information exchange, and reporting. The remaining vendors offered narrow types of IT solutions—for example, software that focused on one condition, such as diabetes, or software that tracked patients through care transitions but did not facilitate reporting.
- The number of vendors decreased in two ways from PY 1 to PY 2. First, practices that changed EHR vendors tended to switch from a smaller EHR vendor to a larger EHR vendor, thereby consolidating the number of vendors partnering with CPC+ practices. Second, a smaller percentage of practices partnered with population health or other non-EHR vendors in PY 2 than in PY 1.

2.2. Methods

We used a range of data sources to understand stakeholder involvement in CPC+. To examine who joined CPC+ and how participation changed over time, we used program data including CMS' rosters of payer partners, practices, and vendors. To determine the characteristics of these stakeholders, we drew on surveys of payer partners and practices, Medicare FFS enrollment and claims data, and administrative data sources such as the Area Resource File. We also conducted telephone interviews with a sample of payer partners and practices (and, if relevant, their larger hospital or health system) that exited CPC+, and we examined practices' survey responses to understand their reasons for leaving and their perspectives on CPC+ implementation.

2.3. Payer partners

CMS partnered with other payers to bolster support for CPC+ practices. Payers are entities—such as health insurance companies and governments—that pay providers for health care services. CMS' payer partners agreed to provide CPC+ practices with enhanced and alternative payments and data feedback to support primary care transformation. For the purposes of this evaluation, payers that operate in more than one region are counted separately for each region in which they partner because some of these payer partners vary their CPC+ approach across regions.

Changes in payer partnership. Seventy-one payers have *ever* partnered in the original 14 CPC+ regions; 63 of these payer partners joined in January 2017 and 8 joined in January 2018. Five of the eight payer partners that joined in January 2018 are multiregional payers that expanded their partnership to include additional 2017 regions.[3] The other three new payers operate in only one region and joined CPC+ for the first time in 2018.

At the end of PY 2, 64 of the 71 payer partners that have ever partnered in the 2017 regions were still partnering. Seven payers withdrew from CPC+, two in the first year of CPC+ and five in the second year. All seven payers that withdrew from CPC+ were small, regional plans that had attributed few or no lives to CPC+ practices. In PY 2, one payer reported that it withdrew from CPC+ because it did not see a return on its investment after the first year of partnering, and two payers withdrew because they did not have enough attributed lives to make partnering in CPC+ worthwhile. The remaining payers withdrew for reasons unrelated to CPC+, including competing organizational priorities and a lack of financial resources to support CPC+.

Closer look: Self-insured participation in CPC+

Self-insured entities—most commonly medium to large employers—assume the financial risk for providing health care benefits for their employees or members. These entities hire a health insurance company to handle the administrative aspects of insurance (such as building a provider network and paying claims).

Twenty-nine percent of payer partners reported they had self-insured clients join CPC+ in PY 2. Such payers generally used one of two methods to pursue these clients. Roughly half of them required self-insured clients to join CPC+ or allowed them to opt out; the other half encouraged self-insured clients to opt in to CPC+.

Characteristics. In PY 2, the 64 payers partnering in the 14 regions that joined CPC+ in 2017 offered different lines of business and ranged in geographic scope and size:

- **Lines of business.** Payer partners included 6 state Medicaid agencies and 58 private health insurance companies. These insurance companies included a range of lines of businesses in CPC+ in PY 2, most commonly commercial insurance and Medicaid managed care (Figure 2.2).
- **Geographic scope.** Twenty-one of the 64 payer partners belong to a larger organization that partners with CMS in multiple CPC+ regions.[4] The remaining 43 payers partner in a single region.
- **Size.** Payer partners attribute or assign patients to CPC+ practices to determine the level of CPC+ payments a given practice should receive. In PY 2, the 10 largest CPC+ payer partners

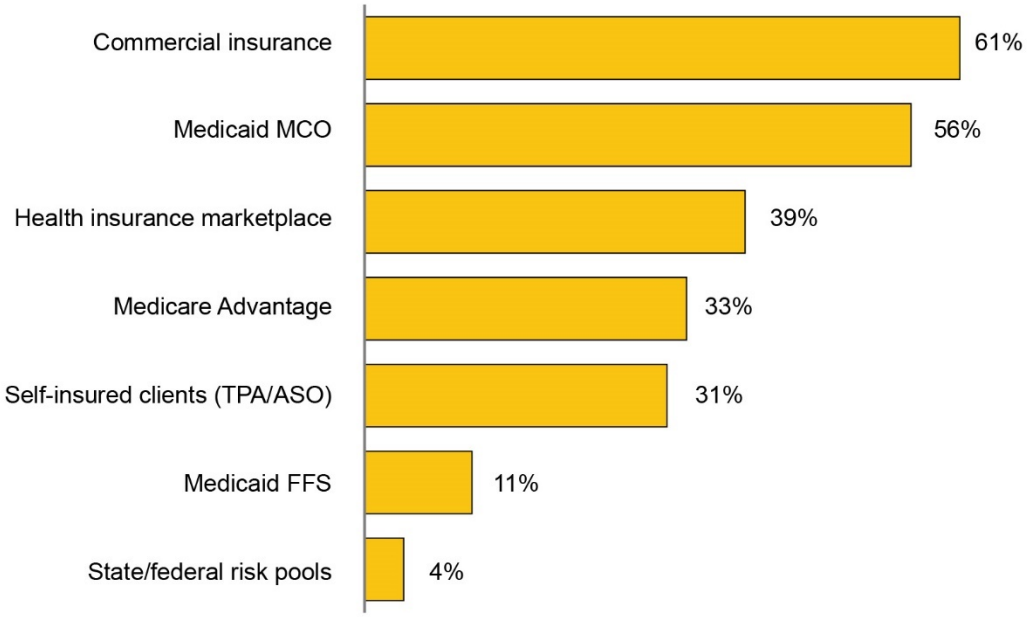
[3]Two payers that operate in more than one region expanded their participation in PY 2. UnitedHealthcare expanded participation from six to eight regions and HealthSCOPE Benefits expanded from one to four regions.

[4] This value represents six unique organizations partnering in multiple CPC+ regions. Payers are counted once for each region in which they are partnering. One organization partnered in eight regions, one partnered in four regions, one partnered in three regions, and three partnered in two regions.

each attributed more than 100,000 patients to CPC+ practices. Together, these 10 largest payer partners accounted for nearly 2.1 million patients, or 62 percent of all CPC+ lives attributed by non-Medicare FFS payers (Figure 2.3). In contrast, 21 payer partners attributed fewer than 10,000 lives each. Five of these payers did not have direct contracts with any CPC+ practices in PY 2 and, thus, did not attribute any lives to CPC+ practices. One of these payers is a state Medicaid agency in a region with complete Medicaid managed care organization (MCO) penetration; the state Medicaid agency partners with CMS to support MCO partnership. The other four payers were hoping to expand their business in CPC+ regions in PY 2 but had not contracted with any practices by the end of the year.

Figure 2.2. Percentage of payer partners that included a line of business in CPC+ in PY 2

Payer partners in the 14 regions that joined CPC+ in 2017 most commonly included commercial insurance and Medicaid managed care lines of business in CPC+.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Payer Survey.

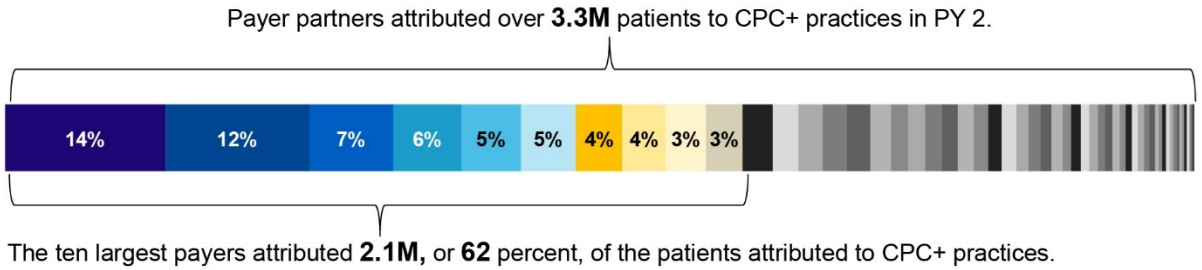
Notes: N = 54. We excluded 10 payer partners from this analysis. Five did not complete the 2018 CPC+ Payer Survey and another five did not have direct contracts with any CPC+ practices and, thus, could not provide CPC+ supports.

Payer partners that operate in more than one state are counted separately for each region in which they participate.

FFS = fee-for-service; MCO = managed care organization; PY= Program Year; TPA/ASO = third-party administrator/administrative services organization.

Figure 2.3. Percentage of patients that payer partners attributed to CPC+ practices in PY 2

The 10 largest payer partners attributed **2.1 million,** or **62** percent, of the patients attributed to CPC+ practices by payer partners.



Source: Mathematica's analysis of 2017 and 2018 practice-reported financial data submitted to CMS.

Note: N = 2,715 CPC+ practices.

Each rectangle represents one payer partner. The width of each rectangle represents the number of patients attributed by the payer. Individual percentages may not sum to totals due to rounding.

M = million; PY = Program Year.

CPC+ payer partnership in PY 1

- **Changes in payer partnership.** In January 2018, CMS partnered with eight payers to expand CPC+ to four new regions. These regions included three states (Louisiana, Nebraska, and North Dakota) and one partial state (Greater Buffalo, New York). No payer partners withdrew from these regions in PY 1.
- **Characteristics.** Similar to payer partners in the 2017 regions, the eight payers partnering in 2018 regions included various lines of business in CPC+, most commonly commercial and Medicaid managed care. In addition to fully insured lines of business, four of the eight payer partners included self-insured clients in CPC+.

  The median number of patients that payer partners in 2018 regions attributed to CPC+ practices (25,000 lives) is smaller than the median for those payers in 2017 regions (39,000 lives). The number of lives attributed by payer partners in 2018 regions ranged from less than 1,000 to nearly 90,000 in PY 1.

2.4. Practices

CPC+ aims to increase access to and improve the quality and efficiency of primary care, which ultimately is intended to achieve better health outcomes at lower cost. CMS invited practices that provide primary care from selected regions to join CPC+ to help achieve these aims.

Changes in practice participation. In January 2017, the first cohort of 2,905 practices joined CPC+ in the original 14 CPC+ regions (Figure 2.4). Most of these practices have continued their participation; only 222 (7.6 percent) left CPC+ by the end of PY 2. At that time, 2,683 practices were participating in the 2017 CPC+ regions. These practices were by chance split roughly

evenly between CPC+ tracks. Although the number of practices decreased from the start of CPC+ to the end of PY 2, the total number of primary care practitioners in CPC+ increased slightly, with the average number of practitioners per practice that remained in CPC+ increasing from 4.7 practitioners at the start of CPC+ to 5 at the end of PY 2.

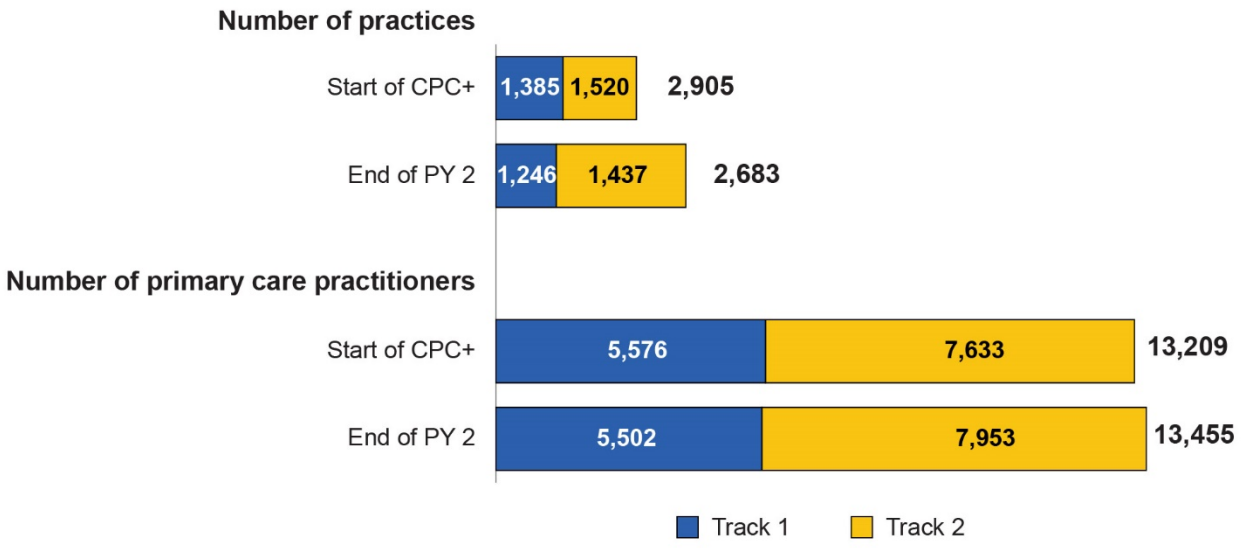
Of the 222 practices that exited CPC+ in PY 1 and PY 2:

- 29 practices were terminated by CMS for failing to comply with CPC+ requirements (Figure 2.5).
- 93 practices voluntarily withdrew from CPC+, most commonly because they had insufficient resources to continue participating.
- 100 practices stopped participating in CPC+ because their practice closed or merged with another CPC+ practice.

(Section 2.5.2 provides more information on changes in CPC+ practice participation.)

Figure 2.4. Practice participation in 2017 CPC+ regions, by track

Practice participation in 2017 regions remained relatively stable for the first two years of CPC+. At the end of PY 2, 2,683 practices (or 92 percent of the first cohort of 2,905 practices) were still participating in CPC+.



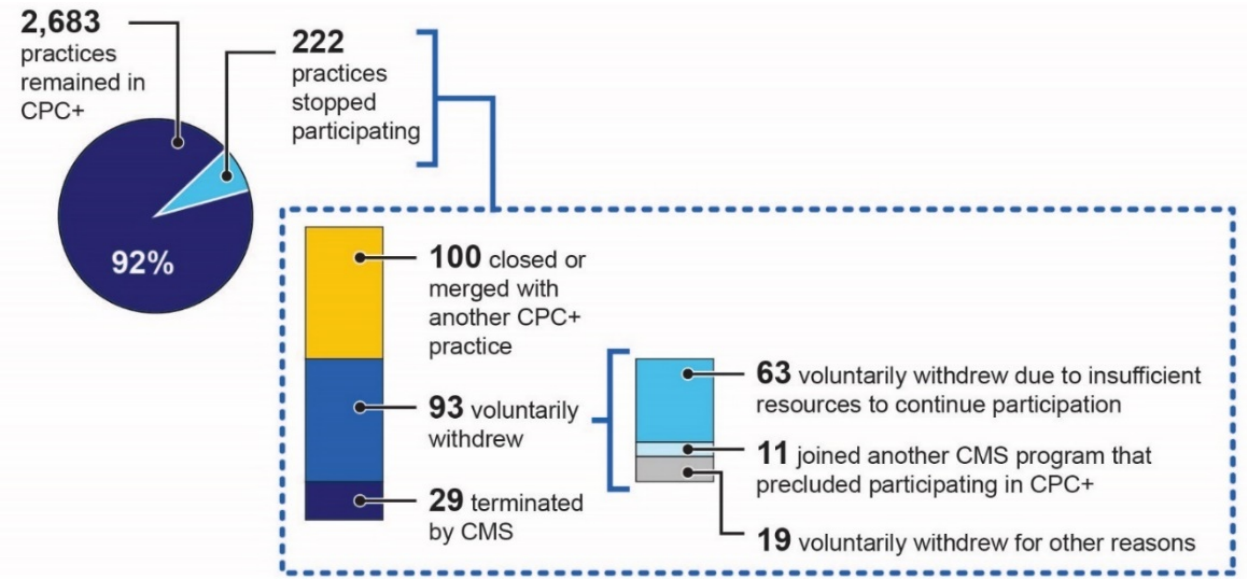
Source: Mathematica's analysis of 2017 and 2018 CPC+ practice tracking data provided by CMS.

Notes: N = 2,905 CPC+ practices. Note that the data cited in the text comparing the average number of primary care practitioners for CPC+ practices to those for all primary care practices in CPC+ regions before CPC+ began come from SK&A.

PY = Program Year.

Figure 2.5. Reasons practices that joined CPC+ in 2017 stopped participating in PY 1 or PY 2

Close to half of the practices that stopped participating in CPC+ closed or merged with another CPC+ practice. The other half voluntarily withdrew, most commonly due to insufficient resources to continue participating, or were terminated by CMS.



Source: Mathematica's analysis of 2017 and 2018 CPC+ practice tracking data provided by CMS.
Note: N = 2,905 CPC+ practices.

Characteristics. CPC+ practices are a diverse group (Figure 2.6). In PY 2, CPC+ practices ranged from small (one to two primary care practitioners) to large (six or more practitioners), with an average of 4.4 practitioners per Track 1 practice and 5.5 per Track 2 practice. Hospitals or health systems owned about one-half of them. About three-quarters of CPC+ practices were located in urban areas, with others located in suburban or rural counties.

In addition to participating in CPC+, practices also have experience with other transformation programs. About one-half of CPC+ practices also concurrently participated in the Medicare Shared Savings Program[5] (SSP) in PY 2. Additionally, before joining CPC+, 74 percent of Track 2 practices and 48 percent of Track 1 practices had participated in other primary care transformation initiatives.[6]

[5] CPC+ practices may belong to an accountable care organization that participates in SSP, which is another CMS model. As described in Chapter 3, Medicare FFS rewards CPC+ practices for their performance on cost, utilization, and quality measures differently based on whether or not they also participate in SSP.

[6] We define participation in prior primary care transformation initiatives as participation in CPC Classic or the Multi-payer Advanced Primary Care Practice Demonstration or being a medical home (indicated by National Committee for Quality Assurance, The Joint Commission, Accreditation Association for Ambulatory Health Care, Utilization Review Accreditation Commission, or state medical-home recognition status).

Although CPC+ practices are diverse, at the start of the initiative they differed in several ways from all practices providing primary care in their regions.[7] Specifically, when CPC+ began, CPC+ practices were more likely on average to:

- Be larger (the average number of primary care practitioners was 4.3 for CPC+ practices versus 2.8 for all practices)
- Be owned by a hospital or health system (55 versus 31 percent)
- Have participated in Medicare SSP (48 versus 31 percent)
- Be recognized as a patient-centered medical home (PCMH) or have participated in prior primary care transformation initiatives, such as CPC+'s predecessor, CPC Classic, or the Multi-Payer Advanced Primary Care Practice Demonstration (61 versus 27 percent)[8]
- Have a practitioner who met meaningful use criteria for health IT use (90 versus 59 percent)

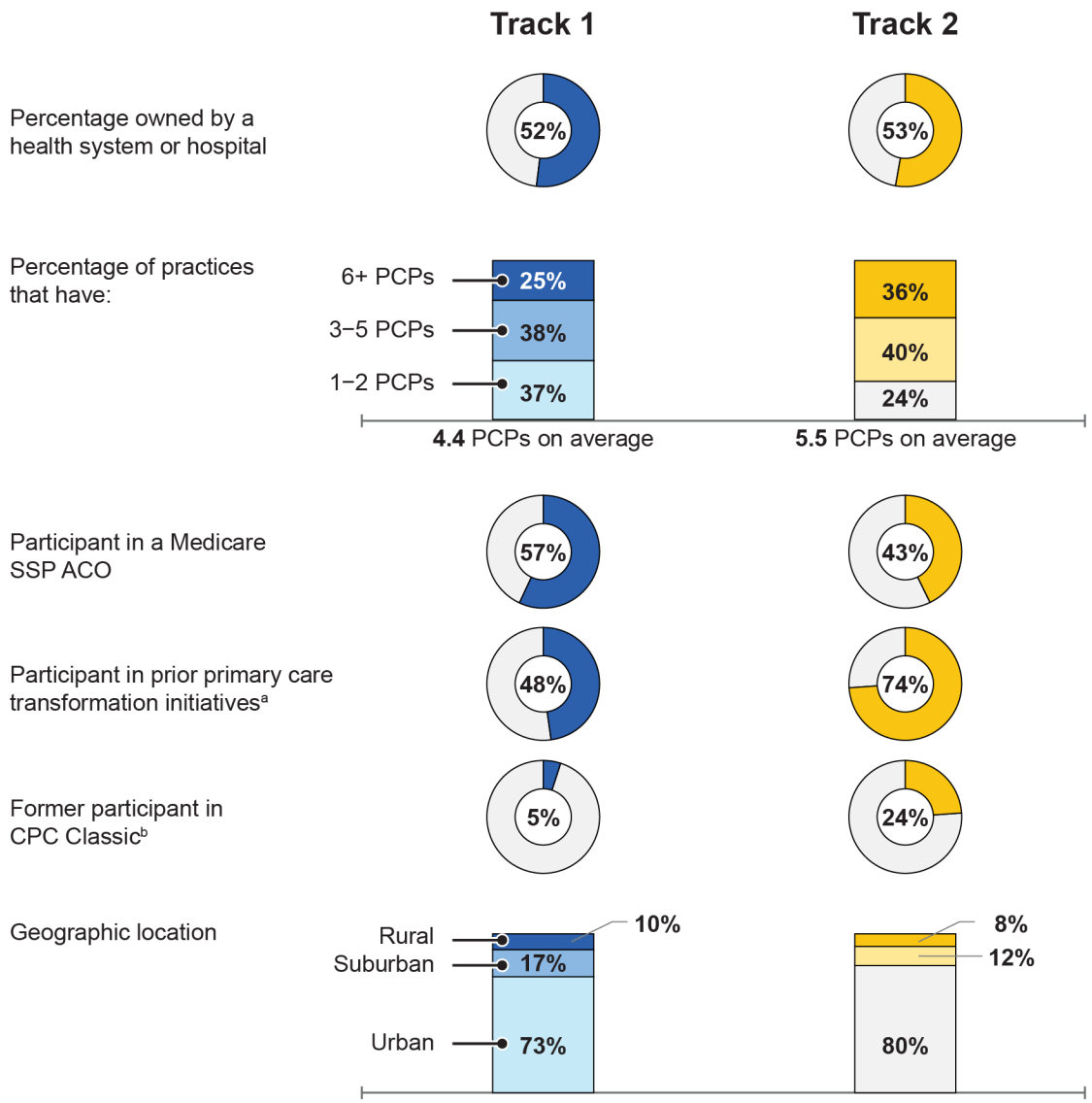
For more details on practices' characteristics, please see the Chapter 2 Appendix.

[7] While federally qualified health centers and rural health clinics provide primary care, they are not eligible for CPC+. Therefore, we attempted to exclude them in our sample of "all primary care practices in the region."

[8] At the time CPC+ began, the percentages of primary care practices nationwide and in the regions that began CPC+ in 2017 that had medical home recognition, or had participated in one of three CMS primary care models (CPC Classic, Multi-payer Advanced Primary Care Program, or Transforming Clinical Practice Initiative), were similar (25 and 27 percent, respectively).

Figure 2.6. Characteristics of practices that participated in 2017 regions until end of PY 2

At the end of PY 2, CPC+ practices in both tracks ranged from small to large, were located in rural, urban, and suburban areas, and had varying levels of prior transformation experience.



Source: Mathematica's analysis of (1) CMS' CPC+ practice tracking data for number of PCPs (as of December 31, 2018) and SSP participation status (2018), (2) SK&A data for ownership status (as of November 31, 2017), (3) Area Health Resource File data for geography (rural, suburban, or urban) at baseline (2016), and (4) data from CMS and organizations that offer medical home recognition for participation in prior primary care transformation initiatives including CPC Classic at baseline (2016).

Note: N = 1,246 Track 1 practices and 1,437 Track 2 practices.

[a] We define participation in prior primary care transformation initiatives as participation in CPC Classic or the Multi-payer Advanced Primary Care Practice Demonstration or being a medical home (indicated by National Committee for Quality Assurance, The Joint Commission, Accreditation Association for Ambulatory Health Care, Utilization Review Accreditation Commission, or state medical-home recognition status).

[b] We considered a practice to have participated in CPC Classic if it enrolled in CPC Classic and did not drop out within the first five months of CPC Classic.

ACO = Accountable Care Organization; PCP = primary care practitioner, SSP = Medicare Shared Savings Program.

Patients served by practices. The CPC+ practices participating at the end of PY 2 served over 15.8 million patients in the second year of CPC+. These patients included about 1.9 million Medicare FFS beneficiaries and 3.3 million patients attributed to CPC+ practices by other payer partners. The remaining 10.5 million patients were uninsured, insured by non-partnering payers, or insured by partnering payers but attributed to a different practice.

The Medicare FFS beneficiaries attributed to CPC+ practices at the start of CPC+ were on average slightly wealthier, more likely to be white, and healthier than beneficiaries served by all primary care practices located in the 2017 regions.

CPC+ practice participation in PY 1

Changes in practice participation. In January 2018, 165 practices joined CPC+ in four new regions. Two practices withdrew from these regions in PY 1.

Characteristics. Similar to the practices that joined CPC+ in 2017, practices that joined CPC+ in 2018 had fairly advanced practice approaches to care delivery, as demonstrated by a modified version of the Patient-Centered Medical Home-Assessment (referred to as the M2-PCMH-A) administered as part of a survey of CPC+ practices (Appendix 2.B).

However, there are some differences between the 2017 and 2018 cohorts. Compared to practices that started CPC+ in 2017, practices that started CPC+ in 2018 were:

- Slightly larger (average of 6.5 primary care practitioners per practice versus 5)
- Less likely to be owned by a health system or hospital (39 versus 52 percent)
- More likely to be in Track 1 (75 versus 50 percent)
- Less likely to participate in SSP (30 versus 50 percent)

Given that practices in 2018 regions account for only 5 percent of the total participating practices across all CPC+ regions, these differences do not meaningfully change the overall characteristics of CPC+ practices. For more details on practices' characteristics, please see the Chapter 2 Appendix.

Patients served by practices. The CPC+ practices in the 2018 regions participating at the end of PY 1 served about 1.1 million patients in the first year of CPC+. These patients included about 142,000 Medicare FFS beneficiaries and 162,000 patients attributed to CPC+ practices by other payer partners.

Similar to the beneficiaries in practices that joined CPC+ in 2017, the Medicare FFS beneficiaries assigned to practices that joined CPC+ in 2018 had lower expenditures and service use and were less disadvantaged than those whom all primary care practices served in those CPC+ regions.

2.4.1. A closer look: Changes in CPC+ practice participation

In this section, we provide a brief analysis of the 100 practices that stopped participating in CPC+ due to closure or merger and a more detailed analysis of the 122 practices that voluntarily withdrew from CPC+ or were terminated by CMS. We describe the characteristics of both groups of practices and, for those that withdrew or were terminated by CMS, we examine their reasons for withdrawing.

Characteristics of practices that closed or merged. Practices that closed or merged with another CPC+ practice tended to be smaller than those that remained in CPC+ and had less advanced approaches to care delivery at the start of CPC+ (Table 2.2.). However, they were similar to the practices that remained in CPC+ in other ways. The practices that stopped participating due to closure or merger were fairly evenly split between Tracks 1 and 2. They also were similarly likely to be owned by a hospital or health system, to participate in Medicare SSP, and to report on the 2018 CPC+ Practice Survey that participating in CPC+ improved their quality of care "a lot."

Characteristics of practices that voluntarily withdrew or were terminated by CMS. Compared to practices that remained in CPC+, the practices that were terminated by CMS or voluntarily withdrew from CPC+ were more likely to be in Track 1. These practices also tended to be smaller, were less likely to be owned by a hospital or health system, were more likely to have participated in Medicare SSP, and had less advanced approaches to care delivery at the start of CPC+.

As anticipated given their smaller size, practices that exited CPC+ received fewer care management fees from CMS and other payer partners, on average, than those that remained in CPC+. Given that CMS and some other payer partners vary their payments across tracks, we focused our analysis of payments on Track 1 practices (as they were more likely to exit). Track 1 practices that exited CPC+ received a median payment of nearly $53,000 in PY 1, compared to over $90,000 for those that remained. To account for differences in practice size, we divided payments to each practice by the practice's number of practitioners, and found that payments were more similar across the two groups. Practices that exited received a median of $27,601 per practitioner, compared to $32,599 per practitioner for those that remained. This suggests that total enhanced payments for the practice was a more important factor when exiting CPC+ than the payments per practitioner.

Table 2.1. Comparison of 2017 Starters that exited CPC+ during PY 1 or PY 2 and those that remained in CPC+ at start of PY 3

Relative to practices that remained, practices that voluntarily withdrew from CPC+ or were terminated by CMS were more likely to be in Track 1 and to be smaller, less likely to be owned by a hospital or health system, and had less advanced approaches to care delivery at the start of CPC+.

	Practices that voluntarily withdrew from CPC+ or were terminated by CMS	Practices that closed or merged with another CPC+ practice	Practices that remained in CPC+ at the start of PY 3
Number of practices	**122**	**100**	**2,683**
Practice characteristics			
Track 1 (percentage)	73 **	50	46
Owned by a hospital or health system (percentage)	22***	66	56
Distribution of participating primary care practitioners per practice (percentage)			
1–2	62***	57	32
3–5	21	27	38
6+	8	10	30
Participated in SSP (percentage)	64***	54	47
Participated in primary care transformation initiatives before the start of CPC+ (percentage)[a]	42***	52	62
Participated in CPC Classic (percentage)	5**	11	15
Score on the Modified version of the Patient-Centered Medical Home-Assessment (M2-PCMH-A) in 2017 (mean, out of 4)[b]	3***	3**	3
CPC+ payments (Track 1 practices only)			
CPC+ funding from CMS and other payer partners in PY 1, per practice (median, $)	52,955***	61,569	90,484
CPC+ funding from CMS and other payer partners in PY 1, per practitioner (median, $)	27,601***	21,540	32,599
Practice indicated CPC+ payments from Medicare FFS are adequate or more than adequate (percentage)	26	55	41
Perception of CPC+ as a whole			
Participation in CPC+ improved practice's quality of care a lot (percentage)	16***	38	44

Source: Mathematica's analysis of 2017 and 2018 CPC+ practice tracking data provided by CMS, 2017 practice-reported financial data submitted to CMS, 2017 payment data provided by CMS, and data from the independent evaluation's 2018 CPC+ practice survey data.

Notes: N = 2,905.

[a] We defined participation in prior primary care transformation initiatives as participation in CPC Classic or the Multi-payer Advanced Primary Care Practice demonstration or being a medical home (indicated by National Committee for Quality Assurance, The Joint Commission, Accreditation Association for Ambulatory Health Care, Utilization Review Accreditation Commission, or state medical-home recognition status).

[b] The CPC+ Practice Survey includes a modified Patient-Centered Medical Home Assessment (M2-PCMH-A) tool, which Mathematica adapted for the CPC+ evaluation to capture approaches to care delivery. Practices were asked to rate their approaches on a scale from 1 (least advanced approach) to 4 (most advanced approach).

PY = Program Year; SSP = Medicare Shared Savings Program.

*Significant at .05 to .01.

**Significant at .01 to .001.

***Significant at .001 to .000.

Reasons for withdrawing. According to data provided by CMS, practices that voluntarily withdrew from CPC+ most commonly did so because they lacked sufficient resources to continue participating (63 practices). Eleven practices withdrew because they joined another CMS program that precluded participating in CPC+, and 19 withdrew for other reasons.

Findings from the 2018 CPC+ Practice Survey also indicate that resource availability is related to practices' continued participation in CPC+: only 26 percent of practices that voluntarily withdrew from CPC+ or were terminated by CMS reported that CPC+ funding from CMS was adequate to support their CPC+ work, compared to 46 percent of practices that remained. Data from interviews with 10 practices that voluntarily withdrew from CPC+ further illuminates this finding. Several of these practices reported that they left CPC+ because CPC+ payments did not adequately support the extra time and staff—such as care managers and behavioral health specialists—required to implement care delivery requirements and complete CPC+ financial reporting. Several practices noted that CPC+ funding was not sufficient given their small size and lack of system affiliation, which limits structural and staff supports that they believe enable large or system-owned practices to continue participating.

In addition, a few practices that we interviewed said they misinterpreted some aspect of CPC+ care delivery or reporting requirements—such as what qualified as longitudinal care management—and did not recognize their error until later in implementation, at which point they decided a course correction would be difficult or expensive. These practices recommended that the CPC+ learning staff—referred to as practice facilitators—have earlier interactions with individual practices to support their understanding of CPC+ expectations.

"The amount of time that we were spending doing tasks and things that weren't as beneficial to us as providers became a little consuming. And [CPC+] wasn't really benefiting us financially or at a practice level of, you know, being better providers… So I feel like the benefits started to [not be worth] the strain."

— Clinical nurse practitioner at a large, independent Track 2 practice that voluntarily withdrew from CPC+

Moreover, relative to practices that remained in CPC+, practices that voluntarily withdrew or were terminated by CMS were more likely to have a negative perception of CPC+. These practices were much less likely than practices that remained to report on the 2018 CPC+ Practice Survey that participating in CPC+ improved their quality of care "a lot" (16 percent compared to 44 percent). Several practice members whom we interviewed, including physicians, care managers, nurses, and office managers, reported that the cost of participating outweighed the benefits, in terms of potential quality-of-care improvements and additional payments. A few of these practice respondents also noted that CPC+ interfered with patient care by requiring practitioners to spend more time documenting their work than caring for patients.

2.5. Health IT vendors

CMS requires CPC+ practices to use health IT to support comprehensive primary care. CMS requires both Track 1 and Track 2 practices to use certified EHR technology and to report electronic clinical quality measures (eCQMs) to CMS. In addition, CMS requires Track 2 practices to use enhanced health IT functionalities (the tasks practices perform using the software) to advance their work on the five Comprehensive Primary Care Functions.

For CPC+, Track 2 practices partner with health IT vendors that committed to providing required functionalities and supporting practices in using them. Although Track 2 practices have more advanced health IT requirements, health IT vendors may support practices in both tracks by participating in CPC+ learning activities.

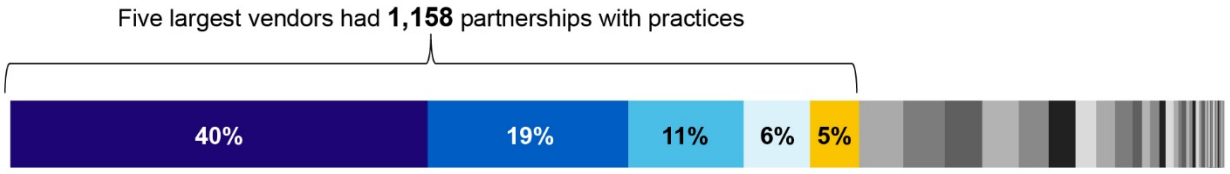
Changes in health IT vendor partnerships. Track 2 practices that joined CPC+ in 2017 partnered with 66 distinct health IT vendors in PY 1. During PY 2, some practices made changes to their vendor partnerships resulting in a decrease in the total number of vendors to 52 by the end of PY 2. Ten percent of practices changed EHR vendors, and of these, most switched from a smaller vendor to a larger vendor, which consolidated partnerships among fewer vendors. In addition, the percentage of practices that partnered with vendors that did not provide EHRs (for example, vendors providing only population health software) decreased from 24 percent in PY 1 to 12 percent in PY 2. (Section 2.5.1 provides more information on changes in CPC+ vendor partnerships.)

Characteristics. The 52 health IT vendors formally partnering with Track 2 practices in PY 2 offered a range of products and differed in size:

- **Product types**. Fifty-six percent of vendor partners offered a full-feature EHR. Thirty-three percent provided population health or analytic software for panel management, information exchange, and reporting. The remaining vendors offered narrow types of IT solutions—for example, software that focused on one condition, such as diabetes, or software that tracked patients through care transitions but did not facilitate reporting.
- **Size.** The five largest health IT vendors at the end of PY 2 partnered with a combined total of 1,154 practices, or 81 percent of the Track 2 practices. Because four practices partnered with two of these vendors, the five largest health IT vendors participated in a combined total of 1,158 partnerships with Track 2 practices, or 70 percent of all Track 2 vendor partnerships. These five vendors partnered with 66 to more than 550 Track 2 practices. In contrast, the 33 smallest vendors worked with fewer than 10 Track 2 practices each (Figure 2.7).

Figure 2.7. Percentage of Track 2 practices that partnered with each health IT vendor during PY 2

Track 2 practices had partnerships with one or more health IT vendors. The five largest vendors participated in a combined total of 1,158 partnerships, which reflects 81 percent of Track 2 practices.



Source: Mathematica's analysis of 2018 practice-reported health IT data submitted to CMS.

Note: N = 1,655 vendor partnerships with Track 2 practices. Each rectangle represents one vendor. The width of the rectangle indicates the number of Track 2 practices that partnered with each vendor. Among Track 2 practices, 1,261 partnered with one health IT vendor, and 170 partnered with more than one health IT vendor.

PY = Program Year.

CPC+ health IT vendor partnerships in PY 1

Changes in health IT vendor partnerships. Track 2 practices that joined CPC+ in 2018 partnered with eight full-feature EHR vendors. Two of these vendors were new to CPC+ and had not partnered with any Track 2 practices that started CPC+ in 2017. Unlike the 2017 cohort of practices, no Track 2 practices in 2018 regions partnered with population health vendors or vendors offering narrower health IT solutions in PY 1.

2.5.1. A closer look: Changes in CPC+ health IT vendor partnerships

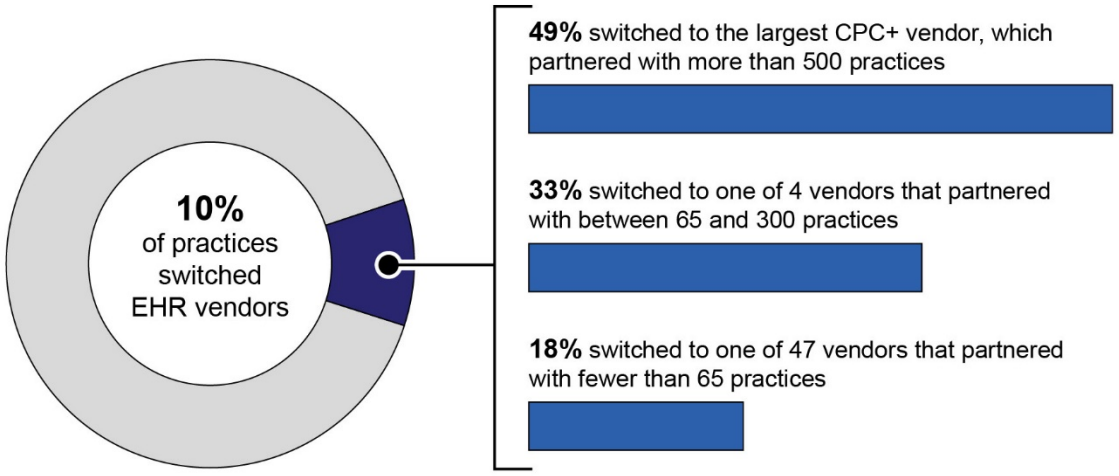
The CPC+ health IT vendor landscape changed as Track 2 practices:

- **Switched EHR vendors.** Ten percent of Track 2 practices switched EHR vendors between PY 1 and PY 2 (Figure 2.8). Most notably, one of the five most commonly used vendors in PY 1 lost about half of its Track 2 practices in PY 2. Practices tended to switch to vendors that were already partnering with a large number of CPC+ practices, further increasing those vendors' dominance in the CPC+ vendor landscape. Moreover, an additional 4 percent of CPC+ practices decreased their number of EHR vendor partnerships from two to one. At the end of PY 2, nine standalone EHR vendors that had partnered with practices in PY 1 did not have active partnerships with any practices as a result of these changes.
- **Decreased the number of partnerships with non-EHR vendors.** The percentage of Track 2 practices partnering with a non-EHR vendor decreased from 24 percent in PY 1 to 12 percent in PY 2 (Figure 2.9). As a result of this shift, 10 population health vendors and 9 vendors offering narrower health IT solutions that had partnered with practices in PY 1 did not have any active partnerships in PY 2.

We will investigate the reasons why Track 2 practices changed their health IT vendor partners during forthcoming interviews with health IT vendors and practices and will discuss findings in the next annual report. Possible explanations might include CMS' reduction in the number of health IT requirements in PY 2 (see Chapter 3 for more detail), changes in vendors' functionalities, or market forces outside of CPC+.

Figure 2.8. Switches in EHR vendor partnerships for Track 2 practices from PY 1 to PY 2

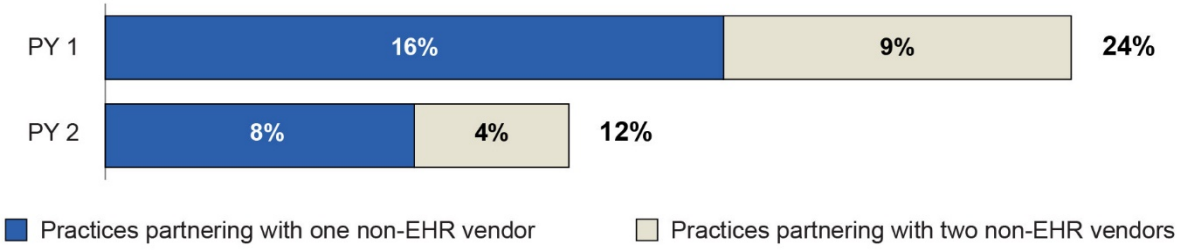
Track 2 practices that switched tended to switch to vendors that were already partnering with a large number of CPC+ practices. This further increased those vendors' dominance in the CPC+ vendor landscape.



Source: Mathematica's analysis of 2017 and 2018 practice-reported health IT data submitted to CMS.
Note: N = 1,420. We include 2017 Starter Track 2 practices with 2017 and 2018 health IT vendor data.

Figure 2.9. Percentage of Track 2 practices that partnered with non-EHR vendors in PY 1 and PY 2

A smaller percentage of Track 2 practices partnered with non-EHR vendors, such as population health vendors or vendors offering narrower types of IT solutions (for example, software that focused on one condition, such as diabetes) in PY 2 than in PY 1.



Source: Mathematica's analysis of 2017 and 2018 practice-reported health IT data submitted to CMS.
Note: N = 1,420. We include 2017 Starter Track 2 practices with 2017 and 2018 health IT vendor data.
Percentages may not add up to totals, due to rounding.
EHR = electronic health record; PY = Program Year.

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3. CMS, PAYER PARTNER, AND HEALTH IT VENDOR SUPPORT FOR CPC+ PRACTICES

In Program Year (PY) 2, CPC+ practices continued to receive substantial support in the form of enhanced and alternative payments, data feedback, learning activities, and health information technology (IT) support.

CMS and all payer partners provided enhanced payments to CPC+ practices they had contracts with, in addition to usual payments for services. In PY 2, practices received median enhanced payments of approximately $122,000 per Track 1 practice and $264,000 per Track 2 practice. These payments represented a median of 10 percent of Track 1 practices' total revenue and 15 percent of Track 2 practices' total revenue for PY 2. Median payments for Track 2 practices were higher than for Track 1 practices because CMS and about one-half of payer partners met their commitment to provide Track 2 practices larger enhanced payments to reflect their enhanced care delivery requirements.

Ninety percent of enhanced payments in PY 2 were paid to practices for participating in CPC+, most commonly in the form of care management fees. The remaining 10 percent were payments to practices for improving their performance on cost, utilization, and quality measures.

Two-thirds of the enhanced payments in PY 2 were new funding for CPC+ practices, whereas the remaining one-third of the enhanced payments were available to at least some practices before CPC+ began. CMS provided most of the new funding for CPC+ for attributed Medicare fee-for-service (FFS) beneficiaries.

CMS and about one-fifth of payer partners also provided Track 2 practices with alternative payments that shifted away from FFS. However, this fell far short of CMS' goal that all payer partners use an alternative to FFS approach for Track 2 practices by the start of PY 2.

In PY 2, CMS and payer partners also refined data feedback and learning supports based on PY 1 feedback from practices, making these supports more useful to practices as they continue to implement care delivery changes.

Practices reported using CPC+ supports to make beneficial changes to care delivery, though some practices indicated that additional support would better help them to achieve the care delivery requirements. Specifically, about one-half of practices indicated a need for additional payments and/or stronger health IT vendor support. Practices also noted a need for more timely and user-friendly data feedback. Furthermore, many practices were dissuaded from trying to earn payments for performance because these payments comprised a small proportion of total enhanced payments and because practices perceived they had limited control over patients' health care utilization and costs.

In Section 3.1, we provide an overview of our findings. In Section 3.2, we describe the methods used for our analyses. We then provide detailed descriptions of the enhanced and alternative to FFS payments, data feedback, and learning activities CMS and payer partners provide to practices (Section 3.3) and highlight the health IT support vendors provide (Section 3.4). For

each support, we describe what CMS, payer partners, and health IT vendors offered to CPC+ practices and how practices perceived and used those supports. We focus on the supports provided in PY 2 to practices that joined CPC+ in 2017. In callout boxes marked with a 2018 regions icon throughout the chapter, we also compare the PY 1 experiences in regions that joined in 2018 with the first-year experiences in 2017 regions.

3.1. Key takeaways on CPC+ supports to practices

CMS and payer partner support. In PY 2, CMS and 92 percent of the payers that partnered in 2017 regions provided support to CPC+ practices. The payer partners that did not provide supports to CPC+ practices in PY 2 did not have contracts with any CPC+ practices and, thus, could not provide CPC+ supports to practices. Our analysis of specific supports does not include these payers.

Enhanced payments. CMS and all payer partners provided enhanced payments to CPC+ practices they had contracts with, in addition to usual payments for services in PY 2. These enhanced payments included: (1) payments to support practices' participation in CPC+ (typically using care management fees) and (2) payments to reward their performance on cost, utilization, or quality measures. CMS and about one-half of payer partners met their commitment to provide higher payments to Track 2 practices, reflecting CMS' requirement that Track 2 practices implement more advanced care delivery requirements to meet patients' complex needs.

- *Level of support.* Practices received substantial enhanced payments in PY 2. The median enhanced payments that Track 1 practices received from CMS and payer partners totaled approximately $122,000 per Track 1 practice, or $43,000 if calculated per primary care practitioner. Payments to Track 2 practices were higher: the median payment per practice totaled approximately $264,000, which translates to $66,000 per primary care practitioner. Payments for participation in CPC+ comprised a large share of enhanced payments to practices (a median of 90 percent across practices in both tracks), whereas payments for performance comprised a small share (median of 10 percent across practices in each track).

  CMS provided a substantial share of CPC+ enhanced payments. Enhanced payments from CMS for Medicare FFS beneficiaries in PY 2 made up 68 percent of total enhanced payments from CMS and payer partners, although Medicare FFS beneficiaries accounted for only 37 percent of attributed CPC+ patients.

- *Additions or improvements payer partners made during CPC+.* Approximately 67 percent of CPC+ enhanced payments were unique payments for CPC+ practices that would not have been available without CPC+. CMS' care management fees provided to practices for participating in CPC+ made up most of the unique enhanced payments for CPC+ practices. In contrast, about two-thirds of CMS' payments for performance (specifically, payments for practices in the Medicare Shared Savings Program [SSP]) and most of payer partners' enhanced payments (for participation and performance) were available to practices participating in payers' other transformation programs.

Practices received payments for participation in CPC+ in both PY 1 and PY 2; in PY 2, practices also began to receive payments for performance in CPC+ in PY 1.[9]

- *Practices' perspectives.* Most practices viewed CPC+ enhanced payments as useful, and many practices indicated they were using them to make beneficial changes to how they deliver care. In addition, more practices took steps to try to retain their maximum Performance-based Incentive Payments (PBIPs) in PY 2 than in PY 1, reporting that they were motivated by finding out how much of their PY 1 PBIPs CMS recouped for not meeting performance benchmarks.

  However, practices continued to raise concerns that enhanced payments were inadequate to support the amount of work CPC+ requires; in particular, they noted that enhanced payments from payer partners were relatively low compared with CMS' payments for Medicare FFS beneficiaries. (In PY 2, the average care management payment from CMS was $15 per beneficiary per month [PBPM] for Track 1 and $28 PBPM for Track 2; median care management fees from payer partners ranged from $3 to $5 per member per month [PMPM] for Track 1 and from $4 to $6 PMPM for Track 2, depending on the line of business.)

  Additionally, some practices raised concerns that payer partners' methodologies to pay for performance were opaque (because the commercial payers they contracted with did not share their proprietary approaches), or they considered them to be unfair. They also felt practices lacked sufficient control over the utilization and cost measures many payer partners, including CMS, used to calculate performance. They also noted investing more resources trying to earn CPC+ payments for performance was not worthwhile, given the relatively modest size of potential payments for performance compared with the payments for participation in CPC+ that do not depend on their performance. For practices not participating in SSP, CPC+ practices could earn up to $2.50 PBPM for Track 1 and $4.00 PBPM for Track 2 from CMS for performance.

Alternative to FFS payments. Payer partners agreed to use an alternative to the historically common FFS payment approach. Under FFS, practices are paid for each visit or service they provide. Under alternative approaches, payer partners provide lump sum payments to practices in advance. Correspondingly, payer partners reduce or eliminate FFS payments. CMS committed to providing alternative to FFS payments to Track 2 practices starting in PY 1, and payer partners committed to doing so by the start of PY 2. CMS uses a hybrid approach for Track 2 practices that replaces a portion of FFS payments for certain evaluation and management (E&M) services with a prospective payment called the Comprehensive Primary Care Payment (CPCP). In PY 2, practices could elect to have 25, 40, or 65 percent of payments paid prospectively via the CPCP.

[9] Payer partners based most payments for performance in PY 2 on practices' PY 1 performance. However, a few payer partners use rolling averages to assess practice performance and may have tied PY 2 payments partly to PY 2 performance.

- *Level of support.* CMS and 22 percent of payer partners used an alternative to FFS payment approach in PY 2, up slightly from 16 percent in PY 1. (All payer partners with alternative to FFS approaches in PY 1 indicated that those approaches pre-dated CPC+.) Although this is a small improvement, it fell well short of CMS' goal that all CPC+ payer partners would have implemented an alternative to FFS approach for at least Track 2 practices by the start of PY 2.
- *Additions or improvements payer partners made during CPC+.* The proportion of all CPC+ practices' patients who were covered by an alternative to FFS payment arrangement increased from approximately 1 percent before CPC+ began to 3 percent in PY 2 for Track 1 practices and from 3 to 19 percent for Track 2 practices.
- *Practices' perspectives.* As in PY 1, many deep-dive Track 2 practices remained concerned about further moving to prospective payments and were hesitant to take on additional financial risk in PY 2. Highlighting this finding, most Track 2 practices continue to select the minimum CPCP, which in PY 1 was 10 percent, and in PY 2 was 25 percent. Despite hesitation, a few more deep-dive practices leveraged these alternative payments to implement alternatives to traditional office visits in PY 2 than in PY 1.

Data feedback. CMS requires that CPC+ practices use claims data to improve population health management, and payer partners committed to providing practices with claims data at least quarterly to help them achieve this goal.

- *Level of support.* CMS and 94 percent of payer partners provided data feedback to CPC+ practices. Most commonly, CMS and payer partners provided data on a combination of claims-based utilization, cost, and/or quality-of-care measures.

  In PY 2, CMS and payer partners aggregated data feedback in five regions. To aggregate data across payers in a given region, payers submit their claims data to a third-party vendor that produces a single report or tool analyzing and presenting those data.

- *Additions or improvements for CPC+.* Most payer partners were providing data feedback before CPC+ began. Payer partners in Colorado, Ohio/Kentucky, and Oklahoma were aggregating data feedback—including Medicare FFS data—before CPC+ began and continued to do so at the start of CPC+. In PY 2, payer partners in Greater Philadelphia and Oregon also began aggregating data feedback. Additionally, CMS and a couple of payer partners took steps to improve the quality of their data feedback in PY 2, most notably by moving from static reporting formats (such as PDFs or static Excel files) to more interactive formats (such as online portals).

- *Practices' perspectives.* More practices were aware that data feedback from payer partners was available in PY 2 than in PY 1. Almost all practices that reviewed data feedback used it to guide changes in how they deliver care, with half of them reporting that they made *major* changes as a result.

However, practices continued to raise concerns regarding the timeliness of data feedback and indicated they needed help understanding and using data feedback. Increasingly, practices also raised concerns about the volume of data feedback from payer partners.

Learning activities. CMS sponsored CPC+-specific learning activities for practices that aim to (1) provide practices with detailed information and resources on achieving the Comprehensive Primary Care Functions and (2) promote peer learning among CPC+ practices.

- *Level of support.* As in PY 1, CMS and its learning contractors provided a range of learning activities in PY 2 including an implementation guide, a web-based collaboration platform, group learning activities (such as webinars and in-person learning sessions), and tailored individual and small group technical assistance—also called "practice coaching."

  In addition to learning activities provided by CMS and its learning contractors, about 50 percent of CPC+ practices reported receiving each of the following types of support from payer partners: explanations of CPC+ payment methodologies, training on how to use payers' data feedback, and coaching on ways to improve practice processes and workflows.

- *Additions or improvements for CPC+.* In PY 2, CMS made minor refinements to the CPC+ learning activities in response to stakeholder feedback and to improve the usability of supports offered in PY 1. They also added two role-specific learning groups so that practice leads and care managers could learn from others with similar CPC+ responsibilities.

- *Practices' perspectives.* Most CPC+ practices (82 percent) were satisfied with the CPC+ learning activities offered to them. A large proportion of CPC+ practices participated in or used each of CMS' learning supports in PY 2, and those who attended generally found them to be useful for improving primary care. Practices found that information dissemination support, via the CPC+ Implementation Guide or the help desk, and tailored in-person coaching, were the most useful supports in PY 2.

  To make CPC+ learning activities even more useful in future program years, practices suggested (1) improving the usability of the web-based collaboration platform, (2) providing learning activities for groups of practices with similar characteristics or the same health IT vendors, and (3) providing more in-person one-on-one coaching.

Health IT vendor support. In PY 2, Track 2 practices partnered with 52 health IT vendors that agreed to help them implement advanced health IT functionalities to support the Comprehensive Primary Care Functions.

- *Required functionalities.* In PY 2, CMS refined the health IT requirements for Track 2 practices to reduce burden and offer more flexibility in how they use health IT. In PY 2, CMS had one required health IT functionality for Track 2 practices: to use an electronic dashboard to track and analyze their performance on electronic clinical quality measures

(eCQMs) at least quarterly to support population health management. Additionally, by the start of PY 3, Track 2 practices were required to use health IT to support care management and comprehensive care. For example, practices need to use their electronic health record (EHR) to identify patients who need care management and use care plan templates within their health IT system. At the start of CPC+, CMS required Track 2 practices to use health IT to also support access and continuity and patient and caregiver engagement, which included functionalities to document (1) alternatives to traditional office-based visits and (2) patient-reported outcomes; CMS removed these requirements in PY 2.

- *Vendor support.* In PY 1, we interviewed 13 health IT vendors that worked with 83 percent of Track 2 practices. Most vendors reported they had more advanced functionality to support empanelment and risk stratification at the outset of CPC+ than to support other aspects of CPC+ (Peikes et al. 2019; Anglin et al. 2019). During the first year, health IT vendors focused on developing new eCQM reporting dashboards for CPC+, and many vendors reported plans to improve their care plan templates in future years of CPC+. Additionally, roughly one-half of these vendors (including all the largest vendors) reported they collaborated with Track 1 and Track 2 practices during CMS-sponsored CPC+ learning activities (rather than working exclusively with Track 2 practices, as was required by CMS).[10]

- *Practice perspectives.* In PY 2, most deep-dive practices across both tracks used health IT to support their work delivering comprehensive primary care, but few practices reported changing their use of health IT in response to CMS' health IT requirements for CPC+. As in PY 1, several deep-dive practices reported inaccurate or incomplete data made it challenging to use their health IT to improve the quality of care that they provide and for reporting eCQMs (the one required health IT functionality for PY 2).

  About one-half of CPC+ practices reported on the practice survey that health IT vendor support was somewhat or very useful for improving primary care, which is lower than their ratings of other CPC+ supports. Deep-dive practices were most satisfied when their health IT vendors were proactive and responsive to their questions.

[10] As part of our study design, we did not interview health IT vendors in 2018. Therefore, we do not include PY 2 findings on vendor experiences in this report. We will provide an update on vendor experiences in PY 3 in our third annual report.

3.2. Methods

To understand the supports CMS and payer partners provided to CPC+ practices and practices' perceptions of them, we analyzed data from the following sources:

1. **Payer survey.** We fielded the 2018 survey to the 59 payer partners that partnered in 2017 regions for all of PY 2. Of these 59 payer partners, 54 responded to the survey, which was fielded from October 2018 to January 2019. We excluded from analyses the 5 payer partners that did not complete the survey. They each accounted for fewer than 25,000 lives attributed to CPC+ practices in PY 2 and, together, accounted for only 1.2 percent of all lives attributed to CPC+ practices by CMS and payer partners.
2. **Interviews with CMS and payer partners.** From October to December 2018, we interviewed staff from CMS and its data feedback and learning contractors (including the cross-regional learning staff and a sample of practice facilitators working in 8 of the 14 regions that joined in 2017). We also conducted interviews with eight payer partners that joined 2017 regions in PY 2 or that made significant changes to their CPC+ supports in PY 2. (The first annual report [Anglin et al. 2019] includes findings from fall 2017 interviews of all payer partners in 2017 regions about their PY 1 CPC+ approaches.)
3. **Practice survey.** We administered the CPC+ Practice Survey to all CPC+ practices in PY 2 (from June 6, 2018, through September 25, 2018). The survey asked about practices' perspectives on CPC+ supports received in the prior year. (See Appendix 4.C in the volume of Appendices to this report [Ghosh et al. 2020] for information about our survey methods and a copy of the survey instrument.)
4. **Practice interviews.** We conducted interviews with a representative sample of 59 practices—referred to as "deep-dive" practices—in spring 2019. We asked practices about their experiences with CPC+ in PY 2. We used three to four interview modules to guide our discussions with each deep-dive practice. We collected detailed information on each CPC+ support from 21 to 27 diverse practices (Appendix 4.D describes our sampling approach and data collection methods).
5. **CPC+ program data.** We analyzed CMS data on CPC+ payments and practice-reported financial data to study the level and type of CPC+ payments provided to practices in PY 2. We also reviewed CPC+ program documentation, which included information on the timing and structure of learning activities and which practices downloaded data feedback.

Methods: Characterizing interview data

When reporting on findings from qualitative interviews with deep-dive practices, payer partners, and health IT vendors, we use the word "couple" to denote 2 respondents, "few" to denote 3 to 4 respondents, "several" to denote 5 to 10 respondents, "many" to denote more than 10 respondents but fewer than three-fourths of relevant respondents, and "most" to indicate more than three-fourths of respondents. We have interview data for most topics from 21 to 24 deep-dive practices, 66 payer partners, and 13 health IT vendors.

Understanding supports CMS and payer partners provided in 2018 regions in Program Year 1

To understand the supports CMS and payer partners provided to practices that joined CPC+ in 2018 in PY 1, we drew on data sources similar to the ones we used for 2017 regions, with a couple of exceptions. First, as we did for 2017 regions, in PY 1, we interviewed *all* payer partners in 2018 regions (instead of a sample of payers as we do in PY 2). Second, given that 2018 Starters account for only 5 percent of all CPC+ practices, we collected qualitative data from a smaller sample of them. We have data on each CPC+ support from 4 to 11 practices. Given the very small sample, all findings from deep-dive interviews for the 2018 regions should be interpreted with caution.

3.3. CMS and payer partners' support for CPC+ practices

CMS and payer partners in 2017 regions provided similar levels and types of support to CPC+ practices in PYs 1 and 2. Section 3.3.1 gives an overview of the supports payer partners provided to CPC+ practices, and Section 3.3.2 presents more detail on each type of support.

3.3.1 Overview of CMS and payer partners' support

Payers providing support. Throughout PY 2, CMS and 92 percent of the payers that partnered in 2017 regions provided support to CPC+ practices. The five payer partners that did not provide any supports to CPC+ practices in PY 2 did not have contracts with any CPC+ practices. Without contracts, these payer partners could not provide CPC+ supports to practices; thus, we excluded them from the remainder of the analysis presented in this chapter.[11] One of these five payers is a state Medicaid agency in a region that exclusively uses Medicaid managed care. The state Medicaid agency contracts with three Medicaid managed care organizations (MCOs) in the state, all of which are also partnering in CPC+ and have contracts with CPC+ practices. Although the state Medicaid agency does not have contracts with practices, it is an active CPC+ partner as it sets the CPC+ payment, data feedback, and learning approaches for the three MCOs. The other four payers that did not have contracts with practices were hoping to expand their presence in CPC+ regions in PY 2 but had not yet contracted with any practices by the end of PY 2.

[11] We excluded five payers that did not have contracts with CPC+ practices from our analysis. We also excluded five additional payer partners that did not respond to the 2018 CPC+ Payer Survey. Each of the five payer partners that did not complete the survey attributed fewer than 25,000 lives to CPC+ practices in PY 2 and, together, they accounted for only 1.2 percent of all lives CMS and payer partners attributed to CPC+ practices.

Payer partners signed memoranda of understanding that described their roles and how they would work together as part of CPC+

The memoranda of understanding described payer partners' commitments to:

1. Provide enhanced, non-visit-based financial support to practices, with larger amounts for Track 2 practices than for Track 1 practices (referred to in the evaluation as "payments for performance").
2. Offer practices performance-based incentive payments using a methodology designed to assess the practices' performance on measures of utilization, cost of care, and quality (referred to as "payments for participation").
3. By PY 2, reimburse Track 2 practices for care provided using, at least partly, a reimbursement methodology that differs from their current, visit-based, reimbursement methodology (referred to as "alternative to FFS payments").
4. Share utilization or total cost of care data, or both, with practices at least quarterly (referred to as "data feedback").
5. Align quality measures with other payers in the region, to the extent possible.
6. Align their care delivery requirements for practices with CMS' requirements, to the extent possible.

Type of support payer partners provide. CMS and all payer partners that had contracts with CPC+ practices provided CPC+ practices with enhanced payments in addition to usual payments for services in PY 2 (Figure 3.1). These enhanced payments included payments for participation in CPC+; for performance on cost, utilization, or quality measures; or for both. In PY 2, CMS and 22 percent of the payer partners also provided prospective, alternative to FFS payments for services to Track 2 practices and, for some payer partners, Track 1 practices. In PY 2, CMS and 94 percent of payer partners also provided practices in both tracks with data feedback, and CMS and 81 percent offered learning activities, such as practice coaching or technical assistance.

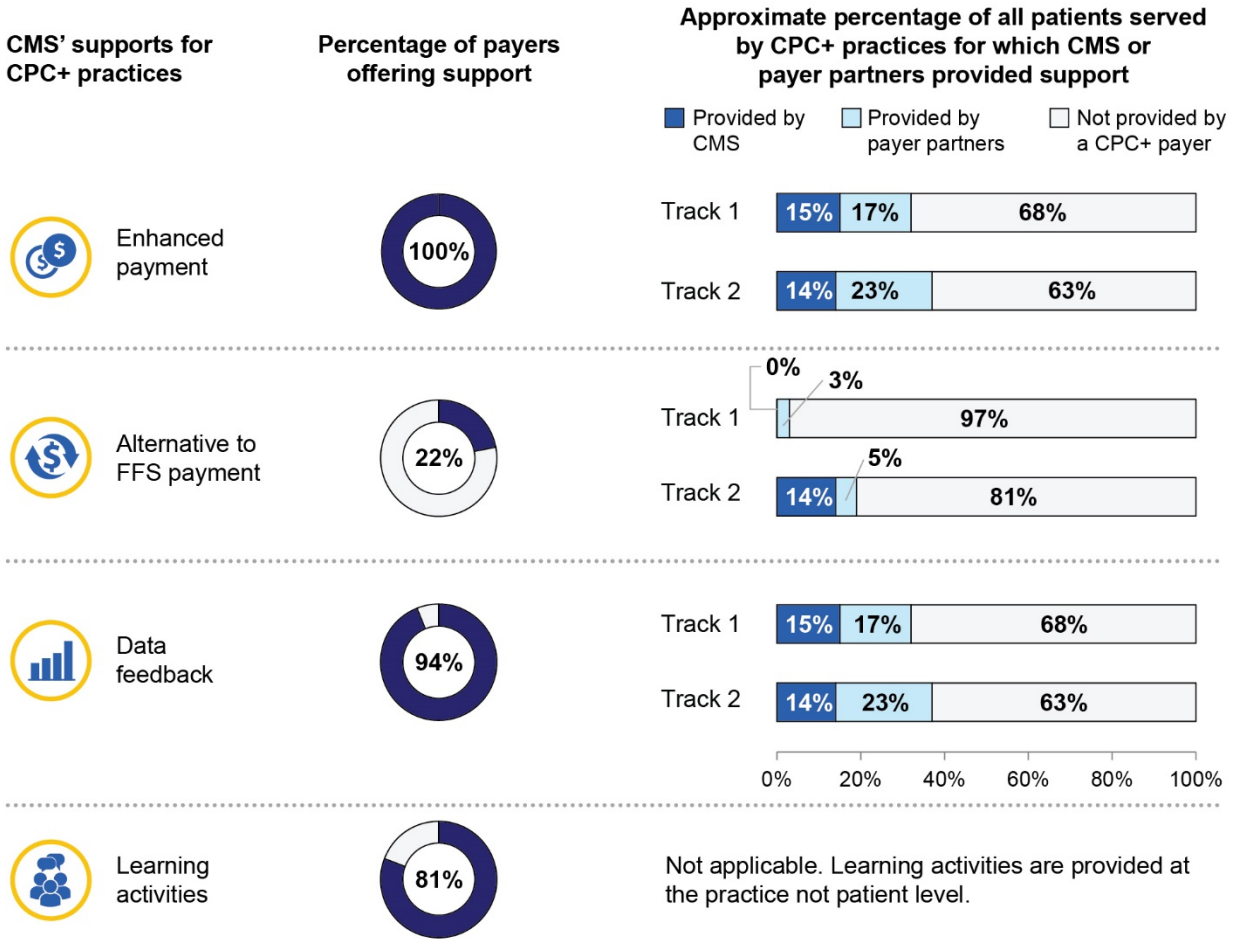
Proportion of patients for whom payers provide supports. CMS requires CPC+ practices to implement care delivery changes *across all the patients they serve*, not just the patients for whom CMS or a payer partner provides supports. Payer partners provide enhanced and alternative to FFS payments and data feedback to practices for individual patients they attribute or assign to CPC+ practices.[12] Payer partners most commonly attribute patients to either the practice that the patient selects at enrollment or to the practice that the patient most frequently visits. Some patients a practice serves might not be attributed by any CPC+ payer if these patients were (1) uninsured, (2) insured by a non-partnering payer, or (3) insured by a payer partner but not attributed to the practice (for example, if they saw another practice more frequently or more recently or if they were covered under a line of business the payer partner did not include in CPC+).

[12] Payer partners provide learning activities at the practice level, not the patient level.

Looking across all patients served by CPC+ practices in PY 2, CMS and payer partners provided enhanced payments for about one-third of those patients (Figure 3.1). Similar to PY 1, practices reported to CMS that they received enhanced payments for a median of 36 percent of their active patients in PY 2, though the proportion varied. One-quarter of practices reported receiving enhanced payments for 21 percent or less of their active patients. Practices in the highest quartile reported receiving enhanced payments for 50 percent or more of their patients.

Figure 3.1. Availability of CPC+ supports from CMS and payer partners

CMS and all payer partners provided enhanced payments to practices, and most provided data feedback and learning supports. Fewer payer partners provided alternative to FFS payments. Correspondingly, CPC+ practices received enhanced payments and data feedback from CMS and payer partners for about one-third of all patients they served. Practices received alternative to FFS payments for 3 percent of patients in Track 1 practices and 19 percent of patients in Track 2 practices.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Payer Survey and the 2018 practice-reported financial data submitted to CMS.

Note: N = 54 payer partners. We excluded 10 payers from this analysis. Five did not complete the 2018 CPC+ Payer Survey; another 5 did not have direct contracts with any CPC+ practices and, thus, could not provide CPC+ supports.

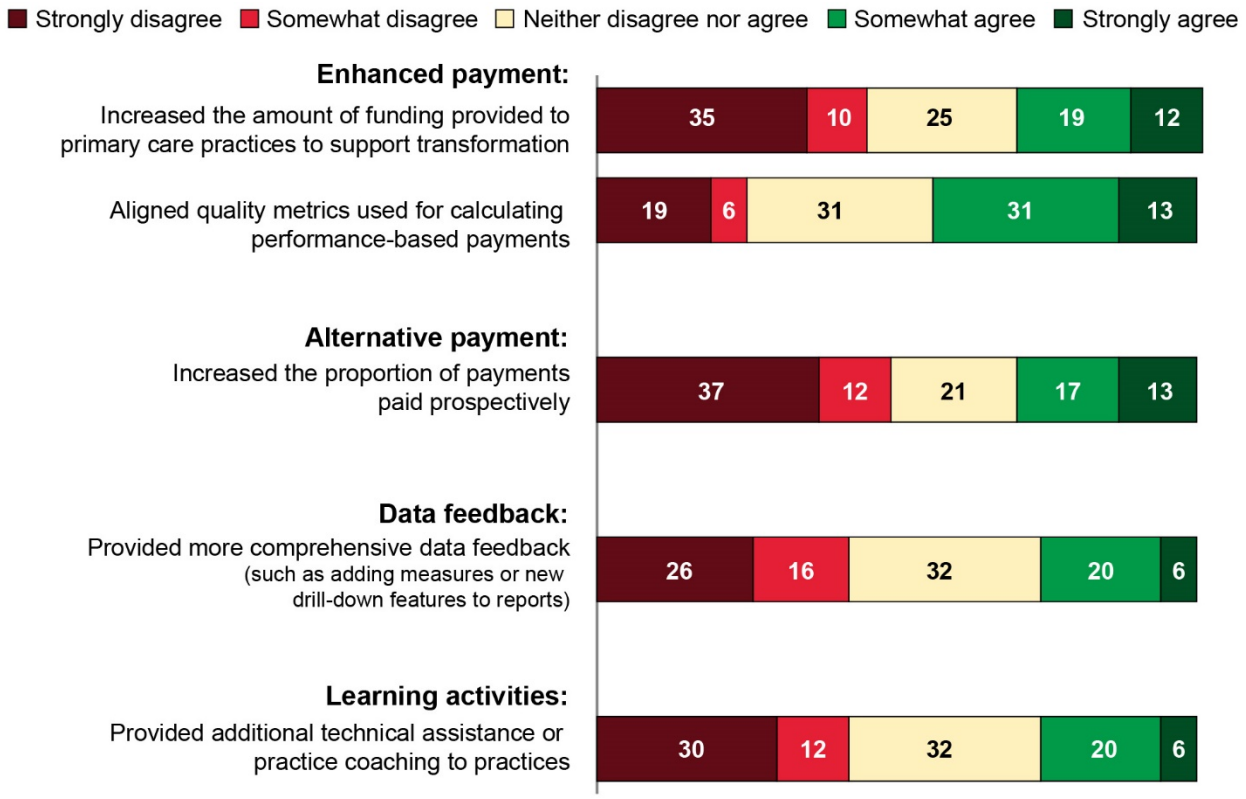
N = 1,268 Track 1 practices and 1,445 Track 2 practices. Track 1 practices reported serving 6,726,968 patients and Track 2 practices reported serving 9,030,671 patients in PY 2.

Practices received alternative to FFS payments for a smaller proportion of their patients (approximately 12 percent of all patients served by CPC+ practices). CMS and a few payer partners provided alternatives to FFS payments *only* for Track 2 practices; thus, those practices received alternative to FFS payments for a higher proportion of their patients (approximately 19 percent of all patients served by Track 2 practices versus 3 percent of patients served by Track 1 practices).

Effect of CPC+ on payer partners' support. Close to one-half of CPC+ payer partners reported that, as a result of partnering in CPC+, they aligned the quality metrics used to calculate payments for performance with those of payer partners. Fewer payer partners reported they had changed or planned to change other supports as a result of their involvement in CPC+ (Figure 3.2). About one-third of payers reported they increased the amount of funding provided to primary care practices as a result of CPC+, and about one-third had increased or planned to increase their use of alternative to FFS payments as a result of CPC+. About one-quarter reported that CPC+ had resulted in changes to their data feedback or learning approaches.

Figure 3.2. Percentage of payer partners in 2017 regions that agree their organizations made changes *as a result of CPC+ partnership*

About one-half of payer partners agreed or strongly agreed that, as a result of CPC+, they aligned quality metrics used to calculate performance-based payments with payer partners. Fewer payers reported that they made other changes to their supports as a result of CPC+.



Sources: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Payer Survey.

N = 54. We excluded 10 payers from this analysis. Five did not complete the 2018 CPC+ Payer Survey; another 5 did not have direct contracts with any CPC+ practices and, thus, could not provide CPC+ supports.

Payer partners operating in only one region reported more commonly than payer partners operating in multiple regions that they had changed their enhanced payment, data feedback, or learning approaches as a result of CPC+.

3.3.2 Detail on CMS and payer partners' support

In this section, we provide a more detailed look at CPC+ enhanced and alternative payments (Section A), data feedback (Section B), and learning activities (Section C). For each support, we first describe what CMS and payer partners provided to CPC+ practices in PY 2 and then highlight practices' perspectives on those supports.

A. Enhanced and alternative payments

In this section, we first describe enhanced payments (Section A.1) and then alternative to FFS payments (Section A.2) that CMS and payer partners paid to CPC+ practices in PY 2.

A.1. Enhanced payments

Payer partners provide enhanced payments to CPC+ practices in addition to their usual payments for services. These payments include payments for participation in CPC+ and payments for performance on cost, utilization, and quality measures. CMS and payer partners provide enhanced payments to CPC+ practices to incentivize them to make changes to deliver the Comprehensive Primary Care Functions and to provide them more resources to do so. For example, practices can use enhanced payments to add staff such as care managers, pharmacists, and social workers to their care teams.

What enhanced payments did CPC+ payer partners provide?

- **Payment type and structure.** CMS and all payer partners provided enhanced payments to practices in PY 2, and payer partners' enhanced payment strategies were generally the same in PYs 1 and 2.

  Medicare FFS and about half of payer partners differentiated enhanced payments by CPC+ track. This fell short of CMS' goal that all payer partners provide higher financial support for Track 2 practices to reflect their enhanced care delivery activities.

  In PY 2, CMS and most payer partners (93 percent) continued to provide a combination of enhanced payments for participation in CPC+ and payments for performance (to incentivize practices to improve quality, decrease utilization, and reduce costs). (CMS expects all payer partners to provide both payments for participation in CPC+ and payments for performance. In PY 2, 4 of the 54 payer partners provided only one type of enhanced payment: 3 payer partners provided payments only for participation, and one provided payments only for performance).

- **Payments for participation.** In PYs 1 and 2, CMS and nearly all payer partners provided enhanced payments for participation in the form of care management fees (Figure 3.3). The two payer partners that did not provide care management fees used enhanced FFS payments to pay practices for participating in CPC+.

  To determine the level of care management fees practices would receive for Medicare FFS beneficiaries, CMS assigned each beneficiary to one of four risk tiers (for Track 1 practices) or five tiers (for Track 2 practices), with each tier corresponding to a monthly care management fee payment (see box). CMS set the risk tiers separately for each region, considering beneficiaries' Hierarchical Condition Category (HCC) scores and, for Track 2 practices, whether they had a diagnosis of dementia, which qualified beneficiaries for Tier 5.

  Medicare fee-for-service care management fees, per beneficiary per month, by risk tier

	Track 1	Track 2
Average	$15	$28
By tier:	Tier 1: $6	Tier 1: $9
	Tier 2: $8	Tier 2: $11
	Tier 3: $16	Tier 3: $19
	Tier 4: $30	Tier 4: $33
	Tier 5: n/a	Tier 5: $100

  The average care management payment from CMS for Medicare FFS was $15 PBPM for Track 1 practices and $28 PBPM for Track 2 practices. In addition to care management fees, CMS also paid Track 2 practices a separate, small enhanced payment, referred to as the comprehensiveness supplement, for participating in CPC+. This payment averaged $0.35 PBPM for the first two years of CPC+.[13]

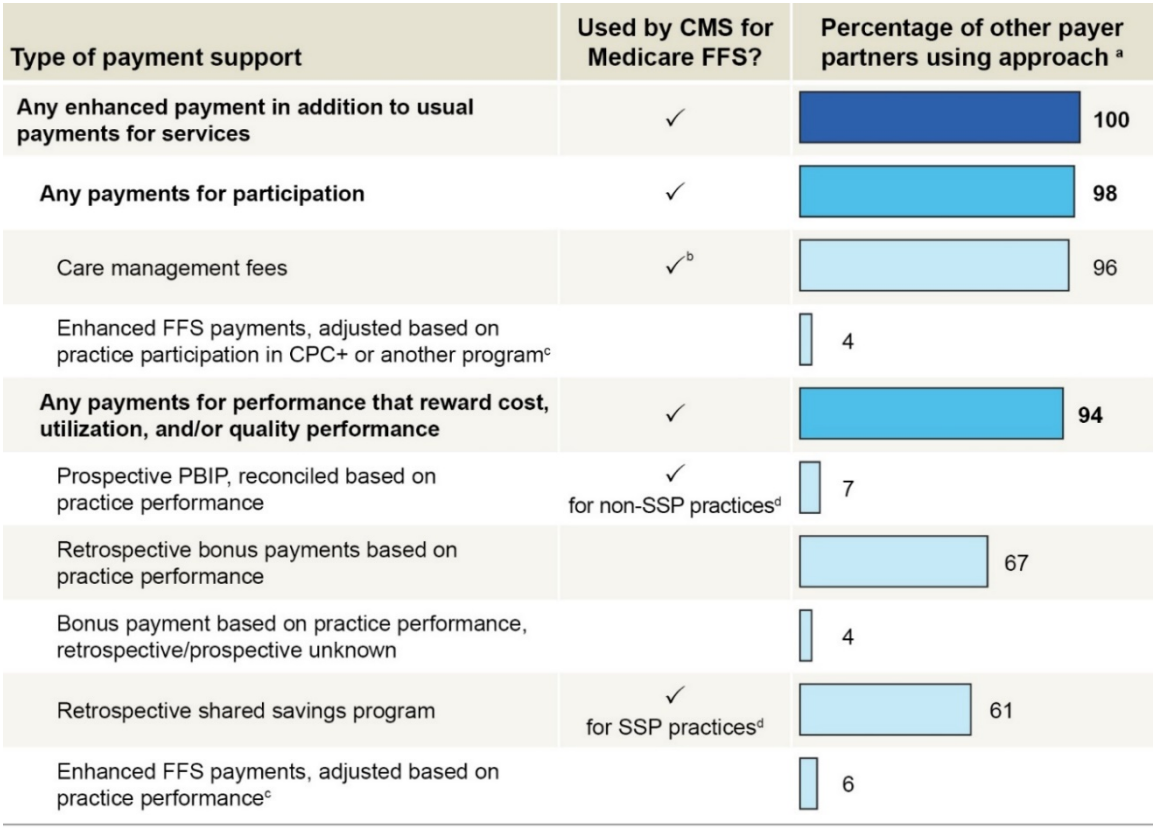
- **Payments for performance.** As in PY 1, payer partners used several approaches to reward practice performance:
  - *CMS* used two strategies. First, for practices not participating in SSP, CMS used a prospective bonus payment, reconciled based on practice performance. Specifically, CMS paid practices a lump sum payment (the PBIP) at the beginning of a performance year (as much as $2.50 PBPM for Track 1 and as much as $4.00 PBPM for Track 2). At the end of the performance year, CMS calculated the proportion of that lump sum payment practices earned based on their performance on claims-based measures of inpatient hospitalizations and ED utilization, eCQMs, and patient experience-of-care measures. Practices retained the portion of the PBIP they earned and had to pay back the unearned portion. Second, practices participating in SSP are part of an Accountable Care Organization (ACO) that participates in a shared savings program with Medicare FFS. Primary care practices, specialists, and/or hospitals come together to form an ACO. For SSP, CMS estimates how much an ACO "saved" (that is, the extent to which they reduced spending relative to a benchmark). If savings are realized, CMS pays out a portion of those savings to the SSP ACO. If losses are incurred, ACOs that agreed to

[13] The comprehensiveness supplement is tied to CMS' alternative payment approach. Track 2 practices are paid a portion of their payments for services prospectively via a payment referred to as the Comprehensive Primary Care Payment (CPCP). In addition, practices receive the comprehensiveness supplement, which is equal to 10 percent of the CPCP. As the supplement is in addition to payments for services, we consider it an enhanced payment.

accept downside risk must pay back a portion of those loses to CMS. It is up to the SSP ACO to decide whether to share any of these savings (or losses) with its various providers and, if so, how much.

- *Payer partners* most commonly used retrospective bonus payments (67 percent) and/or shared savings opportunities (61 percent; Figure 3.3). The metrics payer partners used to calculate performance scores remained consistent from PY 1 to PY 2, with payers continuing to rely most often on claims-based cost, utilization, and quality measures.

Figure 3.3. Enhanced payment approaches CPC+ payer partners used in 2017 regions during PY 2



Sources: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Payer Survey and payer interviews.

N = 54. We excluded 10 payer partners from this analysis. Five did not complete the 2018 CPC+ Payer Survey, and another 5 did not have direct contracts with any CPC+ practices and, thus, could not provide CPC+ supports.

[a] Individual percentages may not sum to totals due to rounding and because subtypes of payments are not mutually exclusive.

[b] Track 2 practices also received a small additional enhanced payment, referred to as the comprehensiveness supplement, for participating in CPC+. This payment averaged $0.35 for the first two years of CPC+.

[c] Four payer partners made enhanced FFS payments in PY 2. One payer partner provided a base enhanced FFS payment based on participation, plus an additional enhanced FFS payment based on practice performance; we classified this payer partner as providing both enhanced FFS for participation and enhanced FFS adjusted based on performance. Another payer partner adjusted its enhanced FFS schedule based on practice tiers; we classified this payer partner as providing only enhanced FFS payment based on participation. We classified the two payer partners that adjusted their entire enhanced FFS schedule based on practice performance as providing only enhanced FFS payment adjusted based on performance.

[d] Medicare FFS is using a prospective PBIP for CPC+. However, this payment is available only to practices that do not participate in the Medicare SSP. Practices participating in both CPC+ and SSP participate in a retrospective shared savings program as a member of an SSP Accountable Care Organization.

FFS = fee-for-service; PBIP = Performance-based Incentive Payment; PY = Program Year; SSP = Medicare Shared Savings Program.

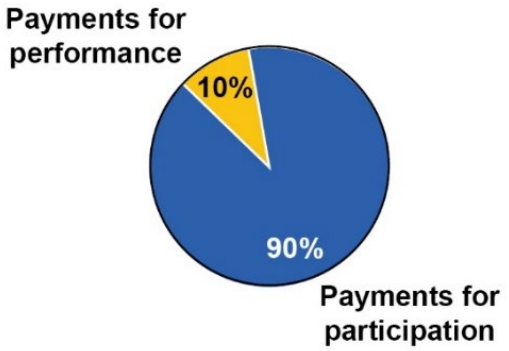
Level of enhanced payments. Practices received substantial enhanced payments in PY 2. As they did in PY 1, practices continued to receive substantial payments from payer partners for *participating* in CPC+; on average, these payments made up 90 percent of enhanced payments to practices in PY 2 (Figure 3.4). (This distribution was similar for both tracks.) Also, in PY 2, CPC+ practices received payments to reward them for their early CPC+ *performance*.[14] Taken together, these enhanced payments for participation and for performance were significant.

In PY 2, the median enhanced payments that *Track 1* practices received from CMS and payer partners totaled approximately $122,000 per Track 1 practice, which represented a median of 10 percent of practice revenue (Figure 3.5). To account for differences in practice size, we divided payments to each practice by the number of practitioners in the practice. In PY 2, enhanced payments calculated per primary care practitioner were about $43,000.

For *Track 2* practices, enhanced payments from CMS and payer partners were higher than for Track 1. Median payments per practice totaled approximately $264,000, which translates to $66,000 per primary care practitioner. This finding represented a median of 15 percent of practice revenue (Figure 3.5). Average payments to Track 2 practices were higher than to Track 1 practices because CMS and half of payer partners provided higher payments to Track 2 than to Track 1 practices.

Figure 3.4. Median proportion of enhanced payments for performance and participation

Payments for participation made up most of CPC+ enhanced payments.

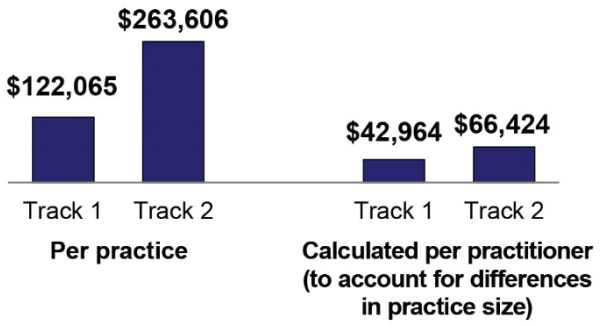


Sources: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Payer Survey, 2018 practice-reported financial data submitted to CMS, and 2018 payment data provided by CMS.

Notes: N = 2,715 CPC+ practices.

Figure 3.5. Median enhanced payments from CMS and payer partners in PY 2

CPC+ practices received substantial payments from CMS and payer partners in PY 2.



Sources: Mathematica's analysis of 2018 practice-reported financial data submitted to CMS and 2018 payment data provided by CMS.

Notes: N = 2,715 CPC+ practices.

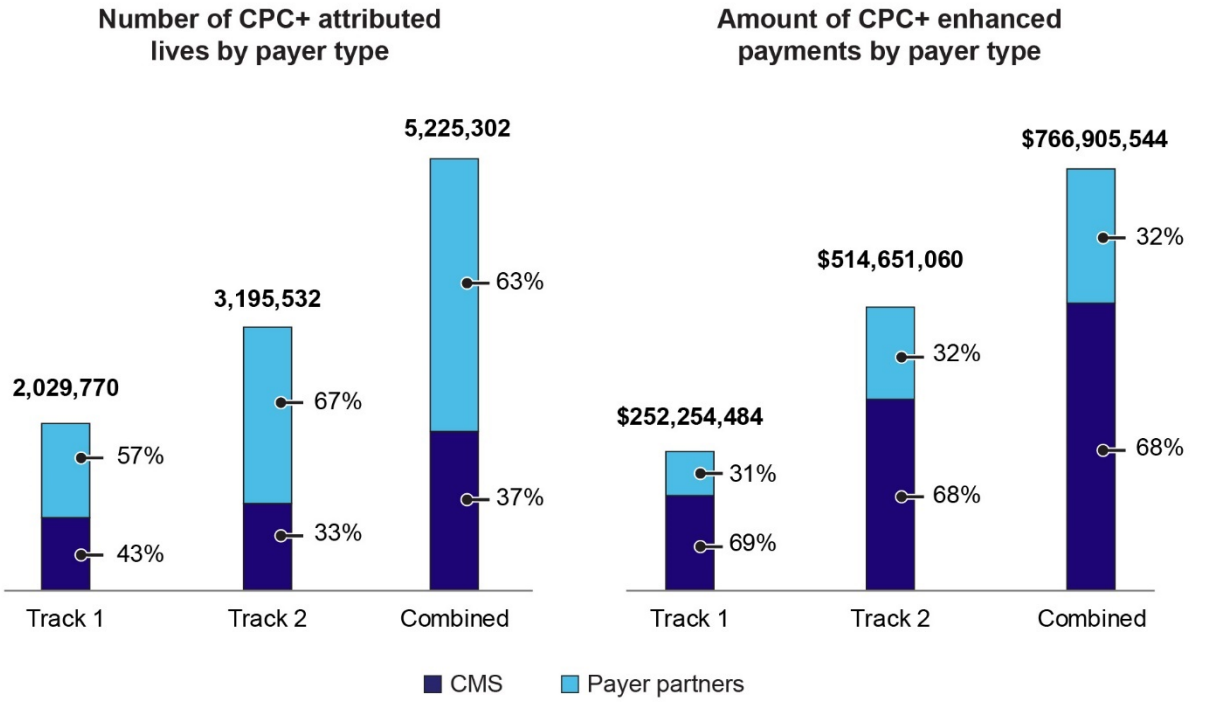
PY = Program Year.

[14] Most payer partners' performance-based payments paid in PY 2 were based on practices' PY 1 performance; however, a few payer partners use rolling averages to assess practice performance and may have tied PY 2 payments partly to PY 2 performance.

Medicare FFS paid a large share of total enhanced payments relative to its number of attributed patients. Payments from Medicare FFS in PY 2 made up 68 percent of total enhanced payments from CMS and payer partners, although Medicare FFS accounted for only 37 percent of attributed CPC+ patients (Figure 3.6). CMS' share of total payments for *performance* (35 percent) was fairly proportional to its share of attributed lives, but CMS' share of total payments for *participation* (78 percent) greatly exceeded its share of attributed lives. The average care management payment from CMS for Medicare FFS was $15 per beneficiary per month (PBPM) for Track 1 practices and $28 PBPM for Track 2 practices. Median fees from payer partners varied but were generally lower than those from CMS. For payers that did not differentiate payments by track, median fees ranged from $3 to $6 PMPM, depending on line of business. For payer partners that paid higher fees for Track 2 practices, the median ranged from $3 to $9 for Track 1 practices and from $3 to $16 PMPM for Track 2 practices, depending on the line of business.

Figure 3.6. Relative contribution of Medicare FFS and payer partners to CPC+ enhanced payments in PY 2

Medicare FFS accounted for 37 percent of CPC+ attributed lives but 68 percent of CPC+ enhanced payments.



Sources: Mathematica's analysis of 2018 practice-reported financial data submitted to CMS and 2018 Medicare FFS beneficiary attribution lists payment data provided by CMS.

Notes: N = 2,715 CPC+ practices.

FFS = fee for service; PY = Program Year.

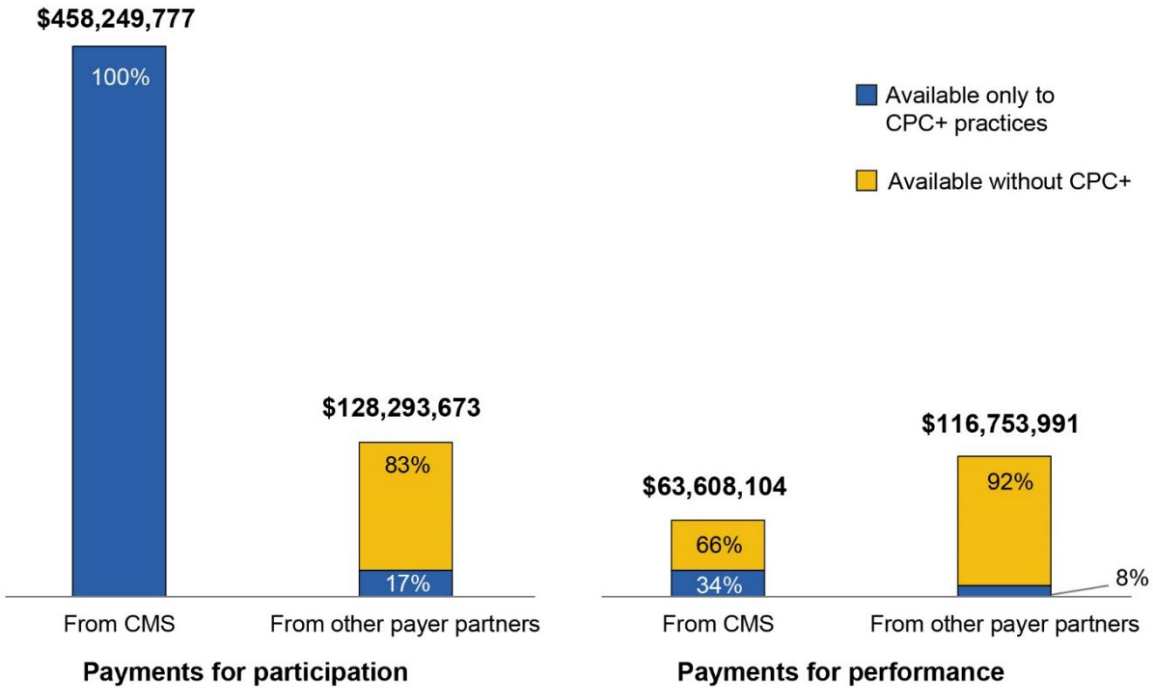
Approximately two-thirds of enhanced payments were new funding for CPC+ practices, whereas the remaining one-third of the enhanced payments were available to at least some practices before CPC+ began. CMS is providing CPC+ practices with *care management fees*

for participating in CPC+ that are available *only* to CPC+ practices. However, as in PY 1, most payer partners provided similar payment supports to CPC+ practices as they did to non-CPC+ practices (these practices were participating in payers' own primary care transformation initiatives, such as their own patient-centered medical home programs). In PY 2, payers indicated on the payer survey that about 17 percent of payments for participation from payer partners were unique payments for CPC+, whereas the remaining 83 percent would have been available to primary care practices through other initiatives, even if CMS had not launched CPC+ (Figure 3.7). This proportion of care management fees unique to CPC+ remained fairly stable from PY 1 to PY 2 and was similar for practices in both tracks.

CMS' *payments for performance* for practices not participating in SSP are not available to non-CPC+ practices, whereas practices that belong to an SSP ACO can receive SSP payments even if they leave CPC+. In PY 2, CMS' SSP payments for patients attributed to CPC+ practices accounted for 66 percent of all of CMS CPC+ payments for performance. As for payer partners, in PY 2, only 8 percent of their payments for performance were unique to CPC+; the remaining 92 percent were available to some practices participating in payer partners' other transformation initiatives.

Figure 3.7. Total enhanced payments from Medicare FFS and payer partners and the proportion of enhanced payments that were unique for CPC+ in PY 2

CMS' care management fees were available only to practices participating in CPC+. In contrast, about two-thirds of CMS' payments for performance and most of other payer partners' enhanced payments (for participation and performance) were available to practices participating in payers' other transformation programs.



Sources: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Payer Survey, 2018 practice-reported financial data submitted to CMS, and 2018 payment data provided by CMS.

Notes: N = 2,715 CPC+ practices.

FFS = fee-for-service; PY = Program Year.

How did CPC+ practices perceive of and use enhanced payments?

Practices' perceptions of enhanced payments. As described in the first annual report, 41 percent of Track 1 practices and 51 percent of Track 2 practices indicated on the 2018 CPC+ Practice Survey that CPC+ funding from Medicare FFS was adequate or more than adequate to complete the work CPC+ required (Peikes et al., 2019; Anglin et al., 2019). Practices that rated Medicare FFS payments as less than adequate received lower median care management fees than practices that indicated Medicare FFS payment support was adequate to complete the work CPC+ required. Practices were more likely to report receiving adequate support for practice change from Medicare FFS than from payer partners. Similar to PY 1, CPC+ practices raised two key concerns related to CPC+ payment adequacy in PY 2.

The level of work required for CPC+. About two-thirds of CPC+ practices reported that meeting care delivery requirements was somewhat or very burdensome (49 and 17 percent, respectively). **A few deep-dive practices that joined CPC+ in 2017—primarily Track 2 practices—reported that new care delivery requirements for PY 2 made Medicare FFS care management funding seem less adequate than in PY 1.**

The level of payments from other payer partners. **Consistent with PY 1, many deep-dive practices raised concerns about low enhanced payment amounts from payer partners and said this factor greatly limited their ability to make broad practice changes.** Practices raised a variety of related concerns, including that some payer partners had low payment levels per attributed patient or provided little or no new payments for CPC+ specifically, and that some payers in their region did not partner in CPC+.

Practices' use of enhanced payments. More than three-quarters of practices reported on the 2018 CPC+ Practice Survey that CPC+ payments were somewhat useful or very useful for improving primary care. Deep-dive practices reported in PYs 1 and 2 that they used enhanced payments (primarily care management fees) to make substantial, beneficial changes to their practices, most commonly by staffing care management or care coordination positions. Many deep-dive practices also used enhanced payments to hire staff, ranging from behavioral health specialists to data analysts, and to expand services, such as adding evening and weekend hours, refining risk-stratification models, or developing team-based care. Deep-dive practices credited the stable, predictable structure of care management fees with making these investments possible.

> **"The CPC+ funds help build our care teams across the primary care clinics. They help fund the care managers, the behavioral health consultants, and the pharmacists, and so we're very thankful that the care management fees are available."**
>
> ***—CPC+ director of operations at a large, system-owned Track 2 practice, spring 2019***

Whereas most deep-dive practices reported understanding CMS' methodology to calculate PBIP amounts and thought it was a fair reflection of their practice performance, several deep-dive practices also raised concerns about payer partners' performance-based payment programs. Key concerns included (1) performance benchmarks that they believed were set at unattainably high levels and (2) methodologies that they viewed as too complex or not fully transparent.

Practices' efforts to retain payments for performance. Among practices that reported that they understood payer methodologies for calculating payments for performance, a growing number of practices took steps to retain their maximum payments. In PY 1, only a few non-SSP deep-dive practices had taken steps to retain their CMS PBIPs; by late PY 2, after CMS released the PY1 results from its PBIP calculations, many of the non-SSP practices we interviewed had taken at least some steps to retain their rewards. The median PBIP earned by Track 1 and Track 2 practices—based on PY 1 performance—was less than half of the maximum PBIP that practices could have earned (44 and 47 percent, respectively.) After learning about the level of PBIPs they earned, several deep-dive practices started to take additional steps to try to retain more PBIP payments in future years. Among practices that did take steps to earn payments for performance, more practices tried to improve the quality component than the utilization component.

Among practices taking concrete actions to improve the quality component of PBIP performance, most focused on efforts to deliver and document preventive services more fully in EHRs, to help the practice receive appropriate credit on the eCQMs used for calculating payments for performance. In addition, several practices described adding quality improvement staff or data resources (typically at a centralized system level), enabling them to better track their quality performance and intervene to help providers meet performance benchmarks. Most of these practices described their quality improvement investments as a response to all the value-based programs in which they participate, not just CPC+.

Among practices that took concrete actions to improve their *utilization* performance, most focused on trying to reduce emergency department (ED) use, by having care managers follow up with patients who had recently visited the ED, to better understand whether and how these ED visits might have been prevented. Some of these practices also ramped up efforts to educate patients about alternatives to the ED (such as an after-hours clinic or a nurse advice line).

Although efforts to retain CMS PBIPs have increased since PY 1, several deep-dive practices felt that even their new actions were limited in both scope and likely effect—especially their actions focused on utilization metrics. These practices believed that devoting even more resources to retaining a larger share of payments would not be cost-effective, given the modest size of the maximum PBIP earning opportunity relative to payments for participation. (The maximum PBIP that practices could earn was $2.50 PBPM for Track 1 and $4.00 PBPM for Track 2; much lower than CMS' care management fee payments, which average $15 PBPM for Track 1 and $28 PBPM for Track 2.) Additionally, several practices reported struggling to identify more actionable changes they could make to prevent hospital admissions, beyond the care management activities they were already providing patients at high risk.

Closer look: Practices joining or leaving the Medicare Shared Savings Program in Program Year 2

At the start of PY 2, CPC+ practices were able to change their SSP participation status, and 13 percent of practices that joined CPC+ in 2017 did so: 8 percent joined SSP, and 5 percent withdrew from SSP.

Among deep-dive practices that changed their SSP participation status, most reported that considerations related to SSP payments drove their decision. In particular, among practices that withdrew from SSP, most were in ACOs that recorded losses in SSP the previous year; the remaining practices were in ACOs that earned shared savings but were concerned about exposure to downside risk in future years of SSP participation. Most practices reported that CPC+ PBIP payments played little or no role in their decisions to change their SSP participation status, in large part because PBIPs' maximum earning opportunity is small relative to care management fees and potential shared savings payments. The deep-dive practices that joined SSP cited financial projections showing that the ACOs they were joining would earn shared savings as the motivation for their decision.

Enhanced payments in Program Year 1

What enhanced payments did payer partners provide?

All eight payer partners in 2018 regions provided enhanced payments to CPC+ practices in PY 1. Practices used similar strategies as payer partners in 2017 regions, with most payer partners using care management fees to pay practices for participating in CPC+ and either shared savings opportunities or retrospective bonus payments for performance to reward practices for improving quality, decreasing utilization, or reducing costs.

How did practices use and perceive **enhanced payments?**

We interviewed four deep-dive practices that joined CPC+ in 2018 about their experiences with CPC+ payments. All four practices reported that CPC+ funding enabled them to make substantial care delivery changes in their first year. This finding is generally consistent with the experiences reported by deep-dive practices that started CPC+ in 2017. Although the small sample sizes make comparisons across cohorts challenging, the 2018 cohort reported fewer significant payment-related challenges and concerns than the 2017 cohort reported in its first year.

A.2. Alternative to FFS payments

For Track 2 practices, CMS and payer partners agreed to change the way they pay for services. Specifically, payer partners agreed to use an alternative to the historically common FFS payment approach. Under FFS, practices are paid for each visit or service they provide. Under alternative approaches, payer partners provide lump sum payments to practices in advance. Correspondingly, payer partners reduce or eliminate FFS payments. Alternative to FFS payments aim to increase practices' flexibility to deliver services or types of visits (such as home visits or group visits) that might benefit patients, but for which they cannot bill under many traditional FFS payment arrangements.

What alternative to FFS payments did CPC+ payer partners provide?

CMS' approach. CMS started using an alternative to FFS approach for Track 2 practices in PY 1, increasing the percentage of all Track 2 practices' patients covered by an alternative approach from 3 percent before CPC+ began to 16 percent in PY 1 (Figure 3.9). CMS uses an alternative to FFS approach to pay Track 2 practices for selected E&M services. For a given CPC+ practice, CMS calculates the average cost for those E&M services in an annual historical period. Then, it pays Track 2 practices a proportion of that amount prospectively at the beginning of each quarter—this payment is referred to as the Comprehensive Primary Care Payment (CPCP). CMS then correspondingly reduces FFS payments for those E&M services by that same proportion. CMS designed the CPCP payment plus the reduced FFS payments with the goal of being revenue neutral for the practice.[15]

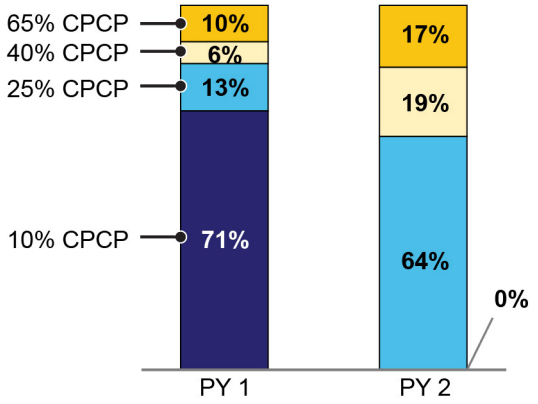
In PY 2, Track 2 practices could elect to have 25, 40, or 65 percent of their payments for selected E&M services paid prospectively via the CPCP, a shift from PY 1 when practices also had the option of choosing 10 percent. By PY 3, all Track 2 practices will be paid under one of two hybrid payment options (40 or 65 percent CPCP). The gradual buildup of the hybrid payment is intended to help some practices adjust to this payment mechanism over time.

[15] As noted in Section A.1, CMS provides Track 2 practices with an additional enhanced payment referred to as the comprehensiveness supplement. The comprehensiveness supplement is equal to 10 percent of the CPCP, and averaged $0.35 PBPM during the first two years of CPC+. As this payment is in addition to historical payments for services, we consider it an enhanced payment.

As in PY 1, the largest share of Track 2 practices (64 percent) elected the minimum CPCP percentage in PY 2. The percentage of practices electing the minimum CPCP percentage category decreased 7 percentage points from PY 1 to PY 2, while the percentage of practices electing the highest category (65 percent CPCP) increased 7 percentage points from PY 1 to PY 2 (Figure 3.8).

Figure 3.8. Percentage of Track 2 practices selecting a given CPCP percentage, by program year

Most Track 2 practices continue to select the minimum CPCP, which in PY 1 was 10 percent, and in PY 2 was 25 percent.



Source: Mathematica's analysis of 2017 and 2018 payment data provided by CMS.

Note: N = 1,520 Track 2 practices.

CPCP = Comprehensive Primary Care Payment.

Payer partners' approaches. The proportion of Track 2 practices' patients covered by an alternative to FFS approach increased slightly from PY 1 to PY 2 (from 16 to 19 percent), as a few additional payer partners started offering alternative to FFS arrangements (Figure 3.9). At the end of PY 2, 22 percent of payer partners were offering an alternative to FFS approach, up from 16 percent in the year before CPC+ and in PY 1. (All payer partners that used alternative to FFS payment approaches in PY 1 reported that those approaches pre-dated CPC+.) This finding indicates some progress but fell well short of CMS' goal that all payer partners offer an alternative to FFS payment approach by the start of PY 2.

"We were already heading toward changing reimbursement for primary care, but [partnering in CPC+] put us on a faster progression down that road."

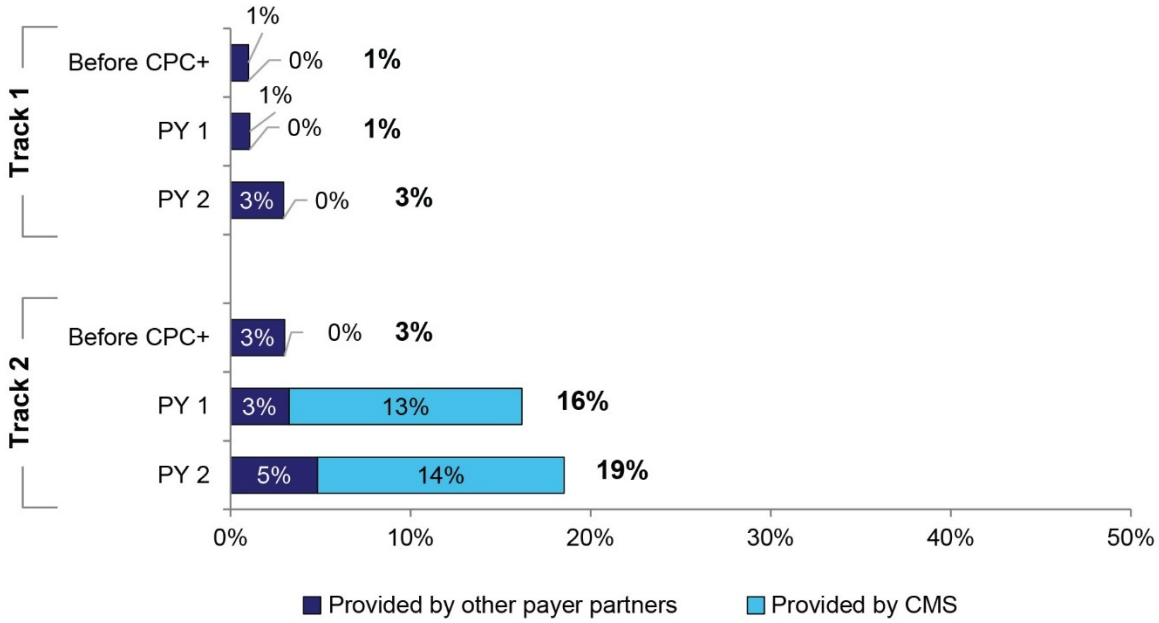
—Large payer partnering in one CPC+ region, fall 2018

In PYs 1 and 2, payer partners cited similar barriers to implementing alternative to FFS payment approaches: practices' reluctance or lack of readiness to accept alternative to FFS payments, or both factors, and the cost and complexity of payer partners switching claims processing systems to accommodate alternative to FFS payments.

In contrast to CMS, most of the payer partners using an alternative to FFS payment approach in PY 2 did so for practices in *both* tracks. Additionally, the degree to which payers had shifted away from FFS varied. On the 2018 CPC+ Payer Survey, 11 of the 12 payer partners providing alternative to FFS payments reported the proportion of their payments to Track 2 practices that were paid prospectively in PY 2. The median proportion was 50 percent, with three payer partners reporting 15 percent or less and three payer partners reporting prospective payments made up 95 percent or more of their total payments to Track 2 practices.

Figure 3.9. Approximate percentage of all patients served by CPC+ practices for which CMS or payer partners provided alternative to FFS payments

The proportion of CPC+ practices' patients covered by an alternative to FFS payment arrangement increased *very slightly* from PY 1 to PY 2, and was below CMS' expectations for Track 2 practices.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Payer Survey and the 2018 practice-reported financial data submitted to CMS.

Note: N = 54 payer partners. We excluded 10 payer partners from this analysis. Five did not complete the 2018 CPC+ Payer Survey; another 5 did not have direct contracts with any CPC+ practices and, thus, could not provide CPC+ supports.

N = 1,268 Track 1 practices and 1,445 Track 2 practices. Track 1 practices reported serving 6,726,968 patients, and Track 2 practices reported serving 9,030,671 patients in PY 2.

FFS = fee-for-service

How did CPC+ practices use and perceive alternative to FFS payments?

CMS' approach. As in PY 1, many deep-dive Track 2 practices remained concerned about moving to prospective, alternative to FFS payments and were hesitant to take on the associated additional financial risk. Practices that elected the minimum CPCP percentage of 25 percent in PY 2 were especially likely to express these concerns. Several of these practices expressed mixed or negative reactions to using alternative to FFS payments to deliver care outside of the traditional office setting. Moreover, a few of these practices appeared to reject the premise that primary care practices should move away from FFS altogether.

Despite hesitation, a few more deep-dive practices implemented alternatives to traditional office visits in PY 2 than in PY 1. Several of the 11 Track 2 deep-dive practices we interviewed that chose the minimum CPCP percentage of 25 percent in PY 2 had begun implementing alternative visits by the end of PY 2 (an increase from a few in PY 1); a couple of these practices had launched multiple types of alternative visits. About half of the six Track 2 deep-dive practices that elected higher CPCP levels of 40 percent or 65 percent in PY 2 expressed

enthusiasm about moving away from FFS, and most made progress launching or expanding multiple types of alternative visits in PYs 1 and 2.

Payer partners' approaches. The sample of deep-dive practices we interviewed about CPC+ payment included only a few practices that had alternative to FFS arrangements with payer partners. These arrangements were all longstanding capitation contracts. These practices shared limited information about their arrangements, generally reporting only that the capitation contracts made them comfortable accepting prospective payments and providing non-visit-based care.

Alternative to fee-for-service payments in Program Year 1

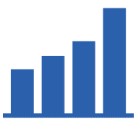
What alternative to FFS payments **did payer partners provide in PY 1?**

Three of the eight payer partners in 2018 regions offered an alternative to FFS payment approach to at least some practices in PY 1. All three of these payers used capitation as their alternative to FFS approach, with one payer using full primary care capitation and two using partial capitation in lieu of paying FFS for claims-based E&M visits. Two of these three payers continued their longstanding capitation contracts with practices; the remaining payer launched a capitation approach as a result of partnering in CPC+.

How did practices use and perceive **alternative to FFS payments?**

We interviewed four deep-dive Track 2 practices that joined CPC+ in 2018 about their experiences with alternative to FFS payments. Three of the four practices utilized CMS' CPCP to implement alternative visits in PY 1; two of these practices expressed enthusiasm for moving away from visit-based services and launched multiple types of alternative visits. One of the four practices did not implement any alternative visits in PY 1; instead, this practice pooled the funding from both its care management fees and alternative to FFS payments to support care management activities and expanded office hours.

B. Data feedback



The goal of aggregating claims data feedback is to improve practices' view of their entire patient population and reduce the burden on practices to access, review, and reconcile multiple reports or tools. When joining CPC+, payer partners committed to providing practices with data at least quarterly about utilization of services, total cost of care, or both. CMS required Track 1 and Track 2 practices to use claims data to improve population health management. Most payer partners also provided practices with quality data.

CMS and payer partners also agreed to develop a common approach to quality measurement and data feedback to streamline data review and make reports more actionable for practices. To do so, CMS encouraged payers to aggregate claims data feedback in each region to improve practices' view of their entire patient population and reduce the burden on practices to access, review, and reconcile multiple reports or tools. To aggregate data across payers in a given region,

payers submit their claims data to a third-party vendor that produces a single report or tool analyzing and presenting that data.

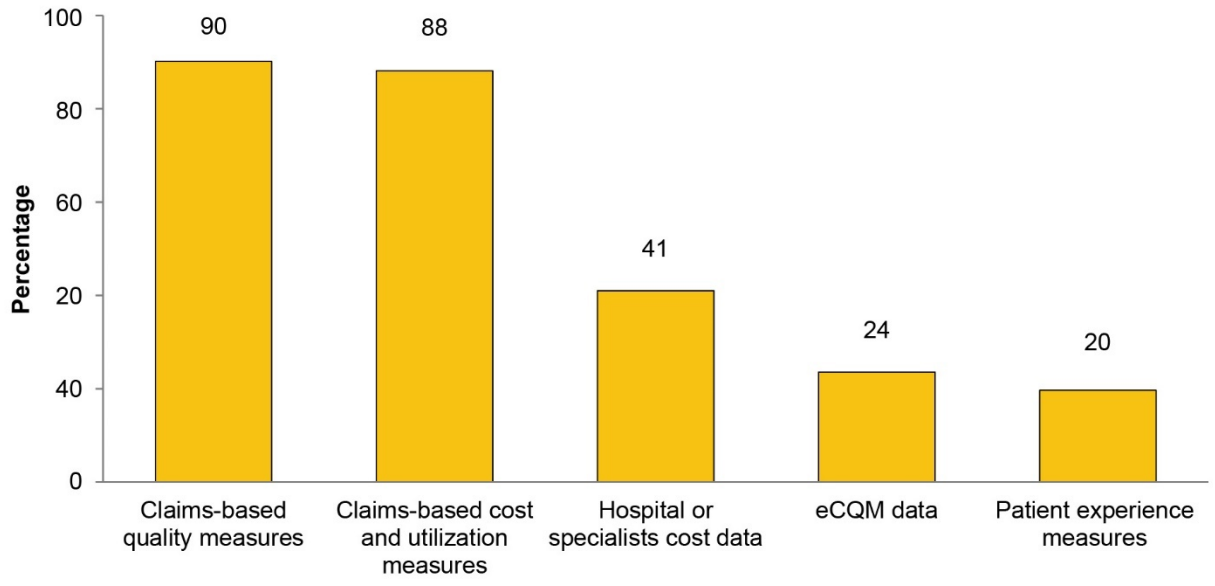
What data feedback did CPC+ payer partners provide?

As in PY 1, CMS and most payer partners provided CPC+ practices with data feedback to support continuous quality improvement in PY 2 (94 percent), which comes close to meeting CMS' goal that all payer partners provide this support. Almost all of these payer partners provided practices data feedback before CPC+, and improvements made to their feedback reports during CPC+ have generally been implemented for both their CPC+ and non-CPC+ practices.

As in PY 1, payer partners providing data feedback most commonly included claims-based quality measures (90 percent of payers offering data feedback) and claims-based cost or utilization measures (88 percent) in their reports or tools (Figure 3.10). Additionally, about 40 percent of payer partners provided hospital and specialist cost data, whereas fewer than one-quarter shared eCQMs (24 percent) or patient experience measures (10 percent). As in PY 1, CMS and most payer partners continued to provide these data in several ways in PY 2: at the patient level, and then aggregated to the practitioner, practice, or system levels.

Figure 3.10. Among payer partners providing data feedback, percentage that included types of data in their feedback reports and tools in PY 2

Payer partners most commonly included claims-based quality and cost and utilization measures in their feedback.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Payer Survey.

N = 54. We excluded 10 payer partners from this analysis. Five did not complete the 2018 CPC+ Payer Survey, and another 5 did not have direct contracts with any CPC+ practices and, thus, could not provide CPC+ supports.

eCQM = electronic clinical quality measure; PY = Program Year.

In PY 2, CMS and payer partners changed their data feedback by:

- **Further aggregating data across payer partners.** In PY 2, CMS and payer partners in five regions aggregated data feedback. Before CPC+, payers in three regions—Colorado, Ohio/Kentucky, and Oklahoma—provided practices aggregated data feedback that included Medicare FFS data; these payers continued to do so for CPC+ practices throughout PYs 1 and 2. In PY 2, Ohio/Kentucky added data from five Medicaid managed care plans to their aggregated feedback, which included data from Medicare FFS and commercial payer partners only in PY 1. Additionally, in PY 2, CMS and payer partners in two other regions—Greater Philadelphia and Oregon—started aggregating data.

  Two additional regions—Arkansas and Michigan—actively pursued data aggregation in PY 2 and may provide aggregated feedback in future program years.[16] For example, Michigan developed a tool and received data from one payer partner but had not yet shared its dashboard with practices. The remaining six regions that began CPC+ in 2017 had not made significant progress with data aggregation in PY 2 or have decided not to pursue data aggregation actively as a regional priority.

Closer look: Data aggregation limitations and challenges

Payer partners reported similar challenges to data aggregation in PY 1 and PY 2.

- Most payer partners that provide aggregated feedback—including CMS—provide that feedback *in addition* to their individual, unaggregated reports or tools. Thus, data aggregation has not reduced the number of reports or tools practices receive.
- Many payer partners report that aggregating data requires significant time and resources.
- Payer partners in a couple of regions aggregating data in PY 2 reported it is time-intensive to educate practitioners and practice staff to use aggregated data effectively.

- **Improvement in data feedback usability.** In PY 2, CMS switched from providing CPC+ practices with data feedback via an interactive Excel file to using a new business intelligence (BI) tool that includes more detailed data and enhanced filtering capabilities (see box below for further details). Similarly, a few payer partners in PY 2 began supplementing their static reports with data portals or interactive reports (such as Tableau or Excel PowerPivot) or moved away from static reports altogether. Moreover, all five regions that provided aggregated data feedback to practices—including those that joined aggregation efforts in

[16] Payer partners in Arkansas and Tennessee continued to provide *aligned* individual feedback for PY 2—that is, each payer partner distributes this feedback individually, but the measures in the feedback, measure specifications, and feedback structure align with other payer partners.

PY 2—used an interactive format. Data aggregators in a couple of regions worked to improve the usability and interactivity of their tools. For example, payer partners in one region changed the layout of their feedback tool so practices can more easily drill down into patient-level claims to better understand how their patients are receiving care—for example, by type of service.

"We love the [new BI] tool. The providers love it, because they like to see how they're doing compared to their cohorts. We also love that it can be drilled down to the patient level. It's been really helpful and a huge asset."

—Practice transformation supervisor for health system of a small Track 1 practice, spring 2019

Closer look: CMS' new business intelligence tool for interactive data feedback

What is the business intelligence (BI) tool? In August 2018, CMS released its interactive BI data feedback tool, which enables practices to filter their data in a number of ways to focus on areas of interest and see more detail than the previous Excel dashboard provided. For example, practices can drill down to specialist- and patient-level data to identify the specialists most frequently used by the practice, the most expensive specialists, and the Medicare FFS beneficiaries driving practice expenditures.

To what extent are practices using the BI tool? Fifty-seven percent of practices accessed the BI tool from when it was introduced in August 2018 through December 2018, the end of PY 2.

What are practices' perspectives on using the BI tool? Deep-dive practices generally shared positive feedback about the content and structure of the BI tool. Most commonly, practices appreciated:

- The ability to drill down to patient-level data, such as which patients have gone to the ED or been admitted to the hospital. Care managers used this information to identify patients who may be appropriate for care management.
- Specialist-level data, including which specialists their patients are seeing and their related costs. Practices may use this information to adjust referral patterns.
- The ability to identify trends in cost and utilization data to track practice performance.

What early challenges are practices experiencing? Though not specific to the BI tool, several practices expressed frustration with the lag in data availability, which can make data less actionable. In addition, some practice staff noted challenges with the BI tool:

- Several deep-dive practices indicated that the quantity of data and options for analyzing it can be overwhelming. To address this issue, practices in one region noted their practice facilitator helped practitioners and other practice staff navigate the tool and suggested specific data on which to focus.
- A couple of system-level staff noted information from the BI tool can be difficult to share with the primary care practitioners in their practices. Unlike the previous CMS Excel dashboard, the BI tool does not offer a printable comprehensive summary report that they can easily share.

How did practices review and use data feedback?

Availability and review of data feedback. For the last quarter of PY 2, 97 percent of practices reported to CMS that they knew Medicare FFS feedback was available, an increase from 89 percent in PY 1. A high but slightly smaller proportion of practices (87 percent) reported that data feedback from payer partners was available; the remaining practices may include a mix of practices without access to it and those unaware of their access. Reflecting some advances in data aggregation, 44 percent of practices reported data feedback from multiple sources was available (through a Health Information Exchange [HIE], all-claims payer database, or claims data aggregator), an increase from 37 percent in PY 1.[17]

As in PY 1, several deep-dive practices owned by a hospital or health system continued to designate system-level staff to review payer feedback reports for all practices in the system and, in many cases, simplify the data so practices could more readily interpret the main themes and identify areas for improvement. In some cases, system-level staff put the main takeaways into a separate document or created simplified tables and graphs to help busy practitioners and staff review the data. A few system-level deep-dive respondents indicated this process would have been easier if CMS had provided data feedback at the system level.

Use of data feedback. According to the 2018 CPC+ Practice Survey, most practices that reviewed data feedback used it to guide changes in care delivery. One-half of CPC+ practices reported making at least one major change to how they deliver care in response to data feedback, and most of the remaining practices (46 percent) reported making at least a minor change. Practices were most likely to report making major changes based on quality-of-care data (28 percent of practices), followed by service utilization data (20 percent of practices). The proportion of practices making changes as a result of data feedback did not differ meaningfully by CPC+ track, practices' participation in SSP, or ownership status (independent versus owned by a health system or hospital).

As in PY 1, many deep-dive practices used data feedback from CMS and payer partners to prioritize areas for quality improvement and identify patients who could benefit from additional services or supports. For example, a few deep-dive practices used data on ED and hospital utilization to identify and increase support to patients who might benefit from increased care management. As a result of analyzing payer data feedback, another deep-dive practice realized patients often sought care at an ED when an office appointment was not available; this practice hired an additional provider to expand access.

Challenges using data feedback. While recognizing the value of data to drive practice change, payer partners and practices continued to acknowledge that data feedback provided by payers could be improved. Below, we summarize challenges practices faced using data feedback in PY 2, and how payer partners tried to address them.

CMS and payer partners may not provide feedback from claims data until three to six months after the date of service, which presents challenges for population health management and timely

[17] CMS asked practices to report on data availability and its use as part of their quarterly reporting on meeting care delivery requirements.

quality improvement. However, in PY 2, as practices' data systems and monitoring tools have advanced, some practices have been able to compile their own data (for example, from their EHRs) and therefore rely less on payers' claims data for rapid-cycle quality improvement.

Practices continued to need assistance to use data feedback effectively; a few payer partners reported providing more assistance in PY 2 than in PY 1. For example, a couple of payers indicated they provided practices with more individualized support, answering specific questions about their data feedback via email or phone. These payers reported that this support resulted in practices using their data feedback more consistently.

In PY 2, deep-dive practices in regions where data feedback was not aligned or newly aggregated reported that using data feedback from multiple payer partners was complex and required significant time and staff resources. Several deep-dive practices reported feeling overwhelmed by payers' data feedback. They were focused on meeting other care delivery requirements and so had not utilized every payer's data feedback for quality improvement. Instead, these practices primarily relied on CMS' data feedback and their own internal data analysis to inform quality improvement.

Data feedback in Program Year 1

What data feedback did payer partners provide?

- CMS provided the same Medicare FFS data feedback in 2018 to practices in both 2018 and 2017 regions. That is, practices that joined CPC+ in 2018 received data feedback from CMS via its BI tool beginning midway through their PY 1 (whereas practices in 2017 regions began to access it in their PY 2, after having used the Excel tool in PY 1).
- All payer partners in 2018 regions also provided data feedback to practices.
- Partnering payers in the Greater Buffalo region of New York and Louisiana are working toward data aggregation but had not yet provided aggregated data to practices in PY 1, and CMS had not yet committed to providing Medicare FFS data for aggregation in these regions. Because the other two 2018 regions each have a single partnering payer, they are not pursuing data aggregation with CMS.

How did practices review and use data feedback?

- *Using data*. Several deep-dive practices that began CPC+ in 2018 had not started using data feedback from CMS to guide population health efforts during PY 1. The few deep-dive practices that were using feedback data from CMS or payer partners used it in ways that were similar to the PY 1 experience of practices that started in 2017, such as guiding quality improvement initiatives to reduce ED and hospital utilization and identifying high-cost specialists.
- *Experiencing challenges*. Practices that started in 2018 experienced similar challenges to using payer partners' data feedback in their first year as practices starting in 2017, such as competing priorities, difficulty interpreting payer feedback reports, and concerns about lags in claims data.

C. Learning activities

In addition to CMS and payer partners providing practices with enhanced and alternative payments and data feedback, CMS continues to sponsor CPC+ learning supports. These activities aim to (1) provide practices with detailed information and resources on the Comprehensive Primary Care Functions and care delivery requirements and (2) promote peer learning among CPC+ practices.

CPC+ payer partners did not commit to providing CPC+ practices with learning support in their memoranda of understanding with CMS. Although they did not commit to leading CPC+ specific learning activities, 80 percent of payer partners indicated they offered technical assistance or practice coaching to CPC+ practices as part of their other practice transformation programs in PY 2. Ninety-three percent of payer partners—including all of those providing learning support to CPC+ practices and a couple of others—offered at least some technical assistance to non-CPC+ practices in PY 2.

In this section, we first provide an overview of the learning activities CMS and payer partners provided in PY 2 to practices that began CPC+ in 2017 (Section C.1). We then provide more details on each type of learning activity, noting how those activities changed from PY 1 and how those supports could be improved in future years (Section C.2).

C.1. Overview of CPC+ learning activities

What learning support did CMS and payer partners provide?

CMS' learning activities. CMS provides learning support to all CPC+ practices in several ways:

- The National Learning Team (NLT) leads CPC+-wide learning activities, such as hosting national webinars and disseminating information about CPC+, to all practices.
- The Regional Learning Network (RLN) provides region-level learning supports, including regional learning sessions and tailored one-on-one support to individual practices (called "practice coaching" or "practice facilitation").
- The implementation contractor—which supports CMS' work on a range of areas including onboarding practices and calculating CPC+ payments—maintains a help desk for practices.

CMS offered the same three types of support in PY 2 as in PY 1: (1) information dissemination tools, (2) group learning activities, and (3) tailored support through one-on-one or small group coaching (Table 3.1).

Table 3.1. Summary of CPC+ learning activities provided by CMS in PY 2

Information dissemination	Group learning activities	Tailored support
CPC+ Connect: Web-based collaboration platform moderated by CMS learning contractors; used by practices to get guidance and share ideas and resources ***CPC+ Implementation Guide:*** Reference document detailing care delivery and reporting requirements and helpful references ***Help desk:*** A centralized help desk that CPC+ practices contact with questions	***Regional learning sessions:*** Full-day, in-person meetings hosted in each region twice a year ***Regional Implementation Networking Groups (RINGs):*** Virtual regional groups for practice leads and care managers ***Health IT Affinity Groups:*** Groups that bring practices together with their health IT vendor and/or other practices that use the same vendor to discuss solutions to using health IT to support CPC+ implementation ***Other group learning activities (national webinars, Practice in Action meetings, office hours)****:* Virtual meetings for practices hosted by CMS learning contractors	***Practice coaching:*** Phone-based, virtual, or in-person interactions for practices identified as needing additional assistance

In PY 2, CMS made minor refinements to the CPC+ learning activities in response to stakeholder feedback and to improve the usability of supports offered in PY 1. They also added a new group learning activity, Regional Implementation Networking Groups (RINGs) to replace virtual learning sessions.[18] RINGs are the first role-specific learning activity in CPC+. Practice facilitators conducted RINGs regionally, with one RING convened for practice leads and one for care managers. The replacement of virtual learning sessions with RINGs resulted from CMS' ongoing efforts, starting in PY 2, to focus resources on learning supports that seemed most beneficial to practices. Changes to the learning supports continued into PY 3, and we will detail them in the third annual report.

Payer partners' learning activities. Although payer partners are not leading learning activities specific to CPC+, about 80 percent of payer partners that had contracts with practices provided learning support to CPC+ practices through their other primary care transformation programs in PYs 1 and 2.

On the 2018 CPC+ Practice Survey, about half of CPC+ practices reported they received learning support from payer partners in the first half of PY 2. Specifically, practices reported receiving the following support from payers:

1. Explanations of CPC+ payment methodologies (51 percent of practices),
2. Training on how to use payer partners' data feedback (53 percent), and
3. Coaching on how to improve practice processes and workflows (48 percent).

[18] CMS continued to conduct two in-person learning sessions in PY 1 and PY 2.

How did practices use and perceive CPC+ learning activities?

CMS' learning activities. On the 2018 CPC+ Practice Survey, 82 percent of practices indicated satisfaction with the CPC+ learning community overall, with 17 percent of practices rating CPC+ technical assistance and practice coaching as excellent at meeting their CPC+-related needs and helping them improve primary care.[19] Overall ratings of these learning supports did not differ meaningfully by practice track or whether a practice was independent or owned by a hospital or health system.

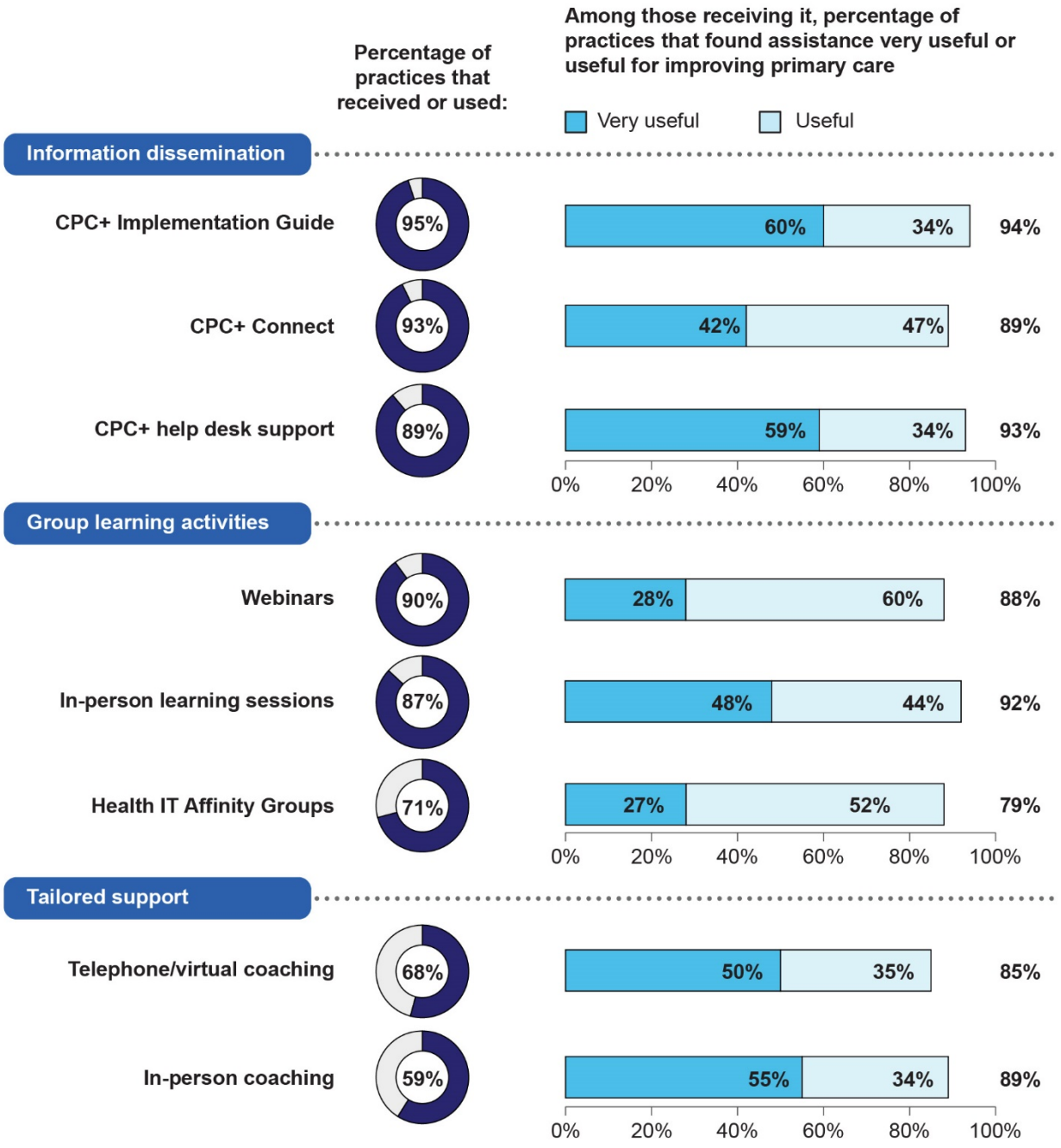
A large proportion of CPC+ practices participated in or used each of CMS' learning activities in PY 2. On the 2018 CPC+ Practice Survey, practices were asked to indicate whether they had attended or used a given CPC+ learning activity in the prior six months (approximately the first half of PY 2) and, if so, to rate its usefulness. Most practices reported using the CPC+ Implementation Guide, CPC+ Connect, and the CPC+ help desk and participating in webinars and in-person learning sessions (Figure 3.11). Many practices reported they attended health IT Affinity Groups or received in-person or virtual practice coaching.

Practices that attended CMS' learning activities generally found them to be useful or very useful for improving primary care. Among practices attending a given learning activity, practices reported on the 2018 CPC+ Practice Survey that information dissemination, via the Implementation Guide or help desk, and tailored in-person coaching were the most useful supports, with more than 50 percent of practices reporting each was very useful for improving primary care (Figure 3.11). Fewer practices found virtual group learning activities—specifically webinars and health IT Affinity Groups—to be very useful.

[19] Sixteen percent of practices rated CPC+ technical assistance and coaching as "fair," and 2 percent rated them as "poor."

Figure 3.11. Practices' use and perceptions of CMS' CPC+ learning activities in the first half of PY 2

Practices were highly engaged with each of CMS' learning activities in PY 2 and generally found them useful. Among those engaged in an activity, practices found the CPC+ Implementation Guide and tailored one-on-one support via the CPC+ help desk or practice coaching were most useful for improving primary care.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Practice Survey.

Note: N = 2,765 CPC+ practices. The survey asked practices about their use of CPC+ learning activities in the prior six months (approximately the first half of PY 2). Practices' self-report of their use of learning activities may differ from actual use.

Track 2 practices had different perceptions of the implementation guide and health IT Affinity Groups than Track 1 practices. Track 2 practices were more likely to attend *health IT Affinity Groups* than Track 1 practices (75 percent compared with 66 percent), but Track 2 practices that attended those meetings were less likely to find them very useful than Track 1 practices that attended (19 percent compared with 38 percent). This finding may reflect that Track 2 practices have more extensive health IT requirements than Track 1 practices and are therefore more likely to need the support (thus higher attendance) but also likely to have a higher bar for ranking that support as very useful for meeting their needs (thus lower rankings of usefulness). In contrast, practices across tracks used the *CPC+ Implementation Guide* at similar rates, but Track 2 practices found it more useful.

Payer partners' learning activities. Practices also found supports from payer partners useful for improving primary care, although they rated them somewhat less highly than supports provided by CMS. On the 2018 CPC+ Practice Survey, more than three-quarters of practices that reported they received explanations of CPC+ payment methodologies, training on how to use payers' data feedback, and coaching on how to improve practice processes and workflows from payer partners reported that the assistance was useful. However, only one-quarter of practices reported those supports were very useful, whereas several of CMS' CPC+-specific learning supports received very useful ratings from more than 45 percent of practices that received them.

Learning activities in Program Year 1

What learning activities did payer partners provide?

- Practices in the 2017 and 2018 cohorts received similar learning supports in 2018 (PY 2 and PY 1, respectively). CMS provided the same set of supports across all regions and, as in 2017 regions, many payers in 2018 regions also reported that they provided technical assistance or practice coaching to CPC+ practices.

How did practices use and perceive learning activities?

- Practices that started CPC+ in 2018 reported similar experiences with CPC+ learning activities to that of practices that started CPC+ in 2017. In particular:
  - Several deep-dive practices that began CPC+ in 2018 reported that the implementation guide helped them to understand care delivery requirements and saw it as a resource that clarifies the changes their practice needs to make to meet the care delivery requirements.
  - Several of the deep-dive practices that joined in 2018 reported that they generally had positive experiences with practice coaching. These practices reported that the practice facilitators provided tangible examples and advice, including helping them to embed care managers and pharmacists into their practice and to understand the CPC+ payment methodology.

C.2. Detail on CPC+ learning activities

C.2.a. Information dissemination tools

CMS and its learning and operations contractors used three tools to disseminate comprehensive information on CPC+ to practices and to encourage information sharing among practice participants:

1. *The 2018 CPC+ Implementation Guide*, a reference document disseminated by the National Learning Team that details care delivery and reporting requirements and helpful references.
2. *CPC+ Connect*, a web-based, peer-to-peer collaboration platform. The platform is moderated by CMS learning contractors responsible for responding to questions rapidly and promoting networking and sharing of ideas and resources among CPC+ practices.
3. *The CPC+ support help desk,* staffed by operations contractors that answer practices' questions about CPC+ (for example, about the payment methodology or about reporting requirements) by phone or email. Most deep-dive respondents found that help desk staff responded quickly, tracked issues efficiently, and saved practices time by sending them information directly instead of requiring practices to look up answers on their own.

Changes to supports in PY 2. In PY 2, CMS modified the implementation guide slightly, and practice facilitators provided additional support to help practices navigate the revised guide. CMS and learning contractors added information to the 2018 version of the guide, such as frequently asked questions on care delivery requirements and additional callout boxes that describe important elements or actions critical to achieving practice transformation. CMS also added information on CPC+ reporting requirements and its CPC+ payment methodology. In addition to revisions to the guide, practice facilitators reported providing more assistance to support practices in navigating the guide and to clarify complex language for practices.

Findings from deep-dive practice interviews suggest these modifications were helpful. Whereas deep-dive practices commonly reported that the length of the 2017 Implementation Guide was overwhelming or that the language was often vague, "bureaucratic," or difficult to interpret in PY 1, deep-dive practices had more positive views of the guide in PY 2. Deep-dive practices reported they found the guide helpful to clarify rules and requirements, such as what constitutes an alternative visit or care plan.

C.2.b. Group learning activities

As in PY 1, the NLT and RLN offered CPC+ practices a range of group learning activities in PY 2. CMS did not require practices to participate in group learning activities and also gave practices the flexibility to decide which staff attended them. Through group learning activities, CMS and its contractors sought to promote peer learning among practices (see text box). These activities include:

- *RINGs,* which were virtual meetings held separately for practice leads and care managers that occurred monthly or quarterly depending on the region.

- *In-person learning sessions,* which practice facilitators held twice in PY 2 in each region (similar to PY 1).
- *Health IT Affinity Groups,* which the NLT hosted in PYs 1 and 2 to bring practices together with either their health IT vendor, other practices that use the same vendor, or both, to discuss solutions to using health IT to support CPC+ implementation. Affinity Groups also had vendor-specific virtual groups on CPC+ Connect.
- *Other activities* hosted by the NLT, including (1) national webinars, which provide timely information on CPC+ to all CPC+ practices; (2) Practice in Action meetings, which are standalone weekly webinars that share a practice's story implementing the CPC+ functions; and (3) office hours, which are virtual sessions that enable practices to ask questions and directly engage with CMS staff and its contractors.

Changes to supports in PY 2. In PY 2, national webinars and regional learning sessions evolved from covering basic to more complex topics. For example, instead of foundational information about the care delivery requirements, the NLT's presentations in PY 2 focused on more advanced strategies for meeting the care delivery requirements and implementing the Comprehensive Primary Care Functions.

"We are moving [regional learning sessions] away from panel discussions [that] regurgitate the care delivery requirements and what practices' goals should be. We're moving more toward opportunities for practices to share what they're doing. So, if we're talking about screening for social needs, what are the tools that you're using? I'm not the one who is actually implementing these things. So, it helps practices to hear from others like themselves [instead of me], because I'm not on the front line."

—CPC+ practice facilitator, fall 2018

In PY 2, CMS also replaced virtual learning sessions with RINGs. In each region, separate RINGs were held for (1) practice leads and (2) care managers. Participants communicated during regular virtual meetings and a private forum on CPC+ Connect. Although practice facilitators conducted RINGs virtually, the role-based nature of RINGs makes them different from previous virtual learning sessions, which were open to practice staff in any role. The RINGs featured participant-driven discussions, rather than delivering the content in a traditional didactic way. Finally, RINGs occurred more frequently in PY 2 than virtual learning sessions did in PY 1. Since April 2018, the RLN has hosted 140 RING meetings across the CPC+ regions, while in PY 1, the RLN held virtual learning sessions twice in each of the 14 regions, for a total of 28 sessions.

Most of the eight practice facilitators interviewed found the RINGs for care managers useful for both practices and facilitators, because they fostered peer learning and helped facilitators to better support practices. Practice facilitators perceived that, compared with other CPC+ learning activities, such as learning sessions or webinars, the small-group nature and frequent meetings of RINGs for care managers made participants feel more relaxed and open during sessions. Additionally, they said that the unstructured agenda of RINGs facilitated the engagement of care managers by enabling them to raise issues that are timely and relevant to them. A few practice facilitators also perceived that RINGs gave them unique insights into the practices in their regions and helped them better understand the issues faced by practices because

they had the opportunity to interact frequently with many practices. Before the RINGs, their frequent interactions were limited mostly to practices that received regular coaching.

Practice facilitators characterized the RINGs for practice leads as less successful. Practice facilitators reported that RINGs for practice leads had fewer attendees and less participation than did RINGs for care managers.

Improvements for future years. CPC+ practices made suggestions for how to further improve group learning activities in PY 3 and beyond. Below, we summarize their suggestions and highlight related planned improvements by CMS and its contractors.

- *Provide additional support for meeting health IT requirements.* In PY 2, CPC+ practices—in particular those in Track 2—tended to rate health IT Affinity Groups less favorably than other CPC+ learning activities. To boost learning support regarding health IT, CMS, with its learning contractors and operations contractors, planned to work with vendors to increase engagement in health IT affinity groups and to develop resources and webinars on using health IT to support CPC+ implementation in PY 3.
- *Provide learning supports for different groups of practices.* As in PY 1, deep-dive practices indicated it was hard to learn from practices at different transformation stages or with different characteristics (for example, small, independent practices may have a hard time learning from large, system-owned practices). To address this challenge, a few practice facilitators expressed interest in creating RINGs for practices with similar levels of advancement implementing CPC+ or with the same EHR vendor.

> **"The resources are primarily for newer practices where this is a new concept for them. We're a little too advanced for the type of trainings that are generally offered."**
>
> ***—Pharmacist at a large, independent Track 1 practice, spring 2019***

- *Increase flexibility in who attends learning activities or when they are scheduled.* In PYs 1 and 2, a few deep-dive practices noted that lack of time was their biggest challenge to attending group learning sessions.
- *Refine webinar content.* A few practices reported they did not find the webinars helpful in either program year; they either wanted CMS to give more specific and detailed information on how to meet CPC+ requirements or sought more advanced presentations on practice transformation.

Closer look: Promoting peer learning among CPC+ practices

What facilitated peer learning in PY 2? Most deep-dive practices appreciated CPC+ learning activities that promote peer learning and generally felt it was best promoted via in-person learning sessions or during role-specific groups such as RINGs. Practice facilitators used various strategies to promote peer learning during in-person learning sessions, such as assigning seats to encourage participants to interact with new people, giving participants networking cards to facilitate sharing contact information, and continually reminding practices about approaching CPC+ with a collaborative—not competitive—mindset. Less commonly, practices and practice facilitators reported that peer learning occurred via CPC+ Connect, during small group coaching sessions, or during webinars (for example, through the webinar chat feature).

Although practices appreciated CPC+ peer learning opportunities, several deep-dive practices reported that peer learning was primarily facilitated by learning networks established *outside of CPC+,* such as those supported by ACOs, health systems, commercial payers, or regional physician organizations. These learning networks typically existed before CPC+. A few deep-dive practices thought CPC+ may have improved participant engagement in those learning networks, because it gave the host and participants more content to discuss.

What factors limited peer learning in PY 2? Several practice facilitators and deep-dive practices reported practice staff and leaders were already busy, and therefore found it difficult to make time to connect with other practices. In particular, practice facilitators were concerned that advanced practices regularly found themselves offering advice to other practices and could feel overwhelmed by the demands on their time.

Additionally, a few practice facilitators reported challenges connecting practices in their regions, especially if a few practices had different characteristics than the others. One deep-dive practice raised a similar concern, noting that few practices in their region used the same EHR as them, which made it difficult to learn from other practices in their region.

Finally, a few practice facilitators reported that some advanced practices preferred to learn from subject matter experts rather than from other practices, because they were concerned about the accuracy of the advice they may receive from other practices.

How can peer learning be sustained? Many practices and practice facilitators would like to see peer learning sustained after CPC+ ends; most thought that learning networks established *outside of CPC+* (for example, those supported by ACOs, health systems, commercial payers, or regional physician organizations) were more likely to be sustained beyond CPC+. Additionally, a couple of practice facilitators suggested that CMS should encourage payer partners and health IT vendors to maintain the learning supports they facilitated during CPC+, or to create new learning supports to replace CMS' after CPC+ ends.

C.2.c. Tailored support

CMS' learning contractors also provided tailored support or "practice coaching" in each region. Although regional practice facilitators were required to provide coaching only to practices prioritized as "moderate-priority" and "priority," data from practice coaching logs suggest facilitators exceeded this requirement. These data indicated that facilitators provided coaching to 73 percent of all practices and 100 percent of practices rated as the highest priority in PY 2 (an increase from 91 percent of the highest priority practices in PY 1). Most deep-dive practices reported receiving virtual or in-person practice coaching and indicated that they benefited from the individualized support. They felt practice facilitators understood the practice's unique circumstances and could offer tailored advice, such as how to implement care management, use pharmacists in their practices, or understand CMS' payment methodology.

Changes to supports in PY 2. In PY 2, in response to concerns raised by practice facilitators, CMS began incorporating input from practice facilitators into the process for prioritizing practices' needs for coaching. In PY 1, CMS and the learning contractors solely used data (such as information practices reported to CMS on their progress toward the Comprehensive Primary Care Functions) to identify practices needing support. Starting in PY 2, practice facilitators could also use their knowledge of the practices (for example, if a practice recently lost a care manager or changed EHRs) to help refine the list of priority practices to receive coaching. However, many practice facilitators in PY 2, as in PY 1, felt challenged that they still could not be fully transparent with practices about the process for prioritizing practices to receive coaching, and continued to feel constrained by the priority levels assigned to each practice.

Improvements for future years. In PY 3, CMS is making practice coaching available to all practices and providing practice facilitators greater flexibility in how they provide that tailored assistance. Deep-dive practices indicated these changes could be helpful. Although most deep-dive practices reported interacting with their practice facilitators during monthly or quarterly coaching calls in PY 2, several practices expressed interest in additional support such as in-person visits to replace virtual or group coaching sessions and proactive rather than reactive conversations to prevent challenges.

3.4. CPC+ health information technology support

To participate in CPC+, CMS requires both Track 1 and Track 2 practices to use Certified Electronic Health Record Technology (CEHRT) and to report eCQMs to CMS. In addition, CMS requires Track 2 practices to use a series of advanced health IT functionalities (the tasks practices perform using health IT) to support their work on the five Comprehensive Primary Care Functions.

CMS requires only Track 2 practices to formalize a relationship with a vendor for CPC+ by providing a signed memorandum of understanding from their health IT vendor. In PY 2, Track 2 practices in the 2017 regions partnered with 52 vendors that committed to offering advanced health IT functionalities and supporting practices' use of the functionalities. To support this work, practices in both tracks work with health IT vendors through CPC+-sponsored learning

supports—such as health IT Affinity Groups or on CPC+ Connect—or through other vendor-initiated forums outside of CPC+.

In this section, we first describe the enhanced health IT requirements for Track 2 practices. We then describe the support health IT vendors provide to practices and, finally, practices' perspectives on their interactions and partnerships with vendors.

What health IT functionalities do vendors need to support?

In PY 2, CMS refined the list of health IT functionalities that Track 2 practices are required to use. The changes CMS made to the advanced health IT requirements fall into three categories:

1. **Providing practices more flexibility in how they use health IT in PY 2**. CMS removed the requirements for practices to meet the 2015 Edition CEHRT "care plan" and "social, behavioral, and psychological data" criteria from the original care plan and patient psychosocial needs assessment functionalities, respectively. The removal of these requirements gives practices increased flexibility in how they record information and the technology they use to do so.
2. **Relaxing requirements and implementation timelines to account for the current state of technology and its use.** For example, CMS removed the requirement for practices to populate the care plan using data in the patient's record (which was originally in place so that practices would not have to re-enter data from various parts of the EHR into the care plan). CMS also extended the deadline for practices to use health IT to identify patients that could benefit from care management from July of PY 2 (2018) to January of PY 3 (2019). During our interviews with 13 health IT vendors at the end of PY 1, vendors reported challenges developing or supporting these functionalities, signaling the need for relaxed requirements. For example, a few vendors reported it was hard to develop these specific functionalities because there is not a corresponding clinical or industry standard for care plans or a preferred risk-stratification algorithm. Several vendors also reported in PY 1 that they needed more time to develop advancements or get practices up to speed on how to use the functionalities.
3. **Reducing burden**. CMS removed the requirements that CPC+ practices use health IT to document alternatives to traditional office visits and patient-reported outcomes. Limiting the number of required functionalities enabled practices and vendors to focus on higher priority functionalities or functionalities that are more straightforward to develop.

The refined list of advanced health IT requirements for Track 2 practices included functionalities related to three of the five Comprehensive Primary Care Functions.

1. *Planned care and population health.* By midway through PY 2, Track 2 practices were required to use an electronic dashboard to track and analyze their performance on eCQMs at least quarterly to support population health management.
2. *Care management.* By the start of PY 3, Track 2 practices were required to:

- Generate patient risk scores using a health-IT-enabled algorithm to identify patients who could benefit from care management.
- Flag patients who could benefit from care management in their EHR or generate lists of patients with complex needs to ensure patients receive needed care management.
- Use care plan templates within their health IT system that include, at minimum, patient concerns, goals, self-management plans, and action plans.

3. *Comprehensiveness and coordination.* By the start of PY 3, Track 2 practices were required to:
   - Use an electronic screening tool to assess patients' health-related social needs.
   - Store an inventory of resources to meet patients' identified health-related social needs.

CMS required practices to start using the planned care and population health functionalities in PY 2, whereas practices had until the start of PY 3 to implement the other functionalities.

What support did health IT vendors provide?

In PY 1, we interviewed 13 health IT vendors (that worked with 83 percent of Track 2 practices in PY 1). We did not conduct interviews with health IT vendors in 2018 and so do not report findings about the PY 2 experience in this report, but we include a summary of our PY 1 findings below (Peikes et al 2019; Anglin et al 2019). We will provide an update on the PY 3 vendor experience in our third annual report.

In PY 1, many vendors indicated that features available in their products before CPC+ could support some of practices' work on the Comprehensive Primary Care Functions; however, many vendors needed to further improve their functionalities to meet the CPC+ advanced health IT requirements. Many vendors reported they planned to do so in future years and indicated it would take more time to develop advancements and ensure practices understood how to use them. During PY 1, health IT vendors focused on developing new eCQM reporting dashboards for CPC+. Many vendors reported plans to adjust their care plan templates to include all fields required for CPC+.

Roughly half the vendors interviewed in PY 1 reported they collaborated with Track 1 and Track 2 practices during CMS-sponsored CPC+ learning activities (rather than just the required Track 2 practices). Larger vendors (those working with 100 or more CPC+ practices) were more likely to attend CPC+ learning activities than smaller vendors. Most vendors indicated that these activities provided a useful venue for educating practices about existing functionalities and an opportunity for practices to provide feedback on how to improve health IT products so they better support the CPC+ Comprehensive Primary Care Functions.

How did practices use and perceive CPC+ health IT vendor support?

Using health IT functionalities. In PY 2, most deep-dive practices used health IT to support changes in care delivery, but few changed their use of health IT in response to CMS requirements for CPC+. In particular, many deep-dive practices reported that their health IT effectively helped them identify patients who could benefit from care management or who were

due for screenings or other preventive services. A few practices cited EHR dashboards and real-time, automated reports as helpful tools for providers to identify actions needed for population health management. Despite Track 2 practices' enhanced health IT requirements, practices' use of health IT was similar across tracks in PY 2.

Several deep-dive practices reported challenges using health IT to improve their quality of care and reporting, including tracking eCQMs (the one required health IT functionality with a deadline in PY 2). A few of these practices described reports that were inaccurate, delayed, or both, and did not effectively capture the care that had recently been delivered in their practice.

"Getting information into the [electronic health] record in a way that it's retrievable for population health as well as useful for the physician seeing an individual patient are sometimes mutually exclusive."

— Chief medical officer at the system of a large Track 1 practice, spring 2019

Receiving guidance on using functionalities from health IT vendors. In response to the 2018 CPC+ Practice Survey, about half of CPC+ practices (49 percent in Track 1 and 55 percent in Track 2) reported that health IT vendor support was somewhat or very useful for improving primary care. These ratings are somewhat less favorable than their ratings of other CPC+ supports: 75 percent or more of practices reported that financial support, data feedback, and learning activities were useful. Deep-dive practices had similarly mixed experiences working with their health IT vendors, though Track 2 practices appeared to be somewhat more satisfied. Practices were most satisfied when their vendors were proactive and responsive to practice questions.

Support from health information technology vendors in Program Year 1

Practices that joined CPC+ in 2018 have the same health IT requirements as those that joined in 2017. In PY 1, practices in both cohorts needed to use CEHRT and to report eCQMs to CMS. Track 2 practices in 2018 regions will also have to meet advanced requirements starting in their PY 2. We will report on their experiences with health IT vendors in our third annual report.

4. CHANGES TO THE WAY CPC+ PRACTICES DELIVER CARE

For CPC+, CMS requires participating practices to make many complex, interconnected changes in how they deliver care to their patients by focusing on five Comprehensive Primary Care Functions: (1) access and continuity, (2) care management, (3) comprehensiveness and coordination, (4) patient and caregiver engagement, and (5) planned care and population health. To promote progress on these functions, CMS specifies a series of care delivery requirements for practices in each track at the start of each year of CPC+. CMS encourages practices to view the care delivery requirements as starting points to build on as they work to improve the care they deliver. Practices have autonomy to decide how they will approach their care improvement work, including how to implement the care delivery requirements, which broader changes within each function to prioritize, which staff to involve, and how to monitor change. In the second program year (PY 2), CMS added or enhanced several care delivery requirements to encourage practices to take additional steps toward implementing the five functions. (Table 4.1 describes the care delivery requirements, by track and by year, for practices that joined in 2017).

In this chapter, we describe how practices that started CPC+ in 2017 changed care delivery across the five Comprehensive Primary Care Functions during their second program year—less than halfway through the five-year intervention period. We build on findings reported in the first annual report to describe how practices continued to implement CPC+ and the factors influencing their work. We focus on changes in practices' approaches, perspectives, and experiences between PY 1 and PY 2. In callout boxes marked with the 2018 regions icon, we also highlight ways the experiences of practices that joined CPC+ in 2018 compare with the first-year experiences of practices that joined in 2017.

To summarize our main findings, CPC+ practices that joined in 2017 were satisfied with their decision to join CPC+, embraced the hard work of CPC+ implementation, and perceived improvements from participating. As in PY 1, practices selected for intensive study, referred to as "deep-dive practices," focused on the care delivery requirements in PY 2, with many practices prioritizing work to provide longitudinal care management, conduct emergency department (ED) and hospital follow-up, and integrate behavioral health into primary care.

Although there is still considerable work to do during the remaining three years of CPC+, as compared with PY 1, more practices reported that they:

- Had care management staff and processes in place to help patients with complex medical needs manage their conditions.
- Screened patients for unmet behavioral health and social service needs and started adding staff and structures to help address those needs.
- Improved coordination with hospitals, EDs, and specialists that see their patients.
- Followed up in a timely manner with their patients after they were seen by a hospital or ED.
- Had dedicated quality improvement (QI) staff that used evidence-based QI strategies.

However, practices continued to face challenges when making some care delivery changes, and new services did not reach all patients who would benefit from them in PY 2. Areas where practices have the most room for improvement include:

- Providing longitudinal care management services to a larger proportion of their patients at higher risk, using an advanced risk stratification strategy to identify those patients, and using care plans more fully to guide those services.
- Integrate behavioral health services more deeply, including developing workflows and processes and identifying and training staff.
- Helping patients set and "self-manage" or meet their own health goals.
- Offering alternatives to traditional office visits (such as group visits or home visits) to more patients.
- Improving coordination with social service agencies.

The rest of this chapter provides details on practices' efforts to improve the delivery of primary care. In Sections 4.1 and 4.2, we provide key takeaways from our findings and summarize our research methods. In Section 4.3, we summarize practices' overall approach to CPC+, including an overview of the five Comprehensive Primary Care Functions and care delivery requirements, the main changes practices made to primary care delivery by the end of PY 2, practices' priorities, and the ways they approached implementation. In Section 4.4, we provide a function-by-function look at how practices are approaching the care delivery requirements and related changes and how this process varies for different types of practices. In Section 4.5, we identify the cross-cutting factors influencing care delivery transformation across the functions and offer insights on the implications for the remaining four years of CPC+. Finally, in Section 4.6, we offer early insights on the spread and sustainability of CPC+ care delivery transformation.

4.1. Key takeaways on how practices are transforming care

Practices' overall impression of CPC+. Practices' responses to the 2018 CPC+ Practice Survey indicated that they were satisfied with their decision to join CPC+ and already perceived improvements from participating, and that the work is challenging. Based on their overall experience with CPC+, 64 percent of practices would be "very likely," and another 28 percent would be "somewhat likely," to participate in CPC+ again if given the opportunity. Additionally, most practices (92 percent) reported that CPC+ improved the quality of care they provided to patients "somewhat" or "a lot." Many practices, however, found that meeting the CPC+ requirements was burdensome. Two-thirds of practices reported on the 2018 CPC+ Practice Survey that meeting the care delivery requirements was "somewhat burdensome" (49 percent) or "very burdensome" (17 percent).

Practices' overall approach to CPC+. Deep-dive practices used similar strategies in PY 2 as they had in PY 1 to identify implementation priorities, such as seeking input from practice staff and focusing on CPC+ activities that aligned with other initiatives in which they participate. Several deep-dive practices also reported new approaches for prioritizing work for CPC+, such as using data to identify areas for improvement.

Implementation approaches continued to vary for system-owned versus independent practices. Many system-owned deep-dive practices had access to supports not available to independent practices, including system-level clinical and administrative staff who provided on-site or off-site support and system-led trainings. Although systems commonly adopted a standardized approach to CPC+ implementation across their practices in PY 1 and PY 2, several system leaders reported that their practices could exercise varying levels of control when implementing CPC+.

Practices' work to improve primary care delivery. As in PY 1, deep-dive practices focused on the care delivery requirements in PY 2. Many deep-dive practices prioritized work on care management (often focusing on providing longitudinal care management and conducting ED and hospital follow-up) and comprehensiveness and coordination (especially on integrating behavioral health into primary care) in PY 2. Deep-dive practices also reported that they engaged in a few practice improvement activities outside the care delivery requirements, mainly to solicit patient feedback via surveys (which many were doing before CPC+) and additional activities to promote planned care and population health including using team-based approaches to care planning, hiring dedicated QI staff and expanding QI teams, and using "proven" QI strategies.

As measured by the modified Patient-Centered Medical Home Assessment (M2-PCMH-A) in the CPC+ Practice Survey,[20] practices in both tracks reported that they made significant improvements to care delivery during the first two years of CPC+. The M2-PCMH-A, which Mathematica adapted for the CPC+ evaluation, captures approaches to care delivery in nine areas that are related to the Comprehensive Primary Care Functions and care delivery requirements, but is not a comprehensive measure of practices' performance on the functions or requirements. Three-quarters of practices in each track improved their overall M2-PCMH-A score between PY 1 and PY 2, and the percentage of practices reporting answers indicating that they provided fairly advanced care overall increased by approximately 25 percentage points for both tracks, but was higher in each year for Track 2 practices. Track 1 practices that did not participate in CPC Classic typically reported larger improvements than practices that participated in CPC Classic, in part because they used less advanced approaches when they began—although practices that participated in CPC Classic still operated at more advanced levels than those that did not participate in CPC Classic at the time of the second survey wave. There was a similar but smaller difference between practices that had prior participation in broader primary care transformation efforts that included participation in CPC Classic or the Multi-Payer Advanced Primary Care Practice (MAPCP) Demonstration, or Patient-Centered Medical Home (PCMH) recognition compared to practices without such experience.

Practices in both tracks were making fairly similar changes to transform primary care for most of the care delivery requirements that were required of all practices. As expected, for most requirements that pertained only to Track 2, Track 2 practices were more likely than Track 1 practices to report advanced activities. However, many Track 1 practices were doing work related to several of the Track 2 only requirements (such as offering alternative visits, screening at least some patients for psychosocial needs, maintaining inventories of psychosocial resources, and discussing advance care planning), despite not being required to do so. We summarize below practices' work on care delivery requirements within each of the five functions.

[20] See Appendix 4 for details on the CPC+ Practice Survey administration and methods.

Access and continuity

Progress. In PY 2, virtually all practices continued efforts that often pre-dated CPC+ to provide patients with 24/7 access to a practitioner or care team member with real-time access to electronic health records (EHRs). Approximately half of practices also reported to CMS in PY 2 that they supported 24/7 access by always providing weekend, evening, or early morning office visits when patients needed them, and many deep-dive practices indicated that they reserved daily appointment slots for patients with acute needs. (In line with these findings, according to the 2018 CPC+ Beneficiary Survey, beneficiaries in Track 2 practices who contacted their doctor's office with a health question outside of regular office hours were slightly more likely than beneficiaries in non-participating practices to report receiving a timely answer to their health questions. However, beneficiaries in Track 1 practices were just as likely to report receiving timely answers to their health questions as the patients in a set of non-participating practices.)

Nearly all practices also empaneled a high proportion of patients to a practitioner or care team in both program years. In PY 2, deep-dive practices reported that they were beginning to routinely review patient panels to make sure assignments were up to date.

Finally, most practices offered at least one alternative to traditional office visits—such as phone visits, home visits, or visits in a different location, such as a nursing home. Although CMS required only Track 2 practices to do so, 97 percent of Track 2 and 70 percent of Track 1 practices reported to CMS that they offered alternative visits in PY 2.

Areas for improvement. Many practices did not offer alternative visits to most of the patients they thought could benefit from them. Several deep-dive practices cited perceived challenges related to billing, such as beliefs that alternative to fee-for-service (FFS) payments (including CMS' Comprehensive Primary Care Payment for Track 2 practices[21]) were inadequate to cover the costs of implementing them or concerns that patients would be unwilling to provide a copayment for a service that practices had traditionally provided at no cost. Another area for improvement is continuity of care.

Although many deep-dive practices reported that they had started measuring continuity of care, as newly required in PY 2, few deep-dive practices reported actively using this information to improve the way they provide care.

Care management

Progress. In PY 1 and PY 2, care management was a common priority area for CPC+ practices. Starting in PY 1, deep-dive practices focused on setting up risk-stratification processes to identify patients for longitudinal care management and on hiring care managers to provide these services. In PY 2, practices built on this work. More practices provided care management services than in PY 1, though the number of patients that practices classified as high-risk and as receiving longitudinal care management remained

[21] See Chapter 3 for more information on the Comprehensive Primary Care Payment and other CPC+ payments from CMS and payer partners.

low. Additionally, nearly all practices continued to provide episodic care management and, notably, more practices established formal processes with hospitals and EDs to receive notification of discharge and hired or identified staff who conducted timely follow-up.

Areas for improvement. A small proportion of patients receive longitudinal care management. Based on practices' reports to CMS, the median percentage of empaneled patients placed in the highest risk tier was 2.4 percent. Of these patients, the median percentage receiving longitudinal care management was 30 percent in PY 2. The most frequently identified challenge to providing longitudinal care management services, noted by several deep-dive practices, was that the practice lacked sufficient care management staff to provide these services to all patients who might benefit from them. Additionally, although most practices reported to CMS that they used a two-step risk-stratification process, deep-dive findings suggest that many practices did not reliably assign risk scores to patients. Finally, the extent to which practitioners and care managers understand and use care plans—as intended by CPC+ for longitudinal care management patients—remains unclear. Practitioners and staff from several deep-dive practices continued to use the term "care plan" to reference other clinical documentation (typically after-visit summaries and progress or encounter notes), and nearly all deep-dive practices faced challenges using their EHRs to create, access, and update care plans.

Comprehensiveness and coordination

Progress. In PY 2, practices continued to enhance the *comprehensiveness* of some of the types of care they provided. Most practices took steps to integrate behavioral health into their practice, and in PY 2, more than one-half of all practices reported to CMS that they had hired behavioral health staff and developed behavioral health workflows. Many practices also advanced the comprehensiveness of care in response to a new Track 2 requirement to provide comprehensive medication management (CMM) to patients with complex needs. Of Track 2 practices providing CMM, about two-thirds delivered this service through co-management with a pharmacist or service either located at the practice site (53 percent) or off-site (16 percent). Practices also continued to take steps to routinely screen at least some patients for unmet social needs, and more practices reported using screening tools (as opposed to informally assessing patients through ad hoc conversations) to do so.

Practices also improved their ability to provide *coordinated care* in PY 2. For example, nearly all practices reported to CMS that they had established collaborative care agreements with one or more specialists, a 23 percentage point increase from PY 1. Additionally, more deep-dive practices reported that they electronically accessed hospital and ED discharge information in PY 2, which they used to follow up with patients in a timely way. Most deep-dive practices also continued to report that they maintained inventories of social resources that they established in PY 1 and used them to identify community-based organizations to which they referred patients with unmet social needs. More practices also designated staff to connect patients to community-based services to address the patients' social needs.

Areas for improvement. Still, practices faced challenges providing *comprehensive care.* Deep-dive practices reported not having sufficient staff with the time or skills to take responsibility for integrating behavioral health and social needs screening. Additionally, some patients were reluctant to discuss their social needs with practitioners and staff. Practices also faced challenges developing capacity to meet the needs of a subpopulation of patients with complex needs (for example, by expanding the practice's own capabilities or its collaboration with specialists though strategies such as co-location and co-management for common complex conditions). Deep-dive findings suggest that practices were not clear about what this CPC+ requirement entailed.

Regarding *coordinated care,* although most Track 2 practices reported to CMS that they had established relationships with social service agencies that address social needs, deep-dive findings suggest that few practices have formed relationships that promote coordination through clear processes and formal structures for referrals and that support the bidirectional flow of information. Several deep-dive practices also continued to encounter challenges with notification and information transfer with hospital and EDs, especially when they were using different EHRs that did not communicate with each other. Moreover, a few deep-dive practices reported that some specialists were reluctant to implement collaborative care agreements.

Patient and caregiver engagement

Progress. Many practices convened a Patient and Family Advisory Council (PFAC) for the first time during PY 1. In PY 2, most practices intensified PFAC efforts by more frequently convening meetings (in response to the enhanced PY 2 requirement) and taking additional steps to integrate their PFAC into routine efforts, such as defining the PFAC's mission and vision, and refining the structure of the PFAC (that is, number of patient members, term lengths, and other meeting logistics). Most deep-dive practices continued to use a PFAC to guide practice improvements in PY 2.

Nearly all practices engaged at least some of their patients with complex needs in advance care planning discussions in PY 2, even though this new requirement applied only to Track 2 practices.

Practices also made notable changes in PY 2 in response to the enhanced requirement for Track 1 practices to join practices in Track 2 in offering self-management support; nearly all practices implemented self-management support for at least three high-risk conditions in PY 2, and more practices systematically identified patients for self-management support and helped patients define their own self-management goals in PY 2 than in PY 1.

Areas for improvement. Only two-thirds of practices reported to CMS that they always or often train staff in self-management support techniques, and less than one-third reported always or often measuring patients' skills and progress when implementing self-management support. This finding may be related to many deep-dive practices' continued challenges motivating some patients to participate in self-management support or engage in care management.

Planned care and population health

Progress. In PY 1 and PY 2, nearly all practices had access to claims data feedback from CMS and payer partners and electronic Clinical Quality Measure (eCQM) data, and regularly held data-focused care team meetings to review these and other EHR and registry data. In PY 2, more practices used data and care team meetings to proactively and systematically guide QI changes that affected their full patient population. Many system-owned deep-dive practices benefited from system-level supports, such as assistance from system-level population health staff in interpreting data and identifying strategies to improve care delivery.

Practices also engaged in activities to improve planned care and population health beyond the CPC+ requirements, such as holding care team meetings and structured huddles to discuss and plan care for individual patients. More practices also hired dedicated QI staff, expanded QI teams, and used evidence-based QI strategies in PY 2 than in PY 1.

Areas for improvement. Practices continued to report concerns related to the timeliness of utilization data and accuracy of eCQM data. Based on these concerns, the practices perceived these data to be of limited usefulness. Limited practitioner and staff time also continued to hinder deep-dive practices' ability to document eCQMs and, for Track 2 practices, to hold care team meetings to review data weekly, as recommended by CMS.

Factors influencing CPC+ implementation across Comprehensive Primary Care Functions:

- **Supportive factors.** Several similar factors supported CPC+ implementation in PY 1 and PY 2. These factors include (1) practices' perception that a particular required strategy or approach will improve quality of care for their patients, (2) a team-based approach to care, (3) affiliation with a larger health care organization, and (4) advanced health IT functionalities. However, practices placed more emphasis on a couple of facilitating factors in PY 2 than in PY 1. For example, as practices ramped up their work for CPC+ in PY 2, they increasingly reported that *having adequate staff* (such as staff dedicated to care management and to screening patients for social needs) available for implementation was important. As in PY 1, many deep-dive practices said that the financial resources made available to them through CPC+ enabled them to hire staff, which facilitated their ability to make care delivery changes. In addition, practices indicated that the *relationships they built with external providers* (including hospitals, EDs, and specialists) in PY 1 became critical for continuing and expanding their work on care management and care coordination in PY 2. Practices in both tracks experienced similar facilitating factors.
- **Hindering factors.** All of the factors that hindered CPC+ implementation in PY 1 continued to challenge practices' ability to implement CPC+ in PY 2. These factors include (1) difficulty engaging patients in CPC+ care management and self-management efforts, (2) challenges providing comprehensive primary care within a FFS payment system, and (3) health IT functionalities that practices perceived to be unsatisfactory. However, challenges related to the *time and staff required to implement CPC+* became more pervasive as practices continued their work in PY 2 and the care delivery requirements increased. In contrast, a few barriers to implementation in PY 1 lessened in PY 2. For example, fewer

practices reported difficulties integrating care managers into workflows in PY 2. Practices' perception that some care delivery requirements were not beneficial also waned somewhat in PY 2. Practices in both tracks faced similar barriers to implementation.

- **Many of these supportive or hindering factors are outside of the immediate control of CPC+ practices.** The findings regarding supportive and hindering factors highlight the importance of identifying and understanding contextual factors in evaluating changes in the provision of care made by CPC+ practices. Many of these factors are beyond the immediate control of individual CPC+ practices (see Chapter 1, Figure 1.1). As deep-dive practices reported, however, factors such as the availability of hospitals, EDs, and specialists; the challenges of operating within a FFS payment system; and the adequacy of health IT, can support or hinder practices' efforts to improve how they deliver the Comprehensive Primary Care Functions.

Practices' perceptions of sustainability and spread:

- **Sustainability.** Deep-dive practices were interested in sustaining changes made for CPC+, specifically those related to care management, care transitions, behavioral health integration, and the use of quality measures and other data. For the most part, practices continue to worry about their ability to afford the salaries of staff newly hired for CPC+ without CPC+ payments. However, because practices remained focused on implementation, many perceived that it was too early to plan for sustainability. The few practices that had started planning for sustainability were typically researching potential options for ongoing funding.
- **Spread.** Spread was mostly occurring among non-participating primary care practices (and in a few cases among specialists) within a shared health system. For example, in PY 2, several deep-dive practices reported that all primary care practices in their system—regardless of CPC+ participation—had implemented the same or similar changes and benefited from shared resources such as system-based care managers hired for CPC+. Additionally, most deep-dive system leaders reported that some changes made for CPC+ had spread to specialists in their system—for example, by improving specialists' engagement with QI initiatives, increasing their focus on team-based care, and giving them access to system-level staff resources, such as social workers and population health staff.

4.2. Methods

In this chapter, we present findings from analyses of four data sources to describe the experiences of practices that started CPC+ in 2017:[22]

1. **Interviews with deep-dive practices,** a *representative sample* of practices, provide an in-depth look at how these practices approached CPC+ implementation and the factors that influenced their work. To examine their PY 2 implementation experience, we conducted

[22] In our appendices, we further describe our methods and provide additional analysis tables. Appendix 4.A covers care delivery data practices that joined CPC+ in 2017 reported to CMS, Appendix 4.B the care delivery data practices that joined CPC+ in 2018 reported to CMS, Appendix 4.C the CPC+ 2018 Practice Survey, Appendix 4.D the deep-dive study, and Appendix 5.A the 2018 CPC+ Beneficiary Survey.

telephone interviews in 2019 with 59 practices that started CPC+ in 2017. We refer to these practices selected for intensive qualitative study as "deep-dive practices." We selected the deep-dive practices to be similar to all CPC+ practices in terms of track, participation in the Medicare Shared Savings Program (SSP), whether they were independent or owned by a system or hospital or part of a multipractice group, and size. All deep-dive practices were asked about their overall approach to and perspectives on CPC+ in PY 2. In addition, each practice was asked about two or three other topics, enabling us to cover each topic in depth with 21 to 24 diverse practices. Our seven in-depth interview modules on practice change included one for each of the five Comprehensive Primary Care Functions (with questions covering all care delivery requirements, other related care delivery changes, and more nuanced questions on the two special topics of care plans and continuous QI approaches) and one each on the role of system-level staff in CPC+, and overall CPC+ experience.

2. **CPC+ care delivery requirement data** that practices reported to CMS provide insight into how *all* CPC+ practices approached CPC+. Following each quarter in PY 2, CMS required practices to answer a series of questions about how they carried out activities related to the care delivery requirements to understand how practices were approaching the Comprehensive Primary Care Functions. Although CPC+ requirements are based on track and starting year, practices in each track answer the same questions. These data are used to monitor the proportion of practices self-reporting the implementation of various activities. They provide less information on the intensity with which practices are implementing various activities.
3. **CPC+ Practice Survey data** provide insight about how *all* practices changed care delivery and perceived CPC+. The practice survey focuses on practice operations (such as the number and types of staff that work at the practice), practices' perspectives about CPC+ (such as, how burdensome they viewed CPC+ to be), and practices' approaches to primary care delivery. The second annual report draws on the first two waves of the survey: the 2017 CPC+ Practice Survey administered early in PY 1 (from March through September 2017) and the 2018 CPC+ Practice Survey administered in PY 2 (from June 6, 2018, through September 25, 2018).
4. **CPC+ Beneficiary Survey data** provide insights on the experiences and perceptions of a *sample* of Medicare FFS beneficiaries from *all* CPC+ practices, and how their experiences differ from beneficiaries in practices not participating in CPC+ (known as comparison practices). Mathematica administered the 2018 CPC+ Beneficiary Survey by mail in PY 2 (May through December 2018) to beneficiaries served by CPC+ practices that joined in 2017 and their matched comparison practices. We present findings from the survey primarily in Chapter 5. In this chapter, we draw on a few selected findings to further illuminate themes emerging from the other data sources.

We followed two principles when reporting findings for practices that started CPC+ in 2017:

1. **Variation over time and by practice characteristics.** When analyzing findings on a given topic for practices that started CPC+ in 2017, we considered whether findings varied in meaningful ways between PY 1 and PY 2 and for different types of practices, particularly whether practices were in Track 1 or Track 2; part of a system or independent; participating

in SSP; and small, medium, or large.[23] Throughout this chapter, we describe notable differences; when we do not mention this kind of variation, the findings reported were similar over time and across different types of practices.[24]

2. **Terminology.** When reporting on findings from qualitative interviews with deep-dive practices that started CPC+ in 2017, we use the word "couple" to denote 2 practices, "few" to denote 3 to 4 practices, "several" to denote 5 to 10 practices, "many" to denote more than 10 but fewer than three-fourths of relevant practices, and "most" to indicate more than three-fourths of practices.[25] For most topics covered in the deep-dive interviews, we have data from 21 to 24 practices, but it is important to keep in mind that qualitative interviews differ from surveys. The approach is more free-flowing and conversational, not every question is asked of every respondent, and respondents sometimes mention things that were not asked about directly. Hence, the number of practices with data for a given deep-dive finding varies, and we considered this factor carefully when characterizing the relative frequency of a given finding among practices.

Understanding PY 1 for practices that joined CPC+ in 2018

We draw on two data sources to support our comparison of the first-year experiences of practices that started in the four regions that began in 2018 to those of practices that joined in the 14 regions that began in 2017:

1. **Interview data from 11 deep-dive practices that started CPC+ in 2018.** These interviews focused on a subset of interview topics that emerged as important in our PY 1 interviews with practices that joined CPC+ in 2017: care management, coordination with specialists, addressing behavioral health and social needs, self-management support, using data to improve population health, and alternatives to traditional office visits.
2. **CPC+ care delivery data all practices that joined in 2018 reported to CMS.** Given the difference in sample size between the two cohorts (practices that joined CPC+ in 2018 account for only 5 percent of the total number of CPC+ practices), differences in the PY 1 experiences between the two cohorts should be interpreted cautiously.

[23] We used slightly different samples to analyze quantitative data on CPC+ implementation in our first and second annual reports to account for practice withdrawals; thus, there are a few, small differences between PY 1 percentages reported in the first and second reports.

[24] Given our substantial sample size and the large number of variables included in our analysis, we may observe small, random differences in responses over time and between subgroups of practices. To avoid over-interpreting those differences, we focus our analysis of the data practices reported to CMS and CPC+ Practice Survey data on notable differences, which we define as differences of 10 percentage points or larger.

[25] We use slightly different terminology for qualitative and quantitative findings. For findings based on quantitative data sources, we use "many" to denote more than 50 percent and less than 90 percent of practices, and "most" to denote 90 percent or more. The reasons for using a less stringent cutoff for "most" when writing about qualitative data are that (1) the interviewers do not ask all practices the same questions, so few if any findings would be reported by more than 90 percent of practices, and (2) it helps ensure that we accurately represent the importance of certain qualitative findings.

4.3. Practices' overall approach to CPC+

In this section, we describe practices' overall approach to CPC+. First, we outline the Comprehensive Primary Care Functions and care delivery requirements for practices in PY 2. Then, we describe the main changes practices have made to primary care delivery thus far. Next, we describe the care delivery changes deep-dive practices prioritized and how they identified those priorities. We conclude with a summary of the ways in which practices approached the implementation of CPC+ overall. (Section 4.4 provides a detailed look at how practices approached each Comprehensive Primary Care Function and related care delivery requirement, the factors that supported or hindered their work, and practices' perceptions of the benefits and drawbacks of making care delivery changes.)

4.3.1. What are the Comprehensive Primary Care Functions and care delivery requirements?

Practices were required to meet track-specific care delivery requirements within each of five Comprehensive Primary Care Functions. They were encouraged to view these care delivery requirements as a minimum, or starting point, for the work they do to advance care delivery within each function. To support their work, CMS provided an implementation guide that described each function and care delivery requirement in detail, differentiated requirements for Track 1 versus Track 2 practices, and included links to evidence-based tools, templates, and articles to provide examples practices could model or adapt. CPC+ practices also received ideas, tools, and resources to support their CPC+ work from the CPC+ learning community and one another during ongoing virtual and in-person learning sessions and via a web-based collaboration platform. (Section 3.2.C describes the CPC+ learning activities.)

CMS added or enhanced several care delivery requirements in PY 2 to encourage practices to take additional steps toward implementing the five functions. In Table 4.1, we list the second-year care delivery requirements for practices that started CPC+ in 2017, noting how those requirements build on those in place for their first year.

Care delivery requirements in PY 1

The PY 1 care delivery requirements for practices that joined CPC+ in 2018 were the same as the PY 1 requirements for practices that joined in 2017 (Table 4.1).

Table 4.1. Care delivery requirements for 2017 Starters in PY 2

Track 1[a]	Track 2	Changes to requirements from PY 1 to PY 2[b]
1. Access and continuity		
1.a. Maintain at least 95 percent empanelment to practitioner and/or care teams.[c] 1.b. Ensure patients have 24/7 access to a care team practitioner with real-time access to the EHR. 1.c. **ENHANCED for both tracks:** Measure continuity of care for empaneled patients by practitioners and/or care teams in the practice.	Complete all Track 1 requirements and: 1.d. Regularly deliver care in at least one way that is an alternative to traditional office visit-based care, meets the needs of your patient population, and increases access to the care team/practitioner, such as eVisits, phone visits, group visits, home visits, and/or alternate location visits (for example, senior centers and assisted living facilities).	1.c. In PY 1, CMS required practices **in Track 1 and Track 2** to organize care by practice-identified teams to optimize continuity. Starting in PY 2, CMS required practices to *measure* continuity of care.

Table 4.1. ***(continued)***

Track 1[a]	Track 2	Changes to requirements from PY 1 to PY 2[b]
2. Care management		
2.a. **ENHANCED for both tracks:** Use a two-step risk stratification process for all empaneled patients, addressing medical needs, behavioral diagnoses, and health-related social needs: Step 1. Use an algorithm based on defined diagnoses, claims, or other electronic data enabling population-level stratification; and Step 2. Add the care team's perception of risk to adjust the risk stratification of patients, as needed. 2.b. Based on your risk-stratification process, provide targeted, proactive, relationship-based (longitudinal) care management to all patients identified as at increased risk, and likely to benefit from intensive care management. 2.c. Provide short-term (episodic) care management, including medication reconciliation, to patients following hospital admission/discharge/transfer (including observation stays) and, as appropriate, following an ED discharge. 2.d. Ensure patients with ED visits receive a follow-up interaction within one week of discharge. 2.e. Contact at least 75 percent of patients who were hospitalized in target hospital(s) (including observation stays) within two business days.	Complete Track 1 requirements, but with the requirement to also **maintain and review** risk stratification, and: 2.f. For patients receiving longitudinal care management, use a plan of care containing at least patients' goals, needs, and self-management activities that can be routinely accessed and updated by the care team.	2.a. In PY 1, **Track 1** practices could use any risk-stratification approach. As of PY 2, CMS required them to use a two-step process. (This requirement was already in place for Track 2 in PY 1.) In PY 1, CMS required **Track 2** practices only to use a two-step process. In PY 2, CMS required them to maintain and review that process.

Table 4.1. ***(continued)***

Track 1[a]	Track 2	Changes to requirements from PY 1 to PY 2[b]
3. Comprehensiveness and coordination		
3.a. **ENHANCED for Track 1:** Enact collaborative care agreements with at least two groups of specialists identified based on analysis of CMS/payer partners' reports. 3.b. Using CMS'/payer partners' data, track and achieve timeliness of notification and information transfer from hospitals and EDs responsible for the majority of your patients' hospitalizations and ED visits. 3.c. **NEW for Track 1:** Develop a plan for implementing at least one option from a menu of options for integrating behavioral health into care, based on an assessment of practice capability and population need.	Complete Track 1 requirements, but with the requirement to **implement** a behavioral health option (instead of just planning for implementation), and: 3.d. **ENHANCED for Track 2.** Address common psychosocial needs for at least your high-risk patients: • Routinely assess patients' psychosocial needs. • Prioritize common needs in your practice population, and maintain an inventory of resources and supports available to address those needs. • Establish relationships with at least two resources and supports that meet patients' most significant psychosocial needs. 3.e. **NEW for Track 2:** Develop a plan to provide comprehensive medication management to patients discharged from the hospital and those receiving longitudinal care management. 3.f. **ENHANCED for Track 2.** Define at least one subpopulation of patients with specific complex needs, develop capabilities necessary to better address those needs, and measure and improve the quality of care and utilization of this subpopulation.	3.a. In PY 1, CMS required **Track 1** practices to identify high-cost, high-volume specialists serving their patient population. Starting in PY 2, CMS required Track 1 to enact collaborative care agreements with at least two of those groups (already a Track 2 requirement in PY 1). 3.c. In PY 2, CMS started requiring **Track 1** practices to develop a plan for implementing behavioral health (already a Track 2 requirement in PY 1). 3.d. In PY 1**,** CMS required **Track 2** practices to assess their patients' psychosocial needs and conduct an inventory of resources needed to address those needs. In PY 2, CMS required Track 2 practices to maintain an inventory of resources needed to address common patient needs and establish relationships with at least two of those resources. 3.e. In PY 2, CMS started requiring **Track 2** practices to provide comprehensive medication management. 3.f. In PY 1, CMS **required Track 2** practices to identify a capability to address the needs of a subpopulation of patients with complex needs. In PY 2, CMS required practices to develop that capability.

Table 4.1. ***(continued)***

Track 1[a]	Track 2	Changes to requirements from PY 1 to PY 2[b]
4. Patient and caregiver engagement		
4.a. **ENHANCED for both tracks:** Convene a Patient and Family Engagement Council at least **three times** in PY 2 and integrate recommendations into care and quality improvement activities, as appropriate. 4.b. **ENHANCED for Track 1:** Implement self-management support for at least three high-risk conditions.	Complete Track 1 requirements, but with the requirement to hold PFAC meetings **quarterly** (instead of three times per year), and: 4.c. **NEW for Track 2:** Identify and engage a subpopulation of patients and caregivers in advance care planning.	4.a. In PY 2, CMS required **Track 1 and Track 2** practices to hold more frequent Patient and Family Engagement Council meetings. The requirement increased from once in PY 1 to three times a year in PY 2 for Track 1 practices and from twice a year to quarterly for Track 2 practices. 4.b. In PY 1, CMS required **Track 1** practices to assess their capabilities and plan for self-management support. In PY 2, CMS required Track 1 practices to provide that support (already a Track 2 requirement in PY 1). 4.c. In PY 2, CMS began requiring **Track 2** practices to engage patients in advance care planning.
5. Planned care and population health		
5.a. Use feedback reports provided by CMS and payer partners at least quarterly on at least two utilization measures at the practice level and practice data on at least three electronic Clinical Quality Measures (derived from the EHR) at both the practice and panel levels to inform strategies to improve population health management.	Complete Track 1 requirement and: 5.b. Conduct care team meetings at least weekly to review practice- and panel-level data from CMS and payer partners and internal monitoring and use these data to guide testing of tactics to improve care and achieve practice goals in CPC+.	No changes.

Source: Center for Medicare & Medicaid Innovation. "2018 CPC+ Implementation Guide: Guiding Principles and Reporting." January 30, 2018.

[a] In PY 1, CMS required Track 1 practices that had previously participated in CPC Classic to satisfy some of the additional Track 2 requirements to build on their CPC Classic work. Specifically, in PY 1, CMS required Track 1 CPC Classic practices to enact collaborative care agreements with specialists (3.a.), work to meet their patients' behavioral health needs (3.c.), hold two PFAC meetings (as opposed to one as required for other Track 1 practices (4.a.), and provide self-management support (4.b.). In PY 2, CMS required all Track 1 practices, regardless of their participation in CPC Classic, to meet these requirements.

[b] Practices that joined CPC+ in 2018 had the same PY 1 requirements as practices that joined CPC+ in 2017.

[c] Practitioners include physicians, nurse practitioners, physician assistants, and clinical nurse specialists.

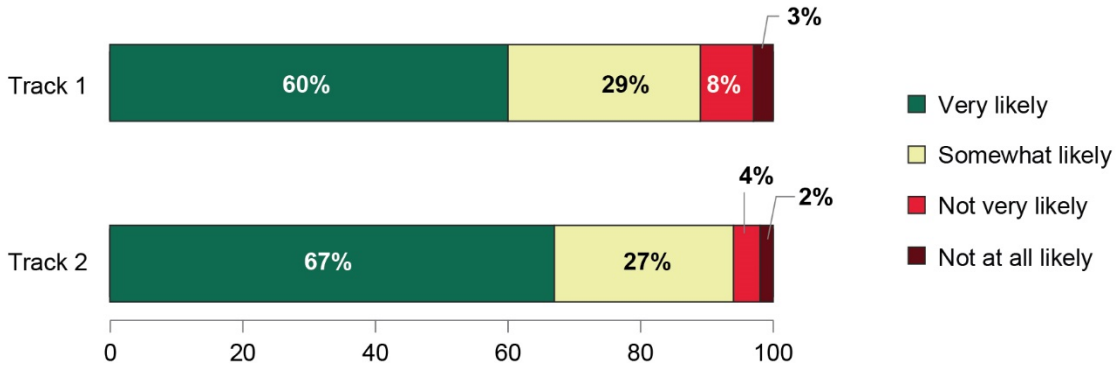
ED = emergency department; EHR = electronic health record; eVisit = electronic visit; PY = Program Year.

4.3.2. What are practices' overall impressions of CPC+ thus far?

As reported in the first annual report, CPC+ practices were satisfied with their decision to join CPC+. In response to the 2018 CPC+ Practice Survey, 64 percent of practices across the two tracks reported that, based on their overall experience with CPC+, they were "very likely" to participate in CPC+ again if given the opportunity, and another 28 percent of practices reported they were "somewhat likely" to do so (Figure 4.1). The question asked practices to take into account the improvements they have made, the requirements they faced, and the supports they received. Two-thirds of practices, however, reported on the 2018 CPC+ Practice Survey that meeting the care delivery requirements was "somewhat" (49 percent) or "very" (17 percent) burdensome (data not shown).

Figure 4.1. Likelihood that practices would participate in CPC+ if they could do it all over again, by track

Based on their overall experience with CPC+, most practices reported that they were likely to participate in CPC+ again if given the opportunity.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Practice Survey.

Notes: N = 1,299 Track 1 practices and 1,451 in Track 2 practices.

4.3.3. How have practices improved primary care delivery?

CPC+ practices made significant improvements to care delivery during the first two years of CPC+. Most practices (92 percent) reported on the 2018 CPC+ Practice Survey that participating in CPC+ improved the quality of care they provided to patients "somewhat" or "a lot." Practices reported on the modified Patient-Centered Medical Home Assessment (M2-PCMH-A) in the 2017 and 2018 CPC+ Practice Surveys how they delivered various aspects of care. Mathematica summarized practices' responses and classified their summary scores by how advanced their approaches were. These scores indicated that practices made significant improvements to care delivery during the first two years of CPC+; the percentage of practices reporting answers classified as indicating that they provided fairly advanced care overall increased for both tracks, from 44 percent to 70 percent for Track 1 and from 69 to 93 percent for Track 2. Room for improvement remains, however, given that no practices in either track reported answers classified as indicating very advanced approaches to care overall (Figure 4.2). In addition, in both years, Track 2 practices on average reported more advanced care delivery approaches than Track 1 practices. For the most part, the data practices submitted to CMS about their progress and interviews with deep-dive practices also indicate that practices in both tracks were making progress to improve their care delivery processes.

How did we assess changes in practices' approaches to primary care delivery?

To understand practices' approaches to primary care delivery, we used a modified version of the Patient-Centered Medical Home-Assessment (referred to as the M2-PCMH-A) administered as part of the 2017 and 2018 CPC+ Practice Surveys. The M2-PCMH-A, which Mathematica adapted for the CPC+ evaluation, captures approaches to care delivery in nine areas that are related to the Comprehensive Primary Care Functions and care delivery requirements.

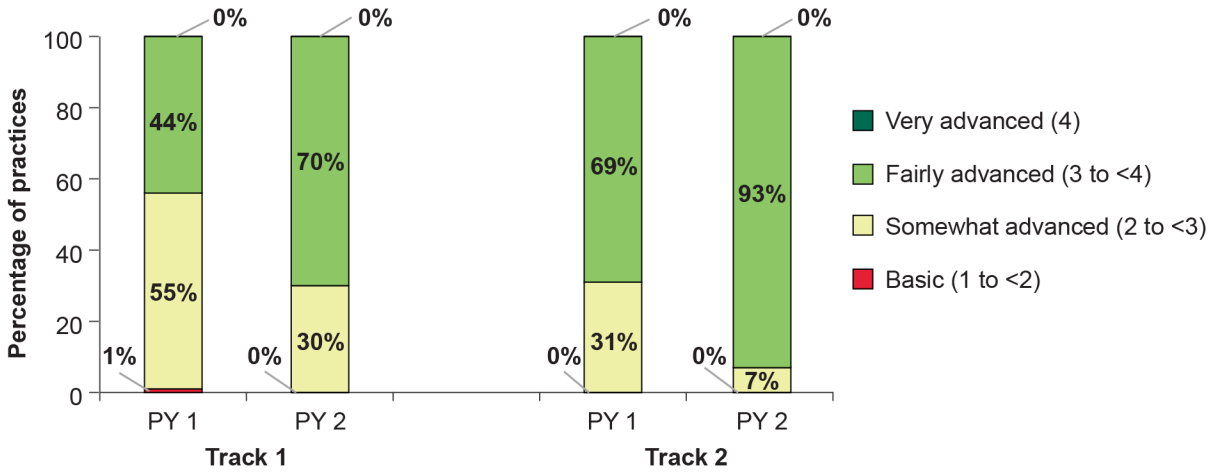
Practices rated their approaches on a scale from 1 (for the least advanced approach) to 4 (for the most advanced). We categorized scores as:

- Basic care (average score of 1 to less than 2)
- Slightly advanced (2 to less than 3)
- Fairly advanced (3 to less than 4)
- Very advanced (4)

(See Appendix 4 for details on the CPC+ Practice Survey administration and methods.)

Figure 4.2. Distribution of regression-adjusted mean overall M2-PCMH-A scores over the first two program years, by program year and track

The percentage of practices providing responses indicating that they provided fairly advanced care overall increased for both tracks, although room for improvement remains.



Source: Mathematica's analysis of data from the independent evaluation's 2017 and 2018 CPC+ Practice Surveys.

Notes: N = 1,288 Track 1 practices and 1,458 Track 2 practices. Practices rated their approaches to care delivery on a scale from 1 to 4. Mathematica summarized practices' responses and classified their summary scores by how advanced their approaches were.

M2-PCMH-A = modified version of the Patient-Centered Medical Home-Assessment; PY = Program Year.

Track 2 practices reported slightly more advanced approaches to care than practices in Track 1. On average, Track 2 practices started out with slightly more advanced approaches to care delivery than Track 1 practices and continued to report slightly more advanced approaches to care on the M2-PCMH-A in PY 2.

Practices that did not participate in CPC Classic typically reported larger improvements than practices that participated in CPC Classic. Practices that did not participate in CPC Classic experienced larger gains between survey waves—in part because they were less advanced when they began—although practices that participated in CPC Classic still operated at more advanced levels than those that did not participate in CPC Classic at the time of the second survey wave. There was a similar but smaller difference between practices that had prior participation in broader primary care transformation efforts that included participation in CPC Classic or the Multi-Payer Advanced Primary Care Practice (MAPCP) Demonstration, or Patient-Centered Medical Home (PCMH) recognition compared to practices without such experience.

4.3.4. What areas of CPC+ did practices prioritize?

Deep-dive practices focused on the care delivery requirements in PYs 1 and 2. As in PY 1, many deep-dive practices prioritized work on care management in PY 2, and commonly focused on providing longitudinal care management and conducting ED and hospital follow-up (as compared with focusing on activities that precede the provision of such services, such as risk stratification and hiring and deploying care managers in PY 1). Many deep-dive practices also continued to focus on comprehensiveness and coordination and especially on integrating behavioral health into primary care in PY 2. Planned care and population health was a growing priority for practices, with deep-dive practices being more likely to report concentrating on this function in PY 2 than in PY 1, often with a focus on using quality measures to improve population health management.

In PY 2, deep-dive practices focused on refining care delivery changes they made in PY 1 and initiating care delivery changes newly required in PY 2. A few systems leaders noted that participating practices typically shifted their emphasis from start-up activities in PY 1 to implementation, refinement, and maintenance in PY 2. These respondents, for example, described using PY 1 to gain an understanding of CPC+, obtain buy-in and spread understanding of CPC+ to participating practices, and help practices set up new care delivery processes. In PY 2, they focused on reviewing performance, refining processes, and considering additional ways to improve care in future years.

When care delivery requirements were the same for Track 1 and Track 2 practices, practices in both tracks often approached those requirements in similar ways and made similar progress. However, Track 1 practices were less likely than Track 2 practices to meet a few of the care delivery requirements. For example, a smaller percentage of Track 1 practices reported that they had formal information sharing agreements with EDs and hospitals compared with Track 2 practices (61 versus 76 percent). Also, Track 1 practices were less likely than Track 2 practices to report following up with most or all patients discharged from the hospital within three days of discharge (65 percent of Track 1 versus 75 percent of Track 2 practices).[26]

Many Track 1 practices were also doing some work related to Track 2-only requirements, although, as expected, Track 2 practices were more likely to meet most of those requirements. Notably, Track 1 practices were as likely as Track 2 practices to report implementing two strategies only required of Track 2 practices: (1) conducting advance care planning with patients at high-risk and (2) maintaining inventories of psychosocial resources to meet patients' social needs. Track 1 practices also reported work toward other Track 2-specfic requirements, such as offering alternative visits and screening at least some patients for psychosocial needs, though Track 2 practices were further along, as anticipated.

Although deep-dive practices focused on making changes related to care delivery requirements in PY 2, practices also engaged in a few practice improvement activities outside the CPC+ requirements. For example, for the function of patient and caregiver engagement, several deep-dive practices reported using strategies in addition to PFACs—most

[26] The care delivery requirement states, "Contact at least 75 percent of patients who were hospitalized in target hospital(s) (including observation stays) within two business days."

commonly administering surveys—to collect feedback on patients' care experiences. In addition, many practices extended their efforts to improve planned care and population health by hiring specialized staff (such as QI specialists or population health experts) or using formal QI strategies (such as Plan-Do-Study-Act cycles) in PY 2.

4.3.5. How did practices identify CPC+ priorities?

Practice staff at independent and system-owned deep-dive practices continued to report different levels of engagement in CPC+ priority setting in PY 2. Independent deep-dive practices, for example, typically described the prioritization process as a "group effort" or one that incorporated input from "the whole practice team." System and practice staff reported that systems considered practice input collected during meetings and system-wide committees (such as QI or practice transformation committees, or physician advisory councils) when making decisions, though system leaders (such as medical directors for primary care, system executives, and CPC+ coordinators) ultimately took responsibility for setting CPC+ priorities across participating practices.

Many deep-dive practices reported selecting priorities for CPC+ based on the alignment of CPC+ requirements with goals of other initiatives in which they were participating. Several system-owned and a few independent deep-dive practices reported that they were motivated to select CPC+ priorities that mirrored ongoing PCMH or Accountable Care Organization (ACO) efforts, for example, so that they could efficiently and simultaneously satisfy requirements for CPC+ and other initiatives.

> **"When we're aligned, it makes life easier. We can be working on things that satisfy all the initiatives together."**
>
> ***—System-level CPC+ coordinator at a medium-size, Track 2 practice***

Several deep-dive practices—particularly those from systems—enhanced their use of data to guide the selection of CPC+ priorities in PY 2. These practices reported using the data feedback tool from CMS, quality measures/eCQMs, and Consumer Assessment of Healthcare Providers and Systems (CAHPS®) or Press Ganey® patient satisfaction surveys to assess performance and identify areas for improvement. They then used this data to inform the selection of priorities for CPC+.

Practices' views on the importance of care delivery changes for improving health care outcomes may have influenced the CPC+ areas they chose to focus on. In PY 2, we asked deep-dive practices to identify the most important things they were doing, or could do, to reduce preventable hospitalizations and ED visits, specialist visits, and the total cost of care. Many deep-dive practices identified more than one care delivery strategy as important for improving a specific health care outcome, and many described multiple strategies—spanning the five Comprehensive Primary Care Functions—as important and interdependent drivers of multiple outcomes. Four of the six strategies deep-dive practices most commonly reported as important for improving health care outcomes were associated with the care management function, the function practices most commonly focused on in PY 2: risk stratifying patients, providing longitudinal care management, offering episodic care management, and following up with patients after hospital and ED discharge.

4.3.6. How are CPC+ practices approaching implementation?

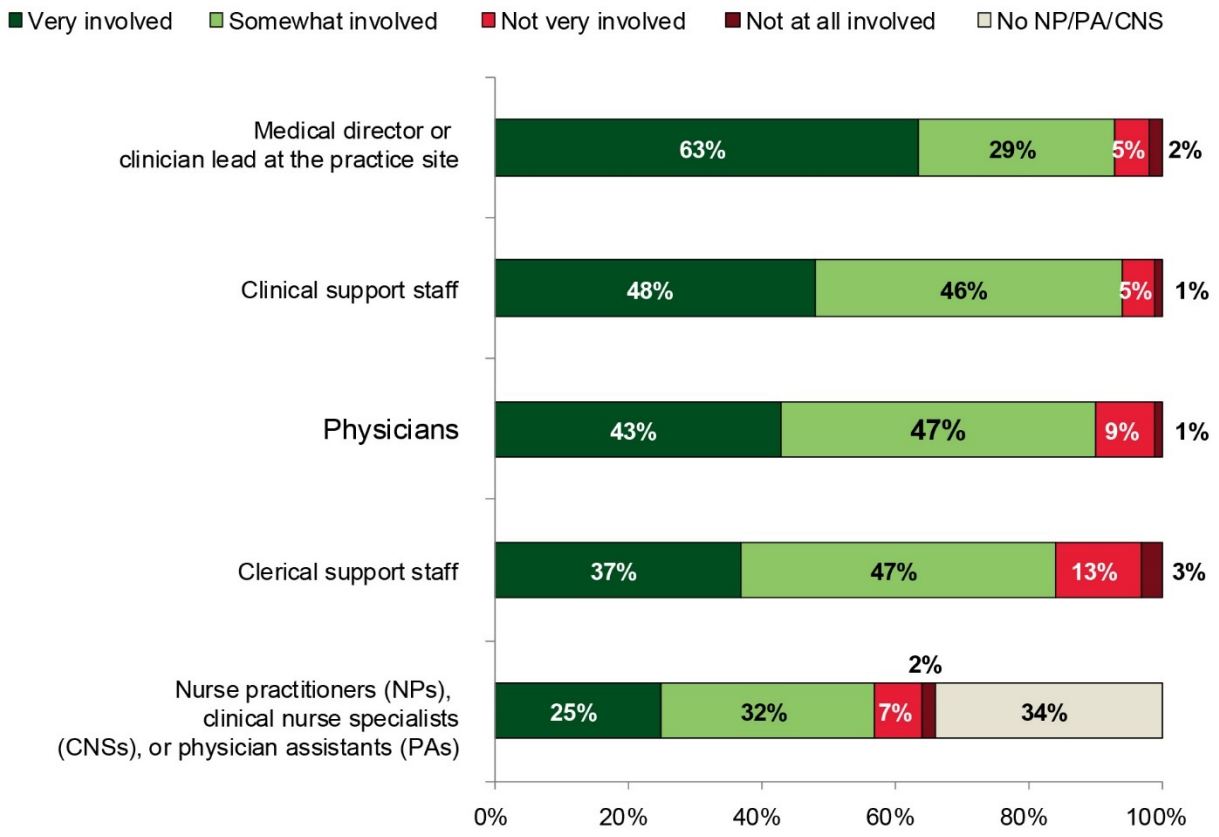
As in PY 1, most deep-dive practices reported making staffing changes to implement CPC+ in PY 2. These changes included hiring new staff for CPC+ (such as pharmacists, behavioral health providers, and care managers), redefining the roles of existing staff to work on CPC+ activities (such as reallocating the time of an existing nurse to focus on longitudinal care management or assigning new responsibilities to the medical assistant to support CPC+ work), and working to integrate newly hired staff into practice teams and workflows. Among system-owned practices, these changes also included adding system-level staff (such as pharmacists or behavioral health providers) to work on site with care teams at one or more of the system's practices.

Also similar to PY 1, deep-dive practices that were part of a larger health care system continued to report generally having less autonomy than independent practices in how they carried out CPC+ requirements. Findings from the 2018 CPC+ Practice Survey are consistent with these deep-dive findings. For example, while 76 percent of independent practices reported that they had high autonomy in making decisions related to clinical work processes, only 42 percent of system-owned practices reported the same.

Practices reported that staff at all levels were involved in implementing CPC+ in PY 2, but the level of involvement varied among staff types. More than three-quarters of practices reported on the 2018 CPC+ Practice Survey that each of five staff types were "somewhat" or "very" involved in implementing CPC+ (Figure 4.3). Practices were most likely to identify their practice site's medical director or clinician lead as "very" involved (63 percent of practices), followed by clinical support staff (48 percent) and physicians (43 percent).

Figure 4.3. Practices' self-reported level of staff involvement in CPC+ implementation in PY 2

Practices were most likely to identify their site's medical director or clinician lead as "very" involved in implementing CPC+. NPs/CNSs/PAs were least likely to be involved in implementing CPC+.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Practice Survey.

Notes: N = 2,753. Not all practices have each staff type or responded to each question. The percentage of missing responses for each individual question was less than 1 percent, except for the question about the involvement of NPs, CNSs, or PAs in implementing CPC+, which was missing for 7 percent of practices. To correct for a higher percentage of missing responses due to some practices not having these types of staff, we recalculated practices' responses, taking into account whether the practice reported having NPs, CNSs, or PAs earlier in the survey.

Closer look: How are systems approaching CPC+ implementation?

System leaders described variation in the level of control they exercised in defining how their affiliated practices implemented CPC+. On the end of the spectrum with the most system-level control, several deep-dive system leaders said they applied consistent processes across all practices participating in CPC+ and allowed little variation in how workflows were implemented. Several other deep-dive system leaders said that they aimed to use a largely standardized approach, but they allowed practices some flexibility to adapt workflows to fit their specific contexts, acknowledging that practices had different resources and served patients with different characteristics. On the other end of the spectrum, a few deep-dive system leaders said that they set standardized goals and minimum requirements for practices, but they allowed each practice independence in determining how to meet them.

Many system leaders said they provided education and training and/or clinical and administrative support to deep-dive practices to help them meet CPC+ practice care delivery and reporting requirements.

- **Education and training.** Most systems reported sharing information about CPC+ requirements and discussing implementation issues at group meetings composed of practitioners, practice managers, and other staff from practices participating in CPC+. Several system leaders also said they visited practices in person to help train staff, address issues with practice workflows, and solicit feedback on CPC+ implementation.
- **Clinical support.** Many systems provided clinical staff support to practices (such as care managers, care coordinators, pharmacists, behavioral health specialists, psychologists, social workers, and dietitians), typically allocating support based on practice size and patient volume. For larger practices, systems commonly assigned clinical staff to work full time at the practice site, and for smaller practices, they typically assigned clinical staff—who often served more than one practice—to work part time at the practice site or to be accessible to the practice and its patients from a central location at the health system.
- **Administrative support.** Several systems provided administrative staff support to practices (such as CPC+ coordinators, IT specialists, data analysts, QI specialists, and population health professionals) to assist them with tracking performance on quality measures, identifying areas for improvement, and meeting CPC+ reporting requirements. As with clinical staff support, these staff sometimes joined practice teams on site (either part or full time) and other times offered support to multiple practices from a central location at the health system.

Several system leaders reported using approaches that could offset potential decreases in revenue that might occur if CPC+ practices achieve their goals to reduce hospitalizations or ED admissions. These systems, for example, described pursuing opportunities to increase market share (the size of the population they serve) and generate revenue by investing more in urgent care and express care clinics. A few system leaders said they were also expanding their ambulatory surgery centers and their affiliations with specialists. One system leader reported that partnerships with specialists acquired through participation in an ACO helped generate revenue by keeping patients' specialty care within the system and giving the system more control over the specialists.

Overall approach to CPC+ in PY 1

Overall, practices that started CPC+ in 2018 indicated that CPC+ implementation was going well. Similar to the first-year experience of practices that started CPC+ in 2017, deep-dive practices that started CPC+ in 2018:

- Focused their work on care delivery requirements for which they had the most room to improve.
- Commonly prioritized work on care management (including hiring care managers and developing workflows for longitudinal and episodic care management).
- Engaged clinical and non-clinical staff to set the direction of CPC+ work. A couple of the six system-owned practices we interviewed reported that system-level staff were heavily involved in setting practice priorities.

4.4. Practices' work on Comprehensive Primary Care Functions

In this section, we describe practices' progress transforming care for each of the five Comprehensive Primary Care Functions. In each case, we define the function, provide an overview of progress for practices that joined CPC+ in 2017, and describe the associated CPC+ requirements and practices' work related to them. If relevant, we identify additional changes practices made to improve care outside the care delivery requirement. Additionally, we highlight the factors that supported or hindered practices' work and their perceptions of the benefits and drawbacks of transforming care for each care delivery requirement.

4.4.1. Function 1: Access and continuity

CPC+ encourages practices to improve patients' access to, and continuity of, primary care. CPC+ defines access to care as the availability of health services when patients need and want them, and continuity of care as the creation of long-term, trusting relationships between patients and practitioners to enable effective provision of care (CMMI 2018). Access to comprehensive primary care is expected to promote health and the adoption of healthy behaviors that can help patients prevent and manage disease (ODPHP n.d.). Access to a regular source of primary care also can prevent unnecessary and costly care, such as avoidable ED visits.

In PY 2, CPC+ required all practices to meet care delivery requirements related to empaneling patients, defined by CMS as processes that assign each active patient to a practitioner and/or care team, with consideration of patients' and caregivers' preferences (Section A), ensuring patients have 24/7 access to a care team practitioner with real-time access to the EHR (Section B), and measuring continuity of care (Section C). Track 2 practices must also provide alternative care delivery approaches to traditional office visits (Section D).

Overview of progress. Virtually all CPC+ practices continued efforts that often predated CPC+ to provide patients with 24/7 access to a care team member with real-time EHR access. The widespread access to EHRs via the Internet and smartphones made it easier for practitioners to care for patients from almost anywhere. CPC+ practices also

supported 24/7 access by offering expanded hours, daily appointment slots reserved for patients with acute needs, and alternatives to traditional office visits, such as an electronic visit (eVisit), phone visit, group visit, home visit, or a visit in a different location such as a nursing home. Although CPC+ requires only Track 2 practices to offer alternative visits, many practices from both tracks offered them in PY 2. However, many practices also reported that not all patients who could benefit from alternative office visits received them, suggesting an area for improvement in future program years.

Although most CPC+ practices were empaneling patients in PY 1, in PY 2, most deep-dive practices began routinely reviewing patient panels to ensure these assignments remained accurate and up to date. Practices noted several benefits of keeping assignments updated, such as satisfying patient preferences, improving continuity of care, identifying gaps in care, and supporting QI efforts. Although EHRs' reporting and sorting capabilities help practices make updates, keeping empanelment assignments updated is time consuming, presenting a challenge for busy practices where staff have many competing priorities.

In response to a new requirement, practices began measuring continuity of care in PY 2, typically using their EHRs, although it is unclear whether practices are actively using this information to inform the way they provide care. Practices noted that measuring continuity enabled them to enhance it. But they also acknowledged that continuity should not always trump access, such as when patients have an acute care need and their provider is unavailable because the provider has a full schedule or is on vacation.

A. Empaneling patients to a practitioner and/or a care team

What were the CPC+ requirements in PY 2?

In PY 1, CMS required practices to achieve at least 95 percent empanelment to a practitioner and/or care team, and in PY 2, it required practices to maintain that level of empanelment. To achieve this objective, CMS encouraged practices to (1) identify "active patients"—those who had been seen at the practice within a defined period, usually the past 18 to 36 months, and (2) assign all active patients to a particular practitioner and/or care team in a way that considers patients' and caregivers' preferences.

How did CPC+ practices approach maintaining at least 95 percent empanelment to practitioners and/or care teams?

As in PY 1, all CPC+ practices were empaneling patients, and nearly all were empaneling a high proportion of patients in PY 2. Most practices continued to empanel their patients to a practitioner. Only 13 percent of practices reported to CMS that they empaneled patients to a care team.

In PY 2, most deep-dive practices conducted routine reviews to ensure that panels were up to date. Most deep-dive practices described making panel updates by assigning new patients and removing inactive patients by looking back over a certain period of time. Many CPC+ practices reported to CMS that they looked back one to two years rather than for a longer period (80 percent versus 19 percent). Deep-dive practices reported that the frequency of these updates

varied widely, from weekly to annually. Several deep-dive practices that conducted routine reviews, and a few practices that did not, also reported making ad hoc empanelment updates. These ad hoc updates were prompted when (1) the practice learned that a patient moved, died, or separated from the practice for other reasons, or (2) practitioners viewed their quality dashboards and saw that particular patients were overdue for recommended care. When practices identified patients who were overdue for care, they called them to schedule an appointment. These calls also served to determine whether the patient had separated from the practice and therefore should be removed from a panel. Several deep-dive practices said they began to focus on keeping empanelment records up to date after joining CPC+. A couple reported that, although this work predated CPC+, they significantly improved their updating processes as a result of CPC+ participation.

No deep-dive practices reported changing assignments to balance panel sizes or the number of patients with complex needs among practitioners in PY 2, although several considered the size of a practitioner's panel when making assignments. Deep-dive practices that consider practitioners' panel size when making *new patient* assignments described using various approaches, such as suggesting patients choose the practitioner who has the soonest available appointment or closing a practitioner's panel so that he or she no longer can accept new patients. Although deep-dive practices did not report changing patient assignments to balance panels, a couple said they changed assignments based on patient requests, practitioners' areas of expertise, and provider turnover.

What facilitators and/or challenges did CPC+ practices experience with maintaining empanelment?

In PYs 1 and 2, several deep-dive practices indicated that practitioner assignments were visible in their EHR and that this functionality helped them maintain accurate panels. In PY 2, deep-dive practitioners and staff in various roles—including care managers, practice managers, physicians, and nurse practitioners—said they appreciated being able to easily find the assigned provider in the EHR. Respondents also commented that their EHR's reporting and sorting capabilities help them identify active and inactive patients. However, a few deep-dive practices reported that their EHR produced inaccurate empanelment reports or were burdensome to navigate, and thus hindered their empanelment efforts.

In PY 2, several deep-dive practices noted that keeping empanelment up to date on a regular basis was challenging for staff. For example, the medical lead at a Track 2 practice said it would be better to streamline the process of updating panels so that it is done quarterly. Likewise, a care manager in a Track 1 practice said that the practice does not have the resources to update patient lists regularly, so they make ad hoc updates when they realize a patient has not been to the practice in a long time.

What did CPC+ practices perceive as the benefits and/or drawbacks of maintaining empanelment?

Similar to PY 1, in PY 2 a few deep-dive practices noted that having accurate empanelment records helped them improve the quality of care and/or identify gaps in care. A couple of deep-dive practices reported that accurate empanelment records also help practitioners and staff see when patients have gaps in care. For example, the medical lead at a Track 1 practice said that

having an up-to-date list of active patients enabled the practice to more effectively identify patients who needed preventive services or could benefit from care management, and improve the accuracy of quality reporting.

Several deep-dive practices said empanelment supported team-based care and coordination among practitioners, as well as continuity of care. These practices described how empanelment records—in particular, being able to see patient assignments in the EHR—help the care team members communicate and coordinate care with the practitioner assigned to a patient. A nurse practitioner at a small Track 1 practice said this functionality is especially helpful when answering after-hours calls. Knowing who the assigned practitioner is also helps front desk staff or medical assistants route messages. Several other deep-dive practices said keeping panels up to date encouraged continuity of care, because it helped them schedule patients with their assigned practitioner and identify patients who were active but overdue for a visit.

B. Ensuring timely access to the care team through 24/7 coverage

What were the CPC+ requirements in PY 2?

In PY 1, CMS required practices to provide patients with access to a care team practitioner who has real-time access to the EHR, 24 hours a day, 7 days a week, and encouraged practices to offer expanded office hours. This requirement did not change in PY 2.

How did CPC+ practices approach 24/7 coverage?

Most CPC+ practices reported providing 24/7 coverage in PY 1, and continued to do so in PY 2. As required for practices in both tracks, almost all practices (99 percent) reported to CMS that patients had 24/7 access to a practitioner with real-time access to the EHR in PY 2. Many practices (80 percent) reported to CMS that this coverage was provided by a care team member at the practice site. These efforts often pre-dated CPC+. Although not required, CMS also encouraged practices to expand access by offering additional office hours in the morning, evening, or weekend, and same-day appointment slots. In PY 2, approximately half of practices reported to CMS that they provided weekend, evening, or early morning office visits when patients needed them, and many deep-dive practices indicated that they reserved daily appointment slots for patients with acute needs. Responses to the 2018 CPC+ Practice Survey support this finding, with 97 percent of all CPC+ practices reporting that same-day appointments for patients who need them were available for many, most, or all patients who requested them. However, several deep-dive practices noted that, patients with a same-day appointment might not see their assigned practitioner if the practitioner is unavailable.

Responses to the 2018 CPC+ Beneficiary Survey indicate that many beneficiaries in both CPC+ practices and non-participating practices received timely answers to their questions. In line with our practice findings, survey responses indicate that beneficiaries in Track 2 practices who contacted their doctor's office with a health question outside of regular office hours were more likely than beneficiaries in non-participating practices to report receiving a timely answer to their health questions (67 versus 60 percent). However, beneficiaries in Track 1 practices were just as likely to report receiving timely answers to their health questions as the patients in a set of non-participating practices (60 versus 62 percent).

What facilitators and/or challenges did CPC+ practices experience with 24/7 coverage?

In both PY 1 and PY 2, several deep-dive practices said that having real-time access to the EHR made it easier to provide after-hours care. For example, in both years, practitioners at a couple of deep-dive practices noted that having EHR access on their mobile devices enabled them to provide care from almost anywhere. Conversely, practitioners at a couple of other practices noted that they did not have EHR access on their mobile devices, which meant they were "tethered to their laptops" when covering after hours calls.

What did CPC+ practices perceive as the benefits and/or drawbacks of providing 24/7 coverage?

In PY 1 and PY 2, practices identified a number of benefits related to expanded coverage. For example, several deep-dive practices said that providing 24/7 access prevented unnecessary ED visits and agreed it was beneficial for patients to receive care from a practitioner familiar with their circumstances. A couple of deep-dive practices mentioned benefits that extended to practitioners, as well, such as making it easier for other providers, such as ED and nursing home staff, to contact someone at the practice if they needed to discuss a patient after the practice had closed for the day, ultimately leading to more informed and coordinated patient care.

> **"We've really educated our patients to call us first, so they are now more comfortable calling us and getting advice, as opposed to rushing straight to urgent care or the [ED]…. Because our providers are available after hours, our [ED] utilization is less. That's the goal—that patients don't show up at the ER for a cough that just started that day."**
>
> ***— Practice manager at a small, independent Track 2 practice***

C. Measuring continuity of care

What were the CPC+ requirements in PY 2?

In PY 1, CMS required practices to organize care by practice-identified teams that were responsible for a specific group of patients and to ensure care teams could access patient information in the EHR to promote continuity of care. CMS also encouraged practices to develop the capacity to measure and analyze continuity of care for their empaneled patients. In PY 2, measuring continuity became a requirement. CMS recommended two common methods for measuring continuity: (1) calculate the rate at which the assigned practitioner or care team sees their empaneled patients (including for alternative care), as opposed to other patients (called the practitioner-centric continuity rate), and (2) calculate the proportion of patients' visits (including for alternative care) to their assigned practitioner, as opposed to other practitioners or care team members at the practice (the patient-centric continuity rate).

How did CPC+ practices measure continuity of care?

Consistent with the enhanced requirement, more practices reported to CMS that they were measuring continuity of care in PY 2 compared with PY 1, although deep-dive practices reported varied levels of implementation. Ninety-one percent of practices reported to CMS that they tracked continuity of care in PY 2, compared with 78 percent of practices in PY 1.

Among practices that reported to CMS that they tracked continuity of care in PY 2, similar percentages of Track 1 and Track 2 practices reported that they use a practitioner-centric measure of continuity (68 percent and 69 percent, respectively). However, more Track 2 practices than Track 1 practices reported to CMS that they use a patient-centric measure to track continuity (56 percent compared to 45 percent). Thirteen percent of Track 1 and 25 percent of Track 2 practices reported using both measures of continuity. Deep-dive practices, however, reported variation in their level of implementation. Several deep-dive practices, for example, reported measuring continuity, but several others said they were not measuring it. Among the several practices that were measuring continuity, half said that this work pre-dated CPC+ but added that they have begun *regularly* measuring continuity because of CPC+ participation. A couple of these practices mentioned that, before CPC+, they measured continuity to meet PCMH requirements.

Among the several deep-dive practices that said they measured continuity, a couple reported actively using this information to improve the way they provide care. One practice described reviewing reports of continuity of care, patients' ED utilization, and appointment wait times to explore whether access issues were related to ED use.

"We said, if your continuity rate is low and ED use high, take a look at your wait time [to get an appointment]…. Maybe this is an area [where] you have an access issue, that's why your patients are not coming in and [instead] going to the ED.

— CPC+ coordinator at a medium-sized, system-owned Track 2 practice

What facilitators and/or challenges did CPC+ practices experience when measuring continuity of care?

Although EHRs were the primary system practices used to track continuity, several deep-dive practices said their EHR lacked the functionality to effectively support this activity. Of the CPC+ practices that track continuity of care, 91 percent reported to CMS that they used their EHR to do so. However, several deep-dive practices noted difficulties using their EHR for this purpose. For example, a few practice managers said their EHR was not set up to calculate continuity, so they had to manually calculate the measure. At a large Track 1 practice, a physician said the continuity reports generated by their EHR were incomplete, so he had to chase down additional information to understand the reported continuity metric.

What did CPC+ practices perceive as the benefits and/or drawbacks for patients or practitioners of measuring continuity of care?

Several deep-dive practices noted that measuring continuity of care benefited patients and practitioners. For example, a couple of deep-dive practices noted that measuring continuity enhanced the practice's ability to ensure patients had access to care when needed but were also seeing their assigned practitioner or care team member. Measuring continuity also enabled practices to adjust panels when patients were having trouble getting an appointment with their practitioner. As a practitioner at a Track 1 practice remarked, "I see it as a useful tool to help understand when a panel is getting too full and needs to be closed." A few other practices said that measuring continuity was important, because continuous care improves the quality of patient care and patient satisfaction, and patients' conditions are more likely to improve if they consistently visit the same provider.

A few deep-dive practices said measuring continuity was important, but that continuity should not be prioritized at the expense of access. For example, a couple of Track 1 practices reported that there were times when a patient might have had a legitimate need to see a provider other than their assigned provider, such as for an urgent acute visit, when the empaneled provider was on vacation, or when the patient was traveling.

D. Providing alternatives to traditional office visits

What were the CPC+ requirements in PY 2?

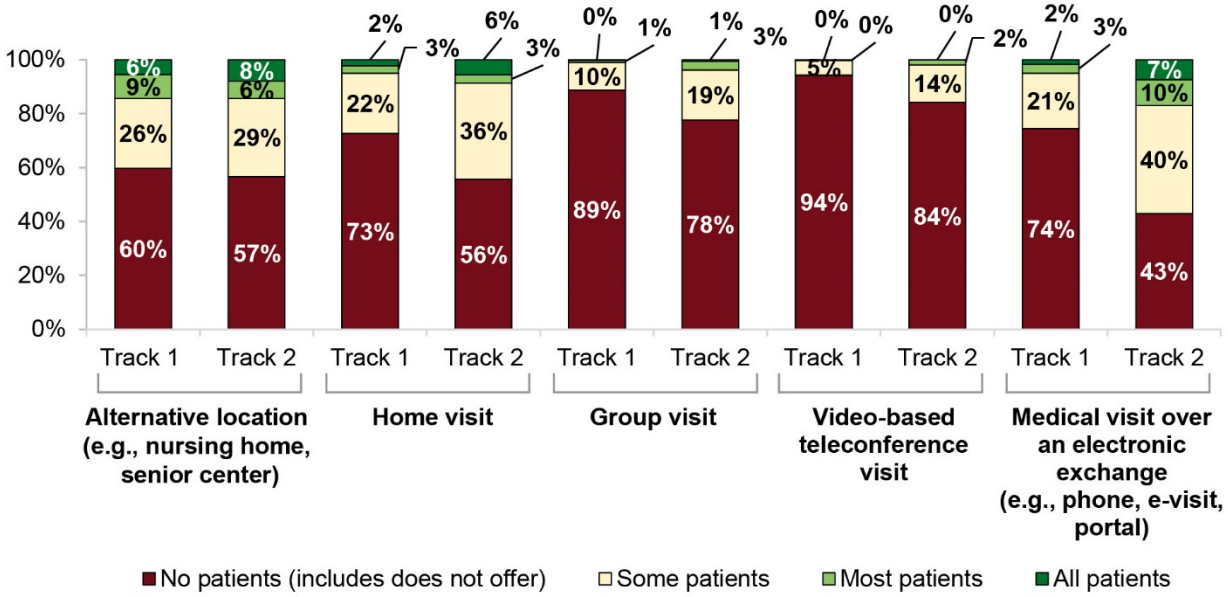
In PY 1 and PY 2, Track 2 practices were required to regularly offer at least one alternative to traditional office visits. Alternatives could include eVisits, phone visits, group visits, home visits, or visits at an alternative location, such as a nursing home or skilled nursing facility. In PY 1, Track 2 practices were also encouraged to offer expanded office hours, though CMS removed this requirement in PY 2. (We discuss findings related to expanded office hours in Section 4.4.1.C.)

How did CPC+ practices approach alternative visits?

Ninety-seven percent of Track 2 and 70 percent of Track 1 practices reported to CMS that they offered alternative visits, but such visits were not offered regularly to all patients who could benefit from them. Although only required of Track 2 practices, most deep-dive practices in both tracks reported that they offered at least one type of alternative visit to meet patients' needs in PY 2, up from only a few deep-dive practices in PY 1. Many deep-dive practices reported that the type of alternative visit they most commonly provided were home visits, and several reported offering visits to nursing homes or other facilities. In reporting to CMS, the most common alternative visits provided to some, most, or all patients noted across both tracks were visits to nursing facilities, hospitals, or senior centers—offered by 41 percent of Track 1 and 43 percent of Track 2 practices—followed by home visits, offered by 27 percent of Track 1 and 45 percent of Track 2 practices. Medical visits over an electronic exchange were more popular among Track 2 practices (57 percent) than among Track 1 practices (26 percent). However, most practices reported to CMS that they did not offer alternative visits to many of the patients they thought could benefit from them (Figure 4.4).

Figure 4.4. Percentage of practices that reported offering alternative visits to none, some, most, or all of the patients who could benefit them, by visit type in PY 2

Practices reported that many patients practices believed could benefit from alternative visits were not offered them.



Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.

Notes: N = 1,270 Track 1 practices and 1,445 Track 2 practices. Practices were given the following estimates to guide responses to this question and give their best guess: none (0 percent), some (up to 50 percent of all patients), most (50 to 95 percent), or all (95 to 100 percent).

PY = Program Year.

What facilitators and/or challenges did CPC+ practices experience when providing alternative visits?

In both PY 1 and PY 2, several deep-dive practices discussed challenges with billing for alternative visits. For example, of the several Track 2 deep-dive practices that said they did not implement alternative visits in PY 2, a few reported as a barrier the belief that alternatives to FFS payments (including CMS' Comprehensive Primary Care Payment for Track 2 practices[27]) were inadequate to cover the costs of implementing them. Additionally, in both years, a few deep-dive practices said they were concerned that if they began to offer phone visits, some payer partners would not reimburse for them, or patients would be unwilling to provide a copayment for a service that practices had traditionally provided at no cost.

In PY 2, several deep-dive practices noted that home visits were time-consuming and expensive; given available resources, these practices were unlikely to make them available to more patients. A few deep-dive practices said they limit the number of home visits they

[27] See Chapter 3 for more information on the Comprehensive Primary Care Payment and other CPC+ payments from CMS and payer partners.

provide for cost reasons, staffing reasons, or both. For example, a few practices noted that they lose money on home visits, so there are no financial incentives to provide them.

A few deep-dive practices identified concerns that prevented them from offering group visits. For example, a couple of practices noted concerns about patient privacy during a group visit, and another practice said group visits were hard to document in the EHR.

What did CPC+ practices perceive as the benefits and/or drawbacks for patients or practitioners of alternative visits?

In both PY 1 and PY 2, a few deep-dive practices noted that home visits—which they reported as the most common type of alternative visit—could benefit patients and practitioners. For example, a few practices reported that home visits are convenient and even necessary for homebound patients. In both program years, a couple of deep-dive practices noted that home visits also benefit practitioners' ability to care for these patients, because seeing patients in their homes gives practitioners a more complete picture of the patients' living conditions, including safety hazards and how the patients store and take medications. In turn, practices reported that patients benefit from education about such issues that often occurs during home visits.

Improving access and continuity in PY 1

Similar to the first year experience of practices that started CPC+ in 2017:

- Nearly all practices that joined in 2018 reported to CMS that patients had 24/7 access to a practitioner with real-time access to the EHR (94 percent). Most of the time (82 percent), care team members at the practice provided this coverage.
- Many 2018 Starter practices—in both tracks—reported to CMS that they offered at least one type of alternative visit, despite only being required of Track 2 practices.
  - Several 2018 Starter deep-dive practices acknowledged that in their first year of CPC+, they offered alternatives visits only occasionally, on a case-by-case basis, and did not regularly offer them to all patients who might benefit from them.
  - A few deep-dive 2018 Starter practices described challenges billing for alternative visits. For example, these practices were unsure whether patients would be willing to provide copayments for services that they previously received at no cost, such as phone visits.

Practices that started CPC+ in 2018 were less likely than practices that started in 2017 to report to CMS that they had empaneled at least 95 percent of their patients to a practitioner or care team in PY 1 (80 percent compared with 90 percent).

4.4.2. Function 2: Care management

CMS sees care management for patients with complex needs or high health care costs as a hallmark of comprehensive primary care. The term "care management" describes a set of proactive activities intended to improve health outcomes and reduce overutilization, harm, and waste (CMMI 2018). In PY 2, CMS asked practices to use risk stratification to identify patients who may benefit from care management (described in Section A), such as those with multiple chronic conditions, and to offer longitudinal care management that provides ongoing and proactive support to those patients (Section B). For Track 2 practices, such support includes the use of care plans that document and track patient needs and how they are addressed (Section C). CMS also required all practices to offer short-term or episodic care management to patients who experience an acute event, such as an ED visit or a hospitalization (Section D).

Overview of progress. Most practices in both tracks reported to CMS that they used the first and second risk-stratification steps (a data-driven algorithm to assign a risk score, and adjust risk scores using care team members' clinical knowledge), although deep-dive findings indicate that the use of a two-step risk-stratification process was not as widespread as reported to CMS. Many deep-dive practices said that they did not reliably employ a two-step risk-stratification process, and several deep-dive practices were not using risk scores to identify high-risk patients for longitudinal care management. Nonetheless, several deep-dive practices said the use of risk stratification was new to their practice as of the beginning of CPC+, and a few said that they had improved existing processes after beginning CPC+. Deep-dive practices described challenges with risk stratification, including insufficient buy-in among practitioners and staff regarding the value of risk scores and inadequate EHR functionality to support the risk-stratification process.

Practices continued to use fairly consistent approaches to deliver longitudinal and episodic care management, and more practices offered these services to patients than had in PY 1, though the number of patients that practices classified as high-risk and as receiving these longitudinal care management remained low. Practices reported that care managers provided longitudinal care management services via phone or in person to patients with complex medical needs. A few deep-dive practices said they had offered longitudinal care management before beginning to participate in CPC+, and several other practices said they either began or improved longitudinal care management services after joining CPC+.

Despite practices' efforts to improve care management, the percentages of patients receiving longitudinal care management services remained low in PY 2. CPC+ practices placed a median of just 2.4 percent of empaneled patients in the highest risk tier; of these highest-risk patients, just less than one-third were receiving longitudinal care management services. The most frequently identified challenge to providing longitudinal care management services, noted by several deep-dive practices, was that the practice had insufficient care management staff to provide these services to all patients who would benefit from them and, to a lesser extent, patients' reluctance to engage in care management.

The extent to which practitioners and care managers understand and use care plans—as intended by CPC+ for longitudinal care management patients—remains unclear. Although care managers at several Track 2 deep-dive practices understood and used care plans as intended by CPC+,

practitioners and other staff at most of these did not. Additionally, health IT functionality often influenced the ease or difficulty practices faced in accessing, creating, or updating care plans.

Nearly all practices continued to provide episodic care management and in PY 2, more practices established formal processes with hospitals and EDs to receive notification of discharge and hired or identified staff who conducted timely follow-up. Many deep-dive practices relied on care managers to provide episodic care management (a few of these used the same care manager that also provided longitudinal care management), whereas several other deep-dive practices used medical assistants, and a couple of others relied on patient navigators or health coaches for this work. Many deep-dive practices reported that they had offered episodic care management before participating in CPC+.

In future program years, a continued emphasis by CMS and the learning contractors on the principles and benefits of care management and the tools intended to help practices organize resources to target patients at increased risk could enhance implementation. Practices may also benefit from training to increase staff members' ability to overcome patients' psychosocial barriers to participation and reluctance to engage in care management. Finally, health IT vendors can continue to work with practices to improve health IT functionalities for creating and maintaining care plans that can be accessed by all members of the care team.

A. Using risk stratification

What were the CPC+ requirements in PY 2?

Risk stratification helps practices to identify patients at different levels of medical needs, behavioral diagnoses, and health-related social needs, so they can strategically address those needs (CMMI 2018). In PY 1, CPC+ required all practices to risk stratify their entire patient population, and encouraged practices to do so at least once a year; Track 2 practices were also required to use a two-step risk-stratification process to do so. For the first step, practices had to use an algorithm (based on defined diagnoses, claims, or other electronic data) to assign a risk score to each empaneled patient. For the second step, practices could adjust the risk score based on the care team's knowledge of the patient or their "clinical intuition"—such as knowledge of whether the patient lives with a caregiver or faces economic challenges. In PY 2, CPC+ required both Track 1 and Track 2 practices to use a two-step process to risk stratify their empaneled patients. CPC+ also encouraged (but did not require) practices to reassess individual patients' level of risk regularly throughout the year, as well as the distribution of risk across their patient population and how that changed over time.

How did practices approach risk stratification?

Most practices reported to CMS that they used a two-step risk-stratification process in PY 2, but deep-dive findings suggest that practices did not do so as consistently as the data they reported to CMS suggest. Most practices (93 percent) reported to CMS that they used a two-step risk-stratification process in PY 2. Consistent with the new requirement for Track 1 practices to do so, there was a 13 percentage point increase from PY 1 (from 81 to 94 percent) in the proportion of Track 1 practices that reported in PY 2 that they implemented the second risk-stratification step—that is, they considered the care team's knowledge when risk stratifying

patients. However, deep-dive findings imply that practices in both tracks may not have implemented a two-step risk-stratification process as completely as the data they reported to CMS suggest. Many deep-dive practices, for example, reported that they did not reliably employ a two-step risk-stratification process, and a few practices said that although practitioners had the ability to adjust risk scores, they did not usually do so. These deep-dive practices said that a lack of practitioner buy-in to the value of risk scores and uncertainty about the process for updating risk scores hindered their ability to use a two-step risk-stratification process. Among deep-dive practices that said they were risk stratifying their patients, several said the use of risk stratification was new to their practice when they joined CPC+, and a few additional practices said that they had improved their existing processes since beginning CPC+.

Deep-dive practices' approaches to two-step risk stratification varied, with deep-dive practices using automated and manual processes. To conduct the first step (using an algorithm to assign a risk score to empaneled patients), most deep-dive practices used health IT to automatically generate a risk score, whereas several other deep-dive practices manually applied a practice-developed algorithm or the American Academy of Family Physicians rubric. Practices' use of clinical and claims variables in risk-stratification algorithms increased in PY 2.[28] For the second step (adjusting risk scores based on clinical intuition), practices updated patients' risk scores based on information, such as social needs, obtained by a clinician during a patient visit or after a hospital discharge.

Nearly two-thirds of practices reported to CMS that practitioners were primarily responsible for assessing and updating patients' risk scores, and nearly one-quarter reported care managers and other licensed clinical staff were responsible. The activities that practices reported to CMS as prompting their reassessment of a patient's risk score remained similar across program years for both tracks. In PY 2, these activities included (1) the occurrence of certain pre-specified clinical events, such as a new diagnosis or hospitalization (33 percent of all practices); (2) a set reassessment schedule (26 percent of all practices); and (3) information being added or updated in the health IT or EHR platform (25 percent of all practices). Among the 26 percent of practices that reported to CMS that a set schedule prompted reassessment of a patient's risk score, 88 percent reported that the schedule called for reassessment at least annually, and most of them did so more frequently, either multiple times a year (29 percent) or at each patient visit (37 percent).

What facilitators and/or challenges did CPC+ practices experience when working on risk stratification?

Many deep-dive practices described a lack of buy-in among practitioners and staff as a challenge to implementing consistent workflows to support a two-step risk-stratification process and reassessing risk scores. Lack of buy-in among practitioners and staff was most apparent in deep-dive practices that had automated systems for assigning risk scores but no clear process for adjusting risk scores based on clinical intuition. These practices were also uncertain

[28] By the start of PY 3, Track 2 practices were required to generate patient risk scores using a health IT-enabled algorithm to identify patients who could benefit from care management.

about how the automated risk scores were assigned. These factors affected practitioners' and staff members' perceptions of risk score accuracy and value, and thus their buy-in.

Several independent and system-owned deep-dive practices reported that their EHR lacked the functionality to support a two-step risk-stratification process. A couple of deep-dive practices reported that their EHR could not automatically calculate risk scores (Step 1) and so the practices had to develop manual workarounds for calculating risk scores and entering them into the EHR. In several deep-dive practices, most of which had implemented automated risk stratification as part of CPC+ participation, practitioners and staff reported that the risk scores were an inaccurate reflection of a patient's care needs (for example, because they were not updated to reflect patients' most current conditions) or they could not adjust risk scores in the EHR based on clinical intuition (Step 2).

What did CPC+ practices perceive as benefits and/or drawbacks of risk stratification?

Several deep-dive practices said risk stratification helped to systematically identify and prioritize patients with potentially high-cost care needs for longitudinal care management. For example, the care manager at a system-owned practice appreciated that the EHR automatically generated a list of patients who had high risk scores and should be receiving longitudinal care management. Several deep-dive practices also reported that risk stratification helped identify low- or rising-risk patients, such as smokers, so they could provide preventive care to keep the patients' risk levels and health care costs from climbing.

> ***"[Risk stratification] really does allow us to put the right resource [to] the right population of patients. And impact their quality of life and adherence—and keep them out of the hospital."***
>
> ***—Medical lead at a large, system-owned Track 2 practice***

Several deep-dive practices also noted that risk scores alert practitioners and staff of patients' needs when preparing for patient interactions. A few practices, for example, credit risk stratification with helping them to schedule the right length of time for visits with high-risk patients, which has improved patient flow and reduced patient wait time.

Several other deep-dive practices did not perceive risk stratification to be beneficial. At a few deep-dive practices, practitioners indicated that they know their patients well and can anticipate their needs without a risk score. A few other practitioners perceived risk scores to be associated with costs, as opposed to medical conditions, and therefore found them to be more relevant for payer partners. Practitioners and care managers in a few additional deep-dive practices (that started manually assigning risk scores to patients after they joined CPC+) stated that assigning risk scores merely creates more documentation and does not improve care delivery.

B. Providing longitudinal care management

What were the CPC+ requirements in PY 2?

In PY 1 and PY 2, CMS expected all practices to provide targeted, proactive, relationship-based (longitudinal) care management to all patients identified as at increased risk and likely to benefit from intensive care management. Longitudinal care management aims to manage the care of patients at higher risk of adverse health outcomes, to improve their quality of life, and to lower costs of care.

How did practices approach longitudinal care management?

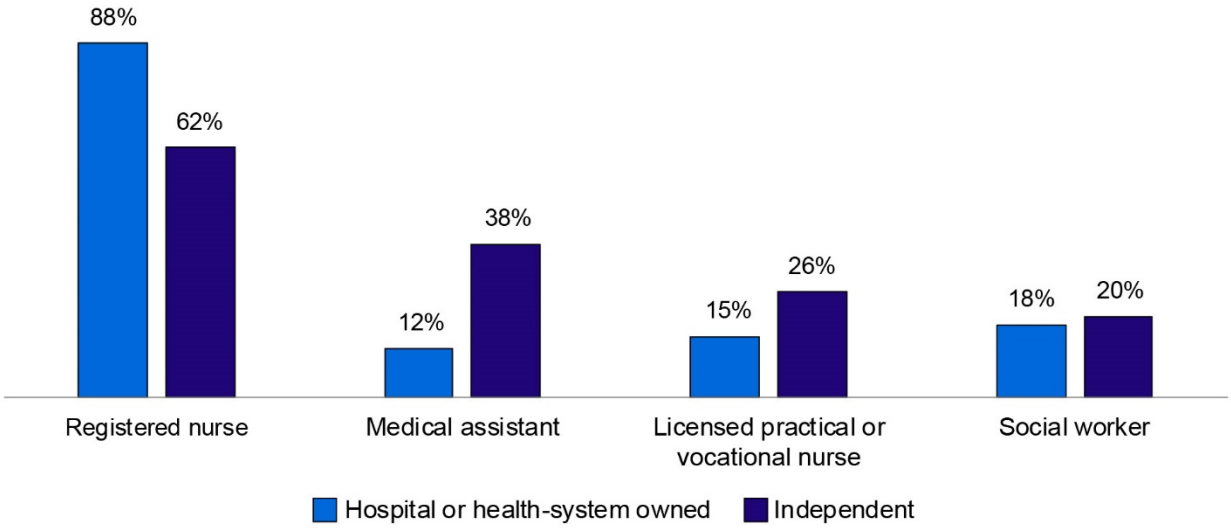
As in PY 1, most deep-dive practices had at least one part-time or full-time care manager providing longitudinal care management. In system-owned practices, it was common for care managers to be centralized at the system level, dividing their time across multiple practices. Care managers at most deep-dive practices met with patients by phone and in person. Topics of discussion typically included patients' conditions, recent changes in health status, medications, lifestyle and behavior choices, support systems, and behavioral health and social needs. Care managers at most deep-dive practices communicated with primary care practitioners and staff (including behavioral health specialists and individuals providing CMM services) to coordinate care for patients receiving longitudinal care management services. Although a few deep-dive practices said they provided longitudinal care management before participating in CPC+, several others said they either started to provide or improved or expanded longitudinal care management services after they joined CPC+.

Deep-dive practices' estimates of care manager caseloads varied widely. Many deep-dive practices provided estimates of care manager caseloads, which ranged from 15 to 295 patients per care manager, with a median reported caseload of around 100 patients per care manager. Several deep-dive practices said they lacked sufficient care management staff to provide longitudinal care management services to all patients who might benefit from them. Insufficient staffing for care management was related to existing staff being stretched too thin (with larger caseloads than they could manage), and several deep-dive practices reported that they would hire additional care managers if funding and a skilled workforce were available.

Among practices that reported having a care manager, registered nurse was the most common credential of the care manager. Practices owned by a hospital or health system were more likely than independent practices to report in the 2018 CPC+ Practice Survey that their care managers or care coordinators were registered nurses (88 percent versus about 62 percent of independent practices, respectively). In contrast, the percentage of medical assistants or licensed practical or vocational nurses acting as care managers was higher among independent practices than among system-owned practices (Figure 4.5).

Figure 4.5. Percentage of practices that reported various clinical credentials of staff who provided care management services in PY 2, by practice ownership

Many practices reported that registered nurses provided care management services, though hospital- or health system-owned and independent practices varied in their use of staff with different credentials.



Source: Mathematica's analysis data from the independent evaluation's 2018 CPC+ Practice Survey.

Notes: N = 1,523 hospital or health-system owned practices and 1,242 independent practices.

PY = Program Year.

Deep-dive practices identified various methods for selecting patients for longitudinal care management.[29] Many deep-dive practices said they used risk scores to identify patients at high risk for longitudinal care management and to increase practitioners' and staff members' awareness of these patients. A few of these practices and a few other practices reported that they focused their longitudinal care management services on patients with specific conditions (or a combination of conditions), such as diabetes, prediabetes, heart failure, hypertension, hyperlipidemia, chronic kidney disease, obesity, smoking, memory issues, asthma, and chronic obstructive pulmonary disease (COPD). In addition, a few deep-dive practices reported that practitioner referral was the primary method for identifying patients for longitudinal care management services. Although practices took different approaches to identifying patients for longitudinal care management services, a few deep-dive practices specified that not all patients with complex needs were chosen for longitudinal care management services, because some patients' conditions would not be amenable to improvement through longitudinal care management.

[29] By the start of PY 3, Track 2 practices were required to use advanced health IT to flag patients who could benefit from care management in their EHR or to generate lists of patients with complex needs to ensure patients would receive needed care management.

In PY 1 and PY 2, several deep-dive practices indicated that the duration and frequency of longitudinal care management services was highly individualized and depended on the patient's needs and the care manager's or practitioner's judgement. Several deep-dive practices reported that they graduated patients out of longitudinal care management services. None of these practices reported using a formal protocol to determine when to discharge patients from longitudinal care management; rather, they typically reported that this decision depended on the clinical judgement of the care manager and/or practitioner.

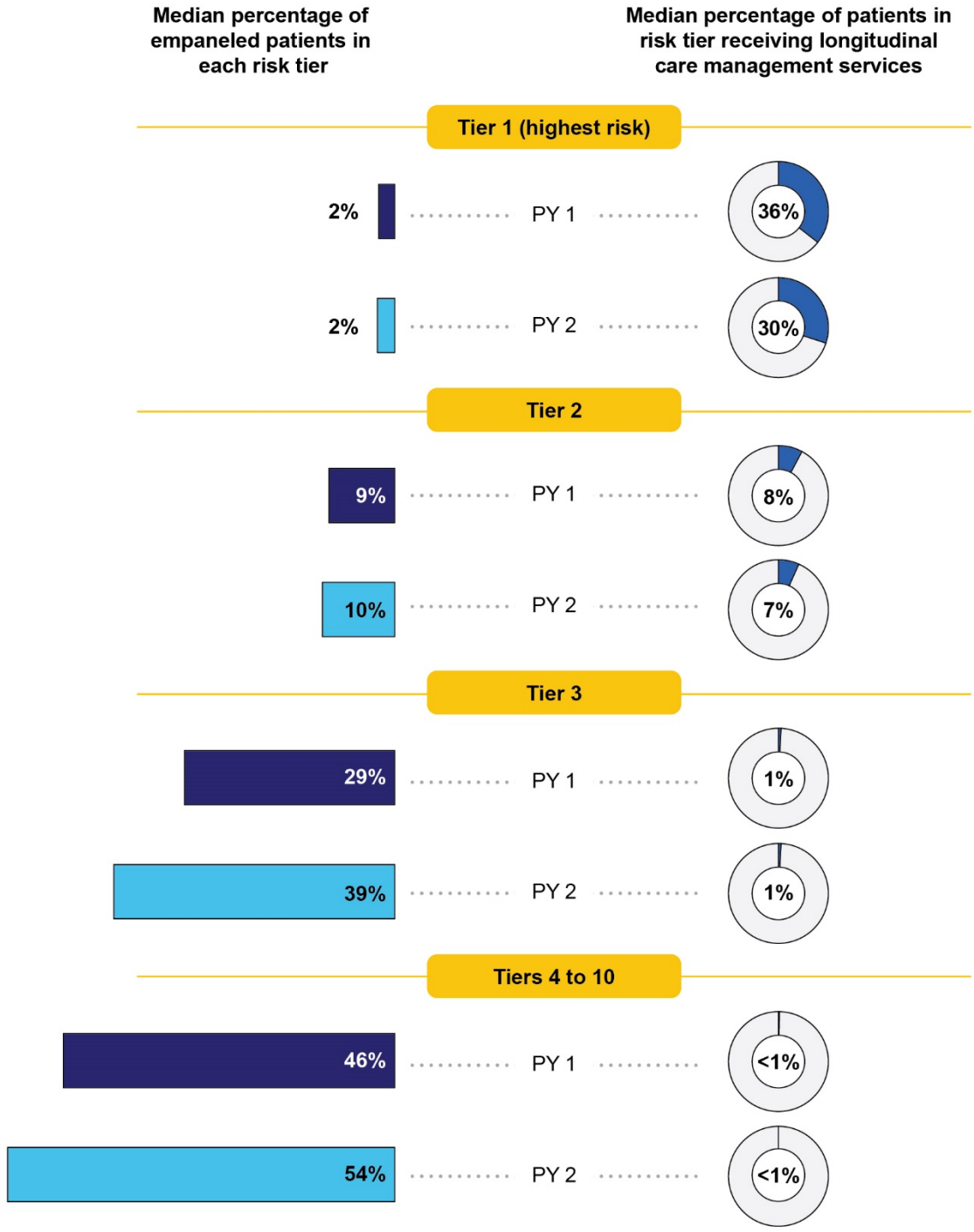
More practices offered care management services for patients at high risk in PY 2 than in PY 1. According to the CPC+ Practice Survey, the proportion of practices that reported offering care management (inclusive of "providing support and education to high-risk patients to monitor and manage their chronic conditions, working with patients during primary care visits and between visits, and monitoring transitions in care such as after a hospitalization") at their practice site or larger health care organization, as required by CPC+, increased by 13 percentage points from 81 percent in PY 1 to 94 percent in PY 2.[30] In PY 2, 70 percent of all practices reported in the 2018 CPC+ Practice Survey that care management services for patients at high risk were provided by a care manager located at their practice site (versus offering these services off site or not at all).

Nonetheless, practices reported to CMS that they placed a low percentage of patients in the highest risk tier, and of those, less than one-third received longitudinal care management in the last quarter of PY 2. Similar to PY 1, based on practices' reports to CMS, the median percentage of empaneled patients placed in the highest risk tier in the last quarter of PY 2 was 2.4 percent; of those in the highest risk tier, the median percentage receiving longitudinal care management was 30 percent (Figure 4.6). These findings were similar in both tracks. In PYs 1 and 2, data practices reported to CMS show that, from the highest-risk tier to the lowest-risk tier, the median percentage of patients in each tier increases while the median percentage of patients in each tier receiving longitudinal care management decreases, as anticipated. In addition, when looking at patients in risk tiers by type of practice ownership, independent practices had a higher median percentage of patients in the highest-risk tier *receiving* longitudinal care management compared with practices owned by a health system (46 versus 22 percent), even though independent and system-owned practices had similar proportions of patients in the highest-risk tier (2.6 and 2.2 percent, respectively).

[30] The remaining 6 percent of practices reported in the 2018 CPC+ Practice Survey that they did not provide care management services or relied on an outside organization (such as a health insurance plan) to do so.

Figure 4.6. Comparison of patients' receipt of longitudinal care management services in PY 1 and PY 2

As in PY 1, CPC+ practices reported to CMS that the median percentage of empaneled patients in the highest-risk tier was 2 percent. Of these patients, just less than one-third were receiving longitudinal care management in PY 2.



Source: Mathematica's analysis of 2017 and 2018 practice-reported care delivery data submitted to CMS.

Figure 4.6. ***(continued)***

Notes: Practices defined the number and criteria for as many as 10 risk tiers used in risk stratification. For the purposes of understanding this figure and the text, we use the term "Tier 1" to refer to the highest-risk tier. We provide the median number of empaneled patients and the percentage receiving care management services that practices reported for Tiers 1–3 here and for combined Tiers 4–10. Practices were only included in each calculation if they had at least one patient in that risk tier. The number of practices reporting in each risk tier varied by year.

For Q4 2017, Tier 1 included 2,642 practices; Tier 2 included 2,566 practices; Tier 3 included 2,417 practices; and Tiers 4 to 10 included 1,525 practices. For Q4 2018, Tier 1 included 2,638 practices; Tier 2 included 2,705 practices; Tier 3 included 2,626 practices; and Tiers 4 to 10 included 1,636 practices.

PY = Program Year.

What facilitators and/or challenges did CPC+ practices experience when implementing longitudinal care management?

In both PY 1 and PY 2, deep-dive practices cited similar barriers to implementing longitudinal care management, such as insufficient care management staff to serve all patients with complex needs and difficulty engaging patients in care management services. Several deep-dive practices in both tracks said that they did not have sufficient care management staff to serve all patients with complex medical needs who would benefit from longitudinal care management. According to deep-dive practices, insufficient staffing for care management reflected existing staff being stretched too thin (having larger caseloads than they could manage) and facing challenges in hiring additional staff. In both years, several deep-dive practices reported that they would hire additional care managers if funding and a skilled workforce were available. For example, in PY 2, one practice noted that it is challenging to hire care managers who have the knowledge, skills, and personality traits—such as patience, empathy, attention to detail, and a sense of "tough love" toward patients—that a good care manager needs. Finally, in both years, many deep-dive practices reported that patients sometimes were reluctant to engage in longitudinal care management, faced psychosocial barriers to participation, were difficult to contact, or did not want to change their behaviors or lifestyle.

> **"Sometimes, we see a lot of our time being devoted to the neediest and not being able to get to everyone we want to be able to because [there are] more patients [with complex medical needs] than we have the resources to fully meet."**
>
> ***— Care manager at a medium-size, Track 2 system-owned practice***

In PY 2, several deep-dive practices noted that having care managers embedded at the practice site facilitated trust-building among practitioners and staff, and between patients and care managers. These practices reported various benefits to having care managers located within the practice. For example, this co-location enabled the care managers to join care team huddles and conduct other forms of communication—such as touching base with practitioners after meeting with patients—throughout the day. In addition, it enabled practitioners to perform "warm handoffs," in which they introduced patients to the care manager in person; when a patient knows and trusts the practitioner, having the practitioner introduce the patient to the care manager helps establish a new, trusting relationship, practice staff said.

Several system-owned deep-dive practices noted that their EHRs helped them provide longitudinal care management services in PY 2. These care managers could use the EHR to review patients' histories and identify gaps in care, build registries that enable care managers to track outreach to patients and patients' progress toward health goals over time, and communicate with others caring for the patients. For example, a care manager in a large Track 1 practice reported that before contacting a patient, she consulted the EHR to review notes from the patient's most recent appointment at the practice, history, medications, and immunizations to prepare for her discussion with the patient. A system-level care manager working with a large Track 2 practice explained how she used the EHR to create and maintain a care management registry that tracks the system's entire population of patients by the care manager to which they are assigned, helping her assess the impact of the longitudinal care management provided. This registry includes patients' risk scores, measures related to their condition (such as HbA1c levels—a marker for diabetes—over time), and when they were enrolled in longitudinal care management. Finally, a practitioner in a large Track 2 practice reported that it is very useful to be able to view a care manager's EHR notes on their discussions with a patient, because they provide "a complete picture of the patient."

> **"When I open up a patient [chart], I can see immediately from their snapshot when [the care manager] has reached out, the day, time, and what was discussed. So I think that there's a transparency and accountability now that's new that the EMR has provided us. That's one innovation I think is moving us toward better longitudinal care."**
>
> ***—Medical lead at a large, system-owned Track 2 practice***

What did CPC+ practices perceive as benefits and/or drawbacks of providing longitudinal care management?

In PYs 1 and 2, several deep-dive practices described the benefits of longitudinal care management for patients, including enhanced self-management, emotional and social support, and lower use of potentially avoidable hospital and ED visits. A couple of deep-dive practices believed that longitudinal care management resulted in improved patient outcomes, such as lowering risk scores and improving practices' provision of preventive care services. Several deep-dive practices also noted emotional and/or psychosocial benefits of longitudinal care management for patients. According to these practices, patients were grateful for these services and were more engaged in their own health because they felt more hopeful and empowered.

> **"Most people find it helpful, particularly people [who] are sick, some are shut in, and many are elderly. With that population, more outreach tends to be well-received. People want to talk about their health; people want help."**
>
> ***— Medical lead at a large, system-owned Track 2 practice***

In addition to noting *patient* benefits, in PY 2, several deep-dive practices reported that longitudinal care management benefited their *practice* in a number of ways. Several deep-dive practices said that care managers' availability to work through issues that challenge patients' self-management—both medical and psychosocial—benefited practitioners, who lacked the time to fully address these aspects of care during office visits. Care managers enable practitioners to focus on patients' clinical needs. Additionally, a few deep-dive practices noted that having a care manager had helped clarify the roles of practitioners and staff. Before they had a care manager, staff at these practices shared several of the care managers' duties, and it was not always clear who was responsible for certain tasks. A few deep-dive practices noted that the care manager rounded out the care team, helping them provide patients with comprehensive services. At a few deep-dive practices, staff said that having a care manager had led to better communication and preparation for patient appointments, because the care manager kept detailed notes on patient meetings in the EHR and indicated the services the patients would need at their next appointment. Finally, a couple of deep-dive practices indicated that witnessing improvements in patients receiving longitudinal care management was gratifying to practitioners and staff.

"[The physician has] kept spreadsheets on how our diabetics have increasingly dropped in their A1c [level]. And so we are seeing a pattern that [longitudinal care management is] working. There's no question that it's working. So when we see results like that... it's so gratifying. It really is, that we're actually changing lives."

— Practice manager at an independently owned, medium-size Track 1 practice

C. Using a care plan for patients under longitudinal care management

What were the CPC+ requirements in PY 2?

In both PY 1 and PY 2, CMS required Track 2 practices to use a care plan[31]—a plan that was tailored to the patient's specific goals, values, priorities, needs, and self-management—within their EHR for patients receiving longitudinal care management services. Practices were not required to use a specific care plan template but were encouraged to "develop a personalized care plan, integrating patient goals, values, and priorities and accessible to the patients and care team with patients at high risk for adverse health outcome or harm."

How did practices use care plans?

As in PY 1, it was difficult to assess the extent to which practices were using care plans as defined by CPC+ in PY 2, because the term "care plan" meant different things to different types of staff at the practice. In PYs 1 and 2, care managers at several Track 2 deep-dive practices understood and used care plans as defined in CPC+, perhaps because they typically had the sole responsibility for developing and maintaining care plans. In contrast, practitioners and practice managers at most of these and at least one other Track 2 deep-dive practice applied the term care plan when referencing other clinical documentation, such as after-visit summaries, progress or encounter notes, or pre-visit planning documents. Ultimately, due to this confusion about terminology, the data that practices submitted to CMS and the data from the 2017 and

[31] The CPC+ Implementation Guide also uses the term "plan of care" when describing this requirement.

2018 CPC+ Practice Surveys may not accurately capture practices' use of care plans and should be interpreted with caution, as they potentially overestimate the use of care plans as defined in the CPC+ Implementation Guide.

Several Track 2 deep-dive practices were using care plans as envisioned. At all but two of these practices, care managers primarily used care plans to track and monitor the progress of patients receiving longitudinal care management services. CPC+ did not require Track 1 practices to use care plans, and perhaps correspondingly, only a few Track 1 deep-dive practices were using care plans as envisioned by CPC+. Similar to PY 1, practices reported that the most common elements included in care plans were patients' health-related goals and self-management plans. In the 2018 CPC+ Practice Survey, most Track 2 practices (94 percent) and many Track 1 practices (78 percent) reported that their care plans included patients' health-related goals (although Track 1 practices were not required to use care plans). This finding is consistent with an analysis of care plans shared by several deep-dive practices from both tracks that found the most common element was patients' health-related goals. The second most common element was individualized self-management plans listing steps patients must take to achieve realistic goals.

"It's unrealistic to ask a patient that's 400 pounds to exercise 30 minutes a day. But it may be an okay goal that that patient wants to be able to walk from his bedroom to the mailbox without shortness of breath. That would be a goal, right? Talking to the patient and asking what they want out of their care is what we try to do."

— Care manager at a large, system-owned Track 1 practice

All Track 2 and a few Track 1 deep-dive practices used their EHR to develop care plans.[32] Several Track 2 deep-dive practices reported that they used their EHR vendor's care plan template (which was embedded in the EHR), a couple of practices customized the vendor's template, and a couple of other practices created their own custom template. For example, one Track 2 practice developed its own care plan template, because its EHR vendor's care plan templates were disease-specific and did not meet CPC+ requirements. Similarly, staff at another Track 2 practice said that while they were waiting to work with the practice's EHR vendor to build a customized care plan template, the health system temporarily customized the care management section of the EHR to include short-term and long-term goals. A couple of Track 2 deep-dive practices reported that their EHR stores care plans but it lacks the functionality to create or update them. These practices uploaded the care plan to the patient's record as an attachment and added a new file every time they updated the plan.

What facilitators and/or challenges did CPC+ practices experience when using care plans?

Nearly all deep-dive practices in both tracks reported that they encountered challenges with EHR functionality to access, create, or update care plans in PY 2. These practices commonly described the care plan templates in their EHR as "clunky" and time consuming to use. For example, staff noted difficulties finding care plans in the EHR, referencing care plans when viewing other parts of the patient's record, and entering information into care plan

[32] By the start of PY 3, Track 2 practices were required to use care plan templates within their health IT system that include, at a minimum, patient concerns, goals, self-management plans, and action plans.

templates. Although care managers at most deep-dive practices knew how to access care plans, some practitioners did not, frustrating other practitioners and decreasing the likelihood that these practitioners would reference care plans. Care managers reported numerous barriers to creating and updating care plans. For example, one care manager at a Track 2 practice said the drop-down options in the care plan template were "nonsensical" and could not be changed. At another Track 1 practice, a care manager said that the EHR auto-populated diagnoses into the care plan, but these diagnoses could be wrong, irrelevant, or out of date. The couple of deep-dive practices that upload care plans to patients' records as an attached document said it was burdensome to upload a new document every time they updated the care plan.

What did CPC+ practices perceive as the benefits and/or drawbacks of using care plans?

Of the several deep-dive practices from both tracks that used care plans as envisioned by CMS, many reported that care plans improved the quality of care they deliver. These practices said that care plans enable care managers to quickly reference and track patients' progress, which is helpful for informing their interactions with patients. Before using care plans, several practices reported that nurses needed to read the patient's entire chart to gain a comparably in-depth understanding of the patient. A few deep-dive practices also noted that care plans helped to quickly orient practitioners to a patient's progress, including new clinical developments. For example, at a couple of deep-dive practices, practitioners were able to use updated care plan information to quickly stop patients from taking interacting medications after noticing that specialists had recently prescribed these patients contraindicated medications.

The burden of developing and updating care plans fueled practitioners' resistance to using them at a few deep-dive practices from both tracks in PY 2. These practices most commonly said that insufficient EHR functionality made using care plans more burdensome than the value they provided. Additionally, a few deep-dive practices found that creating and updating care plans was overly time consuming in general, regardless of their EHR's capabilities. Practitioners from a couple of Track 2 practices worried that reviewing the various issues documented in care plans during an office visit took time away from focusing on the main reason for the patient's visit. At one of these practices, a practitioner said that using patient input to create care plans could be very time consuming, which was not only a burden on the clinician responsible for the care plan but also overwhelming to patients. A practitioner from a Track 1 practice was hopeful that using care plans would be less time consuming after he and his staff had more experience with them.

> **"Then you get asked to do a care plan, too, and it's like, oh, I don't have time to do that. I'm just trying not to overdose them on blood pressure medicine, or whatever it is. You get caught up in all this other stuff... and then you totally ignore that the patient came in because they're complaining of their knee pain, and you forget to even address that."**
>
> ***— Physician at an independently owned, medium-size Track 2 practice***

D. Providing episodic care management

What were the CPC+ requirements in PY 2?

Similar to PY 1, CMS required all practices to provide short-term (episodic) care management to a high and increasing percentage of empaneled patients who had an ED visit or hospital admission, discharge, or transfer and were likely to benefit from care management. CPC+ required practices to have a follow-up interaction with patients discharged from the ED within one week, and to contact at least 75 percent of patients who were hospitalized in target hospitals within 72 hours or two business days. Other patients likely to benefit from short-term care management included patients who had had a recent diagnosis or exacerbation of illness. Episodic care management services include transition of care planning, medication reconciliation, and education.

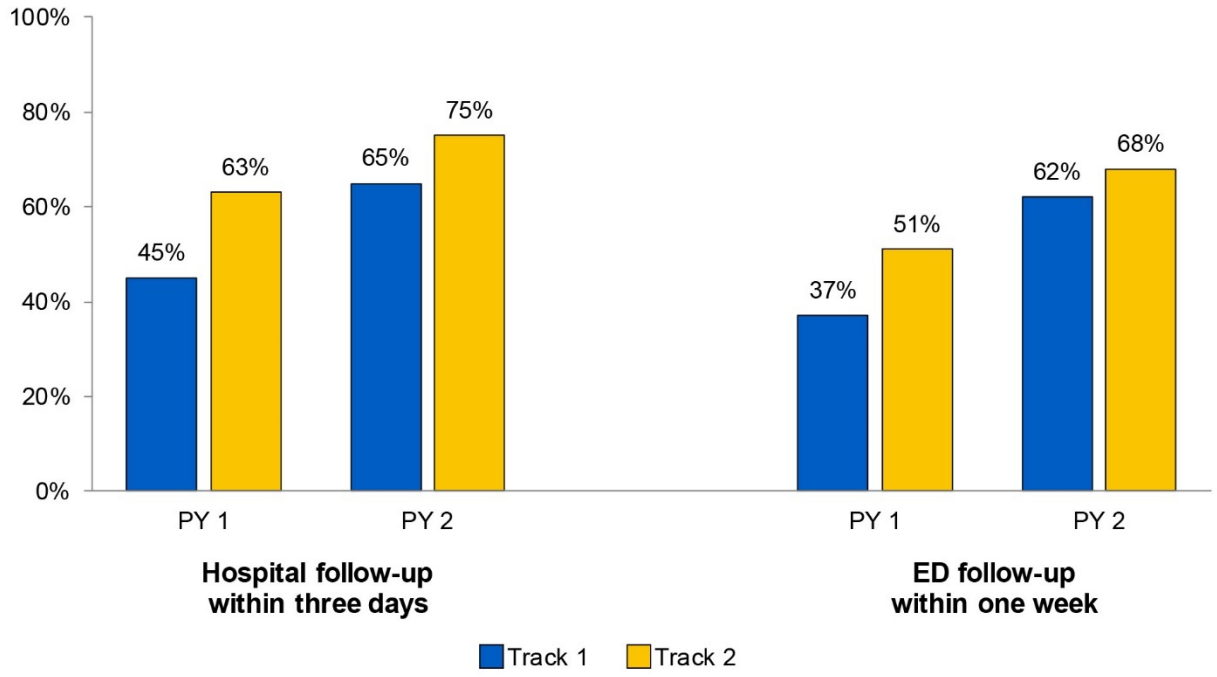
How were practices approaching episodic care management and hospital and ED follow-up?

Consistent with PY 1, nearly all deep-dive practices in PY 2 reported that they delivered episodic care management to patients who went to the hospital or ED for acute issues, or who developed complications after surgery or other hospitalizations. Similarly, practices reported to CMS that they most often identified patients for episodic care management based on hospital admission or discharge (98 percent) and ED visits (94 percent). Many deep-dive practices reported that they provided episodic care management before CPC+; a couple of these practices did so to meet requirements for other transformation initiatives, such as CPC Classic. In both PY 1 and PY 2, many deep-dive practices relied on care managers to provide episodic care management, while several others used medical assistants and a couple relied on patient navigators or health coaches for this work. A few deep-dive practices reported that they used the same staff member to conduct both longitudinal and episodic care management. In both years, a few deep-dive practices reported that they had hired new staff to provide episodic care management to patients.

In PY 2, more practices reported following up with patients within 72 hours or two business days of discharge from a hospital and within one week of an ED visit. Findings from the 2018 CPC+ Practice Survey indicate that about two-thirds of Track 1 and Track 2 practices reported reaching out to most patients after a hospital or ED visit (Figure 4.7). Comparing 2017 and 2018 CPC+ Practice Survey findings shows that practices in both tracks improved from PY 1 to PY 2. Track 1 practices showed more improvement over time, although more Track 2 practices regularly provided this follow-up for most patients.

Figure 4.7. Percentage of CPC+ practices that reported conducting hospital follow-up within three days and ED follow-up within one week for most patients, by track and program year

More CPC+ practices reported following up with most patients in PY 2 than in PY 1 within three days of discharge from a hospital and within one week of an ED visit.



Source: Mathematica's analysis of data from the independent evaluation's 2017 and 2018 CPC+ Practice Surveys.

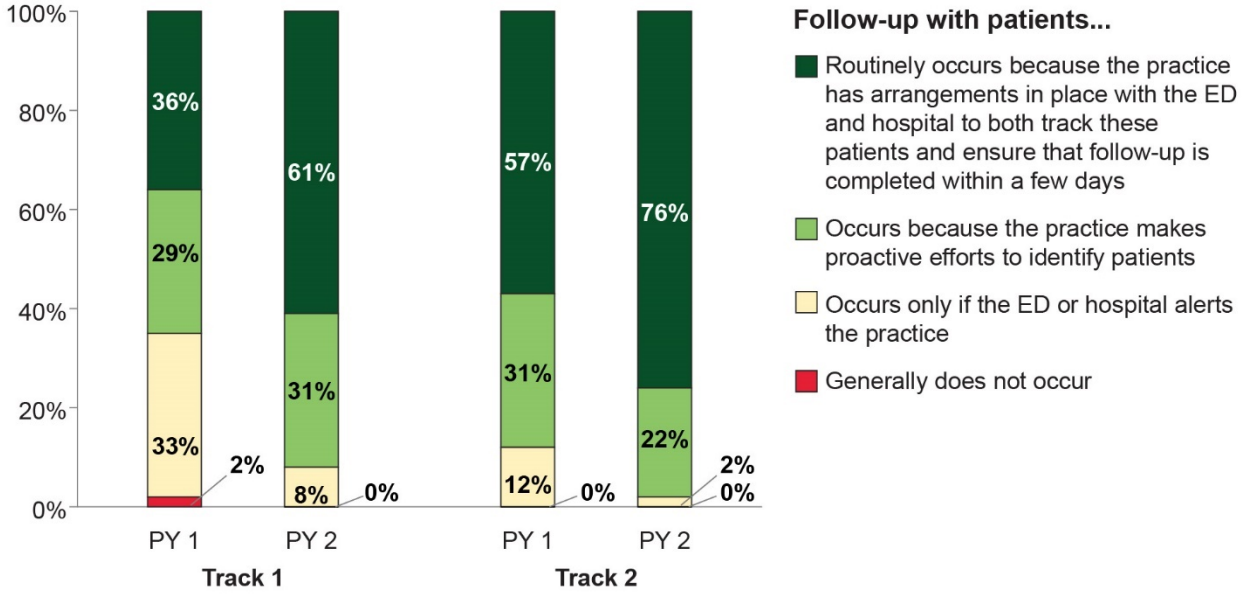
Note: N = 1,302 Track 1 practices and 1,459 Track 2 practices. Due to item nonresponse, denominators vary slightly across items (by less than 5 percent).

ED = emergency department; PY = Program Year.

Many practices had formal hospital and ED notification processes in place in PY 2, representing an increase from PY 1. According to the 2018 CPC+ Practice Survey, 61 percent of Track 1 and 76 percent of Track 2 practices reported that they had arrangements in place with hospitals and EDs to track their patients' discharges and ensure that follow-up was completed within the CPC+ required timeframe (Figure 4.8). This finding marked an increase from PY 1, when 36 percent of Track 1 practices and 57 percent of Track 2 practices reported that they had such arrangements in place.

Figure 4.8. Percentage of practices that reported various methods for identifying patients for follow-up after ED or hospital discharge, by track and program year

More Track 2 practices than Track 1 practices reported having arrangements in place with hospitals or EDs to track their patients' discharges. The proportion of practices with arrangements in place increased from PY 1 to PY 2 for both tracks.



Source: Mathematica's analysis of data from the independent evaluation's 2017 and 2018 CPC+ Practice Surveys.

Note: N = 1,304 Track 1 practices and 1,461 Track 2 practices. Due to item nonresponse, denominators vary slightly across items (by less than 5 percent).

ED = emergency department; PY = Program Year.

Findings from the 2018 CPC+ Beneficiary Survey were consistent with CPC+ practices' reports of increased timeliness of follow-up after an ED or hospital discharge.[33] Among beneficiaries who reported an ED visit in the past six months, Medicare FFS beneficiaries seen by practices in Track 1 were more likely than beneficiaries in similar, non-participating practices to report that they received timely follow-up from their doctor's office within a week (65 versus 59 percent). Similarly, regarding hospitalizations, Medicare FFS beneficiaries seen by Track 2 practices were more likely than beneficiaries in similar, non-participating practices to report that they received follow-up within three days of their hospitalization (60 versus 54 percent). Each finding was identified for only one of the two tracks.

Most deep-dive practices discussed a range of topics during their follow-up contacts with patients after a hospital or ED visit. During hospital and ED follow-up calls, most deep-dive practices said they typically checked on a patient's condition and provided medication reconciliation, scheduled a patient follow-up appointment, assessed patients' psychosocial needs, and provided referrals to social services and other community resources as needed. Most deep-dive practices also used these follow-up calls as an opportunity to educate patients about when to

[33] See Chapter 5 for more information on the CPC+ Beneficiary Survey methods and related findings.

use the ED and when to call the primary care practice. The 2018 CPC+ Practice Survey findings indicate that 79 percent of all practices talked to many, most, or all patients who had recently visited the ED about the best way to avoid future ED visits, and that 86 percent of practices talked to patients who had recent hospital stays about the best ways to avoid future hospitalizations.

What facilitators and/or challenges did CPC+ practices experience providing episodic care management?

Deep-dive practices reported similar facilitators (such as established relationships with hospitals and EDs and staff with sufficient time) and challenges (such as patients' psychosocial barriers to participation and reluctance to engage) to implementing episodic care management in PY 1 and PY 2. Many deep-dive practices continued to share that having established relationships with local hospitals and dedicated care management staff helped practices provide timely follow-up after a hospital or ED visit. However, many deep-dive practices also cited challenges in both years—such as patients' psychosocial barriers and limited time in practitioners' schedules—that hindered efforts to provide episodic care management. Finally, in both years, many deep-dive practices found that most patients appreciated that the practice was closely monitoring their health through episodic care management but noted that some patients were difficult to engage or disengaged once their symptoms subsided. Care managers said that this factor was challenging as it often led to patients discontinuing their medications and potentially being readmitted to a hospital.

In PY 2, more deep-dive practices reported that providing episodic care management was easier when they had established relationships with local hospitals compared with PY 1. In PY 2, many deep-dive practices reported that having these established relationships enabled them to (1) access hospitals' and EDs' EHR systems; (2) receive same-day email, fax, or EHR notifications when a patient presented to the hospital or ED; or (3) receive a phone call from an established point of contact within a hospital to initiate information exchange. However, a couple of system-owned practices and a few independent practices reported that they were still struggling with receiving timely information from non-affiliated local hospitals and EDs.

In PY 2, many deep-dive practices said that having dedicated staff to conduct episodic care management facilitated conducting hospital and ED follow-up. Many system-owned practices had a centralized care manager dedicated to conducting hospital and ED follow-up calls, and a few independent practices hired new staff for this work. By comparison, several deep-dive practices without dedicated staff had existing staff take on the work, which was often burdensome, given other tasks.

> **"Splitting up the work with the [newly hired] LPNs at the practice to follow-up with patients who've had an ED visit makes the work more manageable. I'm already busy following the extreme patients with complex needs and calling patients with high blood sugars and following up with patients who have had a hospital discharge."**
>
> ***—Nurse care manager at a medium-size, system-owned Track 2 practice***

What did CPC+ practices perceive as the benefits and/or drawbacks of providing episodic care management?

Several deep-dive practices perceived episodic care management as helpful for engaging patients and, by extension, reducing hospital readmissions and minimizing the misuse of EDs. A few deep-dive practices noted that patients were often overwhelmed and had a lot of questions after discharge. Practices noted that, once patients were engaged in the follow-up, they valued the additional services and were appreciative that the practice was closely monitoring their health. Practices also used the follow-up calls as an opportunity to review medications and provide condition-specific education to patients, in addition to educating patients about when to use the ED versus when to reach out to the practice, and they found this process helpful in limiting patients' misuse of the ED.

> **"Patients like to hear that their primary care provider is aware of what's going on with them and reaching out to them instead of the patient having to call to inform the PCP of what's going on with them."**
>
> ***—Medical assistant at a small, system-owned Track 1 practice***

At a few deep-dive practices, providing episodic care management helped to identify some patients who might also benefit from longitudinal care management. These patients did not have high risk scores, but care managers recognized they could benefit from longitudinal care management as well because of their particular conditions or health care needs. Putting them into longitudinal care management enabled practitioners and staff to better address their needs in a more timely fashion.

Improving care management in PY 1

Similar to the first-year experience of practices that started CPC+ in 2017:

- Many 2018 Starters reported to CMS that they risk stratified empaneled patients (85 percent). Most Track 2 2018 Starters that risk stratified patients reported to CMS that they used a two-step process, as required by CPC+ (92 percent).
  - A few 2018 Starter deep-dive practices experienced challenges defining clear clinical criteria for risk stratifying patients, and a couple of deep-dive practices lacked functionality in their EHR to calculate risk scores, so they had to do so manually.
- Several deep-dive practices were setting up care management workflows and processes for longitudinal care management, but a couple of these practices had not started providing longitudinal care management services for patients with complex medical needs by the end of 2018.
- Most Track 2 2018 Starters reported to CMS that they used care plans for at least some patients receiving longitudinal care management (96 percent). However, as with 2017 Starters, it was difficult to assess the extent to which practices were using care plans as defined by CPC+ in PY 1, because the term “care plan” meant different things to different types of staff at the practice.
- All 2018 Starter deep-dive practices said they followed up with patients by telephone within one week of an ED visit and within 72 hours or two business days of discharge from a hospital, as is required for episodic care management.
  - A few deep-dive 2018 Starter practices said that patients generally appreciated these follow-up calls, but a few other deep-dive practices noted that they had difficulty engaging patients due to challenges contacting patients or overcoming what they perceived as language barriers or a lack of interest in care management on the part of patients.

All 2018 Starter deep-dive practices said that risk stratification was new for their practice, and they implemented it because they were participating in CPC+.

A few 2018 Starter deep-dive practices (all of which were system-owned) reported that they contracted with external agencies to provide longitudinal and episodic care management services. For example, two practices contracted with an organization that staffed an RN at each practice daily and, unlike what the CPC+ model envisions, provided staff at an external location who conducted care management outreach to patients by phone.

4.4.3. Function 3: Comprehensiveness and coordination

CMS encourages CPC+ practices to provide comprehensive and coordinated care. The CPC+ Implementation Guide uses the term "comprehensiveness" in the primary care setting to refer to a practice meeting most of its patient population's medical, behavioral health, and health-related social needs. "Coordination" refers to the primary care practice's central role in helping patients and caregivers navigate a complex health care system—including identifying and communicating with specialists and assisting with care transitions—and access community resources to meet their needs (CMMI 2018).

In PY 2, CPC+ required all practices to use collaborative care agreements to coordinate with specialists (Section A) and track and improve the timeliness of notification and information transfer with hospitals and EDs (Section B). CPC+ also required all practices to develop a plan to integrate behavioral health care with primary care and Track 2 practices to work on implementing that plan (Section C). Additionally, practices in Track 2 were required to (1) develop a plan for providing comprehensive medication management (CMM) (Section D), (2) assess patients' social needs and identify resources and supports to meet them (Section E), and (3) enhance practice capabilities to care for subpopulations of patients with complex needs (Section F).

Overview of progress. In PY 2, practices continued to enhance the *comprehensiveness* of some of the types of care they provided. This finding was especially true for Track 2 practices, given their advanced care delivery requirements. Compared with PY 1, more practices in both tracks deepened existing services, or added new services to better address their patient population's behavioral and health-related social needs. The changes they made included (1) advancing behavioral health integration (BHI), especially by co-locating behavioral health specialists at their practice; (2) routinely screening for behavioral health issues and health-related social needs; and (3) using pharmacists to provide, or taking preliminary steps so that they can eventually provide, CMM services to patients with complex needs. Participation in CPC+ motivated several deep-dive practices to hire or embed behavioral health staff (most commonly social workers) and several deep-dive practices to formalize their social needs screening processes.

Practices also improved their abilities to provide *coordinated* care in PY 2 by establishing, strengthening, or formalizing relationships with others who also care for their patients' medical, behavioral health, or social needs. For example, more Track 1 practices established collaborative care agreements with specialists, which was an expanded requirement for them in PY 2. Several deep-dive practices reported that they established new or strengthened existing collaborative agreements with specialists as a result of participating in CPC+. Although several deep-dive practices had systems in place to exchange information with hospitals and EDs before CPC+, many deep-dive practices said they improved their relationships with local hospitals and EDs, and more practices had electronic access to hospital and ED discharge information in PY 2, which they used to follow up with patients after discharge. Most practices also continued to maintain inventories of social resources they established in PY 1 and continued to use them to identify community-based organizations to which they referred patients with unmet social needs. Primary care practices appreciated that these changes helped them address their patients' medical, behavioral health, and health-related social needs by improving access to services and

supports patients needed, as well as the flow of information between primary care practitioners and other specialists and hospitals that served their patients.

A few deep-dive practices noted that being part of a health system relieved many of the burdens related to implementing these changes, because health systems provided their affiliated practices with access to shared resources—such as staff (care managers, behaviorists) or services for patients (educational classes, patient navigation)—and a common EHR, which facilitated information sharing across practitioners and staff within the system.

At the same time, practices had room for improvement in this function. Practices reported that they did not have sufficient staff with the time or skills to take responsibility for new workflows related to BHI, social needs screenings, and meeting the needs of subpopulations of patients with complex needs. Practices also lacked the necessary infrastructure for health information exchange between specialists, hospitals, EDs, and community-based organizations. Moreover, practices faced resistance from two groups of stakeholders: (1) some specialists were reluctant to implement collaborative care agreements, and (2) some patients were reluctant to discuss their social needs with practitioners and staff. Finally, practices had difficulty understanding and thus implementing changes related to two CPC+ requirements. First, they were unclear about what the "relationships" they were required to build with resources that support patients' social needs should look like. Second, they were unclear about how to develop practice "capabilities" to better address the needs of subpopulations of patients with complex needs.

To continue improving their abilities to provide comprehensive and coordinated care, practices would benefit from a better understanding of the intent, stipulations, and rationale behind certain care delivery requirements. In addition, broader changes would support work in these areas, such as (1) providing resources to enable practices to hire or train staff to provide more comprehensive and coordinated care; (2) increasing access to affordable and high quality community based resources that support patients' social and behavioral needs; and (3) improving health IT systems' ability to communicate with other practices, specialists, hospitals, EDs, and community-based organizations.

A. Using collaborative care agreements to coordinate with specialists

What were the CPC+ requirements in PY 2?

For CPC+, "collaborative care agreements" (sometimes referred to as care coordination agreements or care compacts) are used to set expectations about roles and information sharing between practitioners across settings. CPC+ practices are expected to focus on establishing these agreements with specialists or other care practitioners whom the practices' patients see frequently or who are costly. In PY 1, CMS required Track 1 CPC Classic and Track 2 practices to enact collaborative care agreements with at least two groups of specialists, identified based on analysis of CMS and/or payer partner reports. In PY 2, CMS expanded this requirement to include the remaining Track 1 practices.

How did CPC+ practices approach collaborative care agreements?

The proportion of practices that reported to CMS that they had established collaborative care agreements with specialists increased from 73 percent in PY 1 to 96 percent in PY 2. This increase was driven by more Track 1 practices establishing agreements with specialists in PY 2 than in PY 1 (a 37 percentage point increase), which is consistent with the expanded requirement that all Track 1 practices (instead of just Track 1 CPC Classic practices) enact agreements in PY 2. Several deep-dive practices reported that they either started establishing collaborative agreements as a result of participating in CPC+, or formalized existing agreements with specialists due to participating in CPC+.

In general, practices reported that they established collaborative care agreements with the same types of specialists in PY 2 and PY 1. However, more practices reported establishing agreements with cardiologists (52 percent versus 37 percent) and ophthalmologists (30 percent versus 17 percent) in PY 2 than in PY 1.

What facilitators and/or challenges did CPC+ practices experience establishing and using collaborative care agreements?

Similar to PY 1, a few system-owned deep-dive practices reported that establishing collaborative care agreements was easier with specialists in the same health system. These practices said that, because they commonly share an EHR with specialists within their health system, it was easy for them to access patient records, including specialists' notes and treatment plans. This perspective is consistent with findings from the 2018 CPC+ Practice Survey, on which a higher proportion of system-owned practices (71 percent) reported that they electronically sent and received patient clinical data to all or most of the specialist practices from whom most of their patients obtain care, compared with independent practices (49 percent).

Several deep-dive practices reported challenges to establishing collaborative care agreements with specialists in PY 2. Unlike PY 1, when no common challenges emerged, a few deep-dive practices identified the following challenges when establishing collaborative care agreements. These included specialists' (1) hesitancy, because they were unfamiliar with CPC+, (2) lack of time, and (3) lack of interest, because they had a full patient load. A couple of other deep-dive practices reported that limited practice capacity prevented their staff from focusing on activities related to collaborative care agreements, such as using data to track or follow-up with specialists about patient referrals.

What did CPC+ practices perceive as the benefits and/or drawbacks of establishing and using collaborative care agreements?

Deep-dive practices had varied perceptions of whether collaborative care agreements benefited their organization. Several deep-dive practices reported that establishing collaborative care agreements improved their communication with specialists or their patients'

access to specialists. On the other hand, several practices, most of them system-owned, noted that having collaborative care agreements had no impact on communication or patient access because the practice had prior relationships with the specialists or were following similar processes to refer patients before they implemented a collaborative care agreement.

"One difference that is notable [with the specialists we have agreements with] is the expected timeline for when they're required to see patients, [which is a] five- to seven-day window. [The timeline] is significantly different with specialists that we may not have a formal care compact in place, because [in] some practices, it may take a few weeks to get the patient seen, depending upon the urgency of their referral need."

— CPC+ care coordinator at a medium-size system-owned Track 2 practice

B. Improving the timeliness of notification and information transfer with hospitals and EDs

What were the CPC+ requirements in PY 2?

In PY 1, CMS required that CPC+ practices use CMS' or payer partners' data to track and improve, as needed, the timeliness of notification and information transfer from hospitals and EDs responsible for the majority of their patients' hospitalizations and ED visits. CMS maintained this requirement in PY 2. (We provide additional information on the timeliness and notification processes for hospitalizations and ED visits, and how EHRs and health IT facilitate this work, in the discussion of episodic care management in Section 4.4.3.D.)

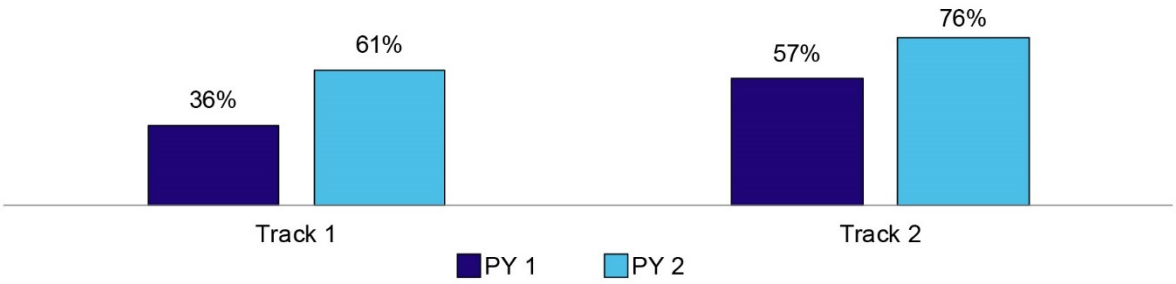
How did CPC+ practices work to improve the timeliness of notification and information transfer with hospitals and EDs?

Several deep-dive practices reported using strategies similar to those practices used in PY 1 to improve the timeliness of information transfer. These strategies included meeting with hospital and ED leadership to improve relationships and investing in new EHR software.

In PY 2, there was a large increase in practices reporting that they electronically accessed hospitals' and EDs' information. Several deep-dive practices reported that they had systems in place to exchange information with hospitals and EDs before CPC+, but many deep-dive practices (both independent and system-owned) reported that they improved their relationships with local hospitals and EDs and enhanced their EHR capabilities to receive timely notification and transfer of discharge information electronically during CPC+. Notably, many deep-dive practices in PY 1 reported that they electronically coordinated information exchange with, and had access to, at least one hospital's or ED's information electronically, but *all* deep-dive practices had this level of electronic access in PY 2. This finding is consistent with the 2018 CPC+ Practice Survey, which indicated that the percentage of practices reporting that they usually received clinical information (discharge notes) within a day of the patient's visit from EDs increased from 37 percent in PY 1 to 53 percent in PY 2, and from hospitals within a day of the patient's discharge increased from 35 percent in PY 1 to 49 percent in PY 2. Likewise, the proportion of practices reporting that they had formal arrangements in place with hospitals and EDs to ensure follow-up was completed within a few days increased in PY 2 compared with PY 1 (Figure 4.9).

Figure 4.9. Percentage of practices that reported having information exchange arrangements with hospitals and EDs, by track and program year

The percentage of Track 1 and Track 2 practices that reported having formal arrangements with EDs and hospitals related to transferring discharge and patient information increased from PY 1 to PY 2.



Source: Mathematica's analysis of data from the independent evaluation's 2017 and 2018 CPC+ Practice Surveys.

Note: N = 1,304 Track 1 practices and 1,461 Track 2 practices. Due to item nonresponse, denominators vary slightly across items (by less than 5 percent).

ED = emergency department; PY = Program Year.

However, most deep-dive practices did not focus on tracking the timeliness of information exchange. Only a couple of deep-dive practices discussed efforts to track timeliness, a CPC+ requirement. In one practice, the care manager reported that although they were seeing improvements in the timeliness of the data transfer, they discontinued tracking because it was too time consuming. Although we lack further detail on why practices were not tracking the timeliness of information exchange, almost one-half of deep-dive practices reported that their current processes for notification and information exchange worked well, which may have limited their motivation to invest in tracking timeliness.

What facilitators and/or challenges did CPC+ practices experience in working to improve the timeliness of notifications and information transfer with hospitals and EDs?

As in PY 1, the most commonly reported factor influencing this requirement was whether the practice shared an EHR with the hospital or ED. Several deep-dive practices with access to a shared EHR found that notification and information transfer processes worked well because they could quickly run reports on patients discharged from the hospital or ED and view patient information. In contrast, several other deep-dive practices reported challenges with timely information exchange because they were using different EHRs that did not communicate with each other. System-owned deep-dive practices were more likely than independent practices to share an EHR with the hospital or ED responsible for the majority of their patients' hospitalizations and ED visits.

What did CPC+ practices perceive as the benefits and/or drawbacks of working to improve the timeliness of notifications and information transfer with hospitals and EDs?

Several deep-dive practices found it helpful to receive timely notification and discharge information from hospitals and EDs. These practices said that receiving notification and discharge information from hospitals and EDs enabled them to make follow-up phone calls or schedule follow-up appointments soon after discharge, which improved their relationships with

and the care they provided to these patients. Practices said that care managers often used the discharge information to address patients' concerns, reconcile medications and offer prescription refills, and provide patient education. Practices did not note any drawbacks to this CPC+ work.

C. Integrating behavioral health care with primary care

What were the CPC+ requirements in PY 2?

In PY 1, CMS required that Track 1 CPC Classic and Track 2 practices choose and implement at least one option for integrating behavioral health into their primary care practice. In PY 2, CMS required all Track 1 practices (regardless of CPC Classic participation) to plan for the implementation of at least one option for integrating behavioral health and required Track 2 practices to build on their work from PY 1 to further integrate behavioral health into primary care. CMS outlined two options for practices in both tracks to support patients with behavioral health needs:

1. **Primary Care Behaviorist.** In this model, a behavioral health specialist (psychologist, social worker, or psychiatric nurse practitioner) is integrated into the primary care workflow through co-location within the primary care practice and warm handoffs—that is, a care team member providing an in-person introduction of the patient to the behaviorist. The behavioral health specialist provides time-limited therapy for patients with behavioral health conditions and, for patients with more serious mental health needs or substance abuse issues, coordinates care with specialists.
2. **Care Management for Patients with Mental Health Conditions.** In this model, also referred to as the Care Management for Mental Illness model,[34] practices use a care manager with behavioral health training to support the care management of patients. CPC+ stipulates that care management for patients with mental health conditions can be delivered by a care team typically comprising a patient's primary care practitioner, a care manager with behavioral health training (who provides self-management support and behavioral health treatment monitoring), and a consulting psychiatrist or other primary care practitioner with behavioral health training (who supports the care manager and provides decision support to guide the care of patients with complex mental health conditions).

How did CPC+ practices integrate behavioral health into primary care?

Consistent with the deep-dive findings in PY 1, practices in both tracks reported on the 2018 CPC+ Practice Survey that they were routinely screening patients for depression with a formal tool, and were introducing additional routine formal screening for other behavioral health conditions. In PY 2, practices indicated that annually they formally screen for depression (95 percent of practices), dementia (51 percent of practices), substance abuse (27 percent of practices), and anxiety (21 percent of practices). Corresponding to the focus on screening for depression, 86 percent of practices reported to CMS that they focused on

[34] CMS referred to this model as the "Care Management for Mental Illness Model" in the 2017 CPC+ Implementation Guide and when asking practices to report on progress related to this care delivery requirement. Therefore, we use this term for this model throughout this section.

depression for their behavioral health strategy. Anxiety was also a common focus for practices (74 percent of practices). A few deep-dive practices said that they began routinely screening for depression after beginning to participate in CPC+.

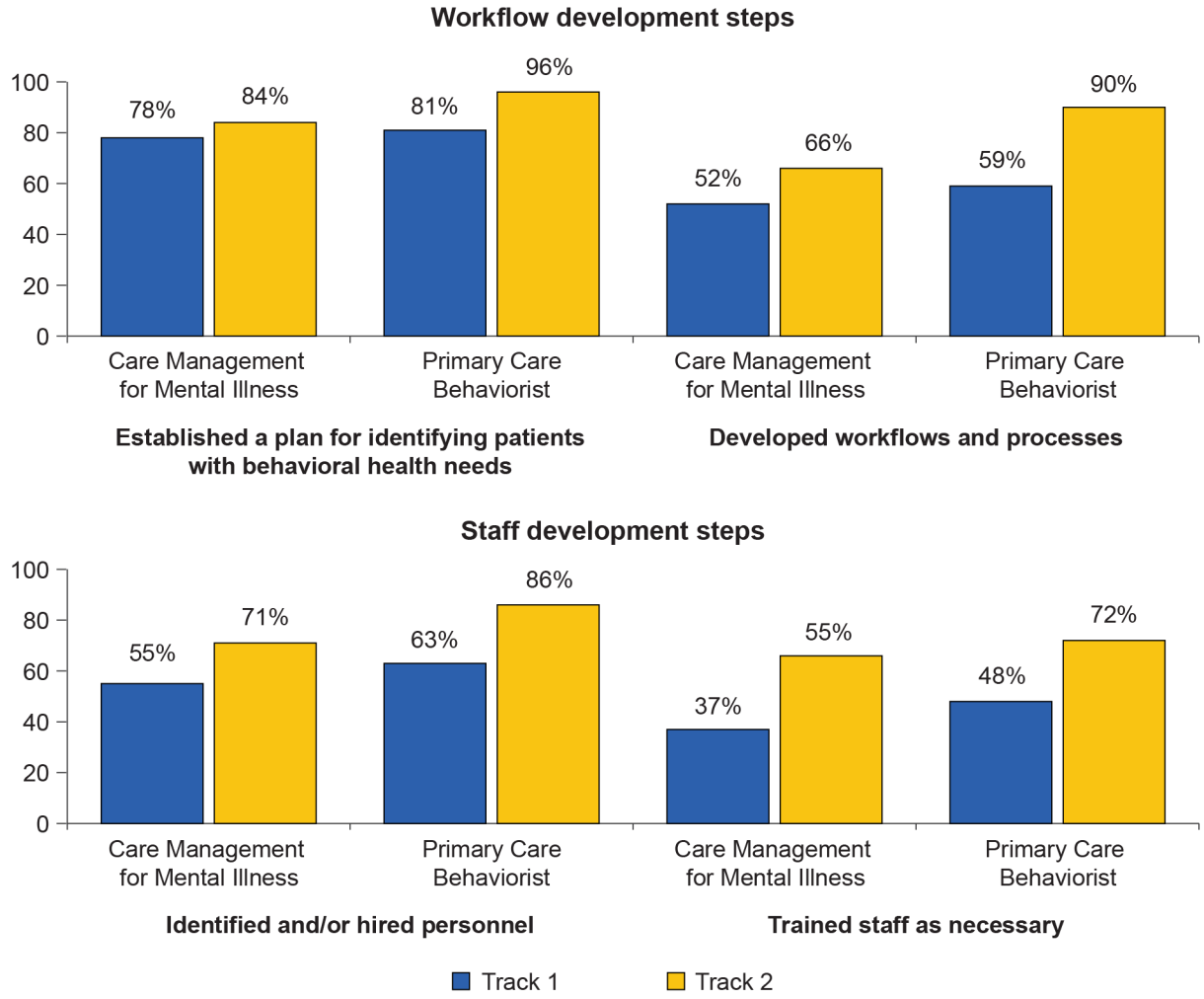
Also as in PY 1, practices most commonly chose to focus on the Primary Care Behaviorist model for BHI. Overall, 43 percent of practices reported to CMS in PY 2 that they were pursuing the Primary Care Behaviorist model as their primary strategy for addressing behavioral health needs, and 32 percent reported pursuing the Care Management for Mental Illness model as their primary strategy. Although not identified by CPC+ as a recommended method to integrate BHI, 20 percent of the remaining practices reported using referrals or care compacts with external behavioral health specialists as their primary strategy for addressing behavioral health needs. A few deep-dive practices also reported using other methods outside of the BHI models to address behavioral health needs. For example, these deep-dive practices noted that they used primary care practitioners or lay counselors to deliver behavioral health care, and one practice offered this care through telehealth with an external behavioral health provider. (See the "Closer Look" text box for additional information on how practices are implementing the Primary Care Behaviorist model.)

More practices, regardless of the BHI model they primarily focused on, had a co-located behavioral health specialist in PY 2 than in PY 1. The percentage of practices that reported in the CPC+ Practice Survey that they had a co-located behavioral health specialist—that is, clinical psychologist, psychiatrist, or clinical social worker—nearly doubled from PY 1 to PY 2 (24 versus 41 percent). In addition, more Track 2 than Track 1 practices reported adding these type of staff (a 24 percentage point increase among Track 2 practices compared with an 8 percentage point increase among Track 1 practices). More system-owned practices than independent practices reported having a co-located behavioral health specialist (47 compared with 33 percent) in PY 2, and this difference was more pronounced among Track 2 practices (63 versus 45 percent). A few deep-dive practices focusing on the Primary Care Behaviorist model reported that they had hired or embedded behavioral health staff, most commonly social workers, as a result of participating in CPC+.

All Track 2 practices implemented at least one of four steps for integrating behavioral health: (1) established a plan for identifying patients with behavioral health needs, (2) developed workflows and processes, (3) identified and/or hired personnel, or (4) trained staff as necessary. More CPC+ practices (across both tracks) had established a plan for identifying patients with behavioral health needs than had completed the other BHI steps (Figure 4.10). More of the practices (across both tracks) that chose the Primary Care Behaviorist model reported to CMS that they had implemented all four implementation steps for integrating BHI compared with practices that chose the Care Management for Mental Illness model (Figure 4.11). Moreover, a larger proportion of Track 2 practices completed all four implementation steps than Track 1 practices, regardless of the model selected. This finding is expected, given that CPC+ required practices in Track 2 to begin integrating behavioral health into primary care one year earlier than practices in Track 1.

Figure 4.10. Percentage of practices that reported taking recommended steps to integrate behavioral health, by track and BHI model, PY 2

Practices that identified their primary strategy for addressing behavioral health needs as either the Primary Care Behaviorist or Care Management for Mental Illness model were asked about the steps they took to integrate behavioral health within each of the two options. Many of these practices had established a plan for identifying patients with behavioral health needs. Fewer practices had developed workflows and staff to address those needs.



Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.

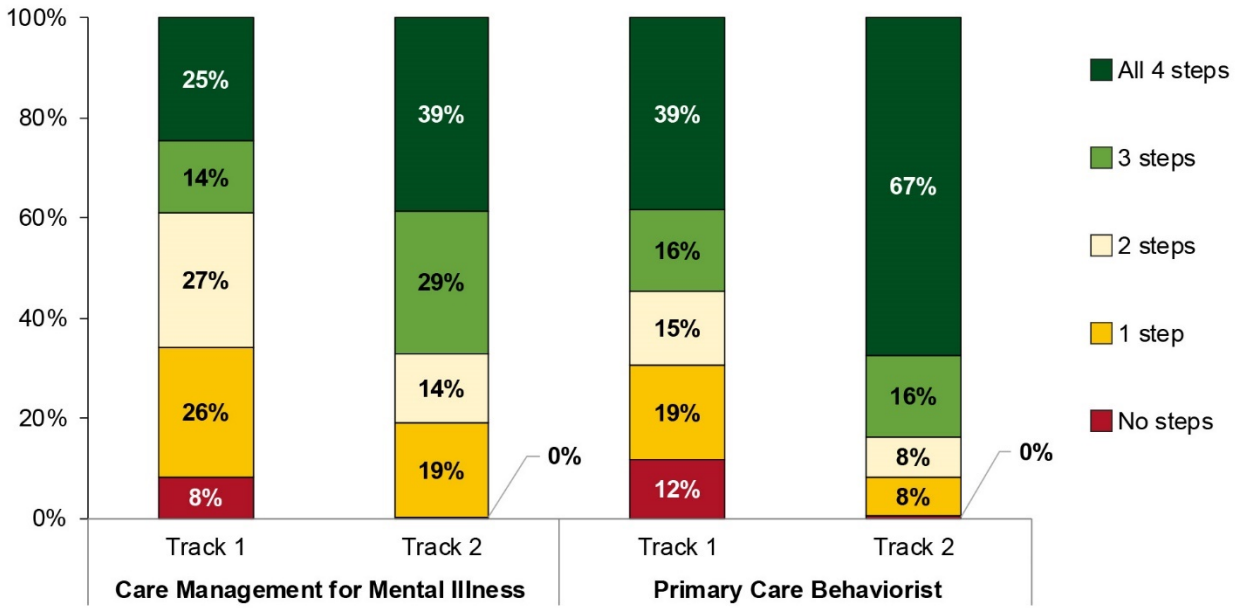
Notes: Care Management for Mental Illness model: N = 425 Track 1 practices and 449 Track 2 practices. Primary Care Behaviorist model: N = 335 Track 1 practices and 830 Track 2 practices. Practices could select all responses that applied.

Twenty-five percent of practices are excluded from this figure because they reported their primary BHI strategy was "referrals or care compacts/collaborative agreements for external behavioral health specialists" (20 percent) or "other" (non specified) approaches (4 percent), and 1 percent of practices reported that they "were not addressing behavioral health needs at their practice".

BHI = behavioral health integration; PY = Program Year.

Figure 4.11. Percentage of practices that reported taking one or more recommended steps to integrate behavioral health in PY 2, by track and BHI model

Practices that identified their primary strategy for addressing behavioral health needs as either the Primary Care Behaviorist or Care Management for Mental Illness model were asked about the steps taken to integrate behavioral health within each of the two options. All Track 2 practices and most Track 1 practices reported that they took at least one step to develop workflows or staff to support BHI in PY 2. However, many practices have additional steps to complete in later program years. Practices that selected the Primary Care Behaviorist model reported more progress than those that selected the Care Management for Mental Illness model.



Source: Mathematica's analysis of 2018 (Q3) care delivery reporting data submitted by practices to CMS.

Notes: Care Management for Mental Illness model: Track 1 practices (N = 425), Track 2 practices (N = 449). Primary Care Behaviorist model: Track 1 practices (N = 335), Track 2 practices (N = 830).

Twenty-five percent of practices are excluded from this figure because they reported their primary BHI strategy was "referrals or care compacts/collaborative agreements for external behavioral health specialists" (20 percent) or "other" (non specified) approaches (4 percent), and 1 percent of practices reported that they "were not addressing behavioral health needs at their practice".

BHI = behavioral health integration; PY = Program Year.

Closer look: How are practices implementing the Primary Care Behaviorist model?

Several deep-dive practices said they selected the Primary Care Behaviorist model because using a dedicated in-house behaviorist increased access to behavioral health care by reducing reliance on outside specialists and co-location was convenient for both patients and practitioners.

The ways in which practices implemented the Primary Care Behaviorist model varied along many dimensions. Practices reported variation in:

1. **Behaviorist staff type.** Practices most commonly reported to CMS that they included social workers (55 percent), followed by psychologists (21 percent), and psychiatric nurse practitioners or physician assistants (6 percent) as behavioral health specialists on their care teams. An additional 25 percent of practices identified "other" practitioner types.
2. **Time at practice site.** The amount of time behaviorists spent at the primary care practice varied widely. On the most limited end of the spectrum, one small, independent Track 2 deep-dive practice said that its behaviorist was on site only twice a month. On the other end of the spectrum, a large, system-owned Track 2 deep-dive practice engaged a behaviorist full-time.
3. **Conditions addressed.** Behaviorists served patients with a range of behavioral health conditions, including depression, anxiety, substance abuse, and acute stressors, such as divorce or death. A few behaviorists also supported practitioners in assessing the adequacy of patients' mental health medication therapy.
4. **Referral approaches. Although several deep-dive practices used warm handoffs—that is,** a practitioner or staff member introduced the patient to the behaviorist in person—a few practices did not. Instead, these practices typically made appointments for patients with the behaviorist, without a personal introduction, often because the behaviorist was not regularly at the practice.

What facilitators and/or challenges did CPC+ practices experience when integrating behavioral health?

Similar to PY 1, several system-owned deep-dive practices noted that supports provided by their larger health care organization, such as access to behaviorists and shared resources, facilitated BHI. For example, a couple of practices described new educational and therapy classes or groups for patients with behavioral health conditions that were staffed by BHI personnel throughout the system.

As in PY 1, several system-owned and independent deep-dive practices cited the limited number of behavioral health practitioners in their community as a key barrier to meeting their patients' behavioral health needs. Several deep-dive practices either had not yet hired a behaviorist or had experienced turnover in the position due to the behavioral health labor market in PY 2. This issue was prevalent in all setting types, but it was pronounced in rural locations, where most of the deep-dive practices noted this constraint. The 2018 CPC+ Practice Survey

data were consistent with this finding; Track 2 urban and suburban practices were more likely to report having a co-located behavioral health specialist than rural practices (57 and 56 percent versus 41 percent). Practices said that the lack of behavioral health practitioners in the community also affected their ability to refer externally.

Several deep-dive practices used strategies in PY 2 to offset barriers to meeting patients' behavioral health needs related to limited behavioral health resources in their community. These strategies included developing relationships with behavioral health facilities, establishing collaborative care agreements with behavioral health practitioners, and encouraging patients to access behavioral services in their community through their employee assistance program.

What did CPC+ practices perceive as the benefits and/or drawbacks of integrating behavioral health into primary care?

As in PY 1, many deep-dive practices reported that BHI leads to increased access and better care, improved communication between practitioners and behavioral health practitioners, and increased patient comfort with receiving behavioral health care.

> **"Typically [seeing the social worker] cuts down on [repeat phone calls to the other staff] because she's seeing them pretty often. And with them being able to talk through it, they don't have the anxiety they would normally have. They're able to have the counseling sessions that allow them to get it off their chest, instead of calling the [other] staff and…saying the same thing 40 times."**
>
> ***— Clinical nurse supervisor at a large, system-owned Track 2 practice***

Several deep-dive practices in PY 2 noted that BHI saved time for practitioners and staff to focus on other responsibilities. Practitioners were relieved to share responsibility with skilled behaviorists who could step in and help manage behavioral health issues. A few deep-dive practices specifically credited their behaviorist with de-escalating crises, including helping identify patients with suicidal ideation and determining next steps.

D. Providing comprehensive medication management

What were the CPC+ requirements in PY 2?

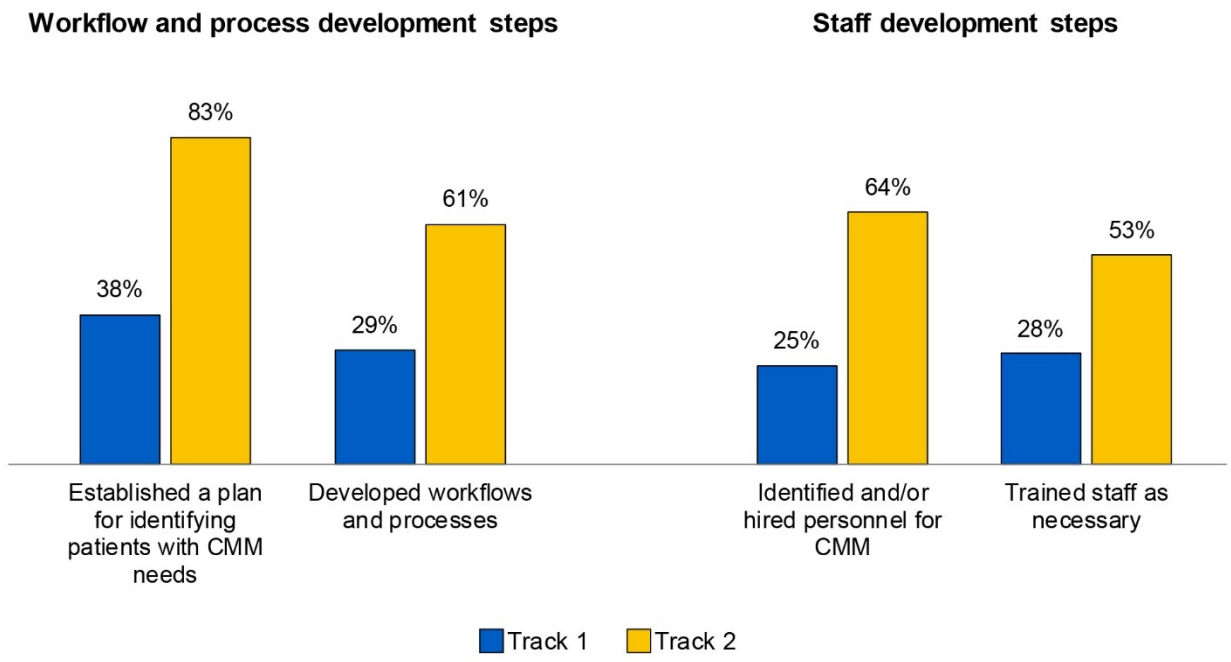
In PY 2, CMS introduced a new requirement for Track 2 practices to develop a plan to provide CMM to patients discharged from the hospital and those receiving longitudinal care management. CPC+ defines CMM as a collaborative process between the primary care team and a CMM specialist (often a pharmacist), involving the following activities: (1) identifying high-risk patients for CMM services, (2) supplementing an initial medical record review with discussions with the patient/caregiver to determine medication issues (that is, effectiveness, safety, affordability, therapy adherence), (3) developing an individualized action plan to address medication issues, and (4) conducting patient follow-up to monitor compliance with and effectiveness of the action plan (CMMI 2018). Track 2 practices were encouraged, though not required, to identify resources to provide CMM in the first half of PY 2; design a workflow; and by the end of PY 2, begin offering CMM to a small subset of patients considered high risk.

How did practices approach comprehensive medication management?

Ninety-three percent of all Track 2 practices took at least one of four steps for implementing CMM: (1) established a plan for identifying patients with CMM needs, (2) developed workflows and processes, (3) identified and/or hired personnel, or (4) trained staff as necessary. Specifically, 83 percent of Track 2 practices reported that they had established a plan for identifying patients with CMM needs, 61 percent developed workflows, 64 percent identified and/or hired personnel for CMM, and 53 percent had trained those staff as needed (Figure 4.12). A larger proportion of Track 2 practices completed all four implementation steps than Track 1 practices, which is consistent with this requirement pertaining only to Track 2 practices. Despite not being required to do so, about one-half of Track 1 practices also reported taking at least one step to implement CMM in PY 2 (Figure 4.13).

Figure 4.12. Percentage of practices that reported taking recommended steps to implement CMM in PY 2, by track

Many Track 2 practices reported that they had a plan in place to identify patients with CMM needs by the end of PY 2. However, fewer Track 2 practices reported that they had taken steps (such as developing workflows, identifying or hiring staff, or training staff) to address those needs.



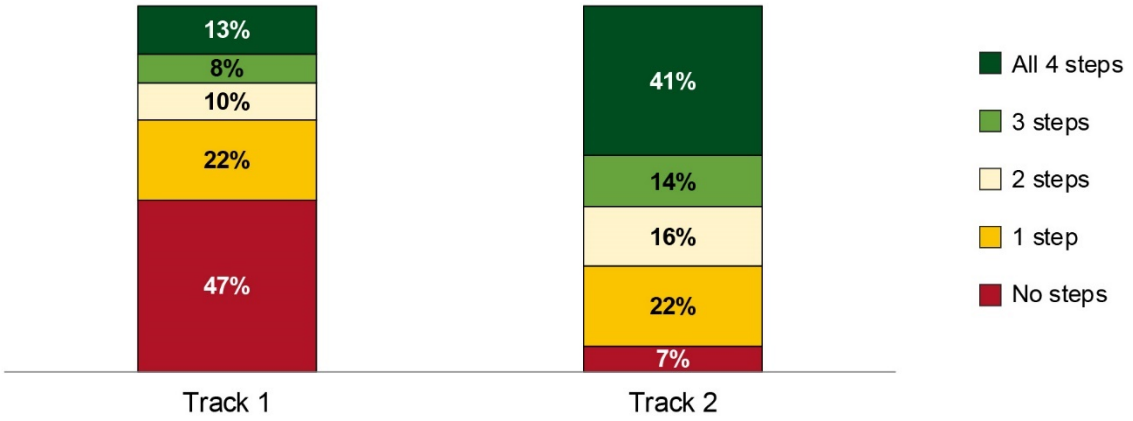
Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.

Notes: N = 1, 270 Track 1 practices and 1,445 Track 2 practices. Practices could select all responses that applied.

CMM = comprehensive medication management; PY = Program Year.

Figure 4.13. Percentage of practices that reported taking one or more recommended steps to implement CMM in PY 2, by track

Most Track 2 practices reported that they had taken at least one step to implement CMM, but by the end of PY 2, only 41 percent of practices had completed all four steps. Despite not being required to do so, about one-half of Track 1 practices had also taken at least one step to implement CMM in PY 2.



Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.
Notes: N = 1, 270 Track 1 practices and 1,445 Track 2 practices. Practices could select all responses that applied.
CMM = comprehensive medication management; PY = Program Year.

Nearly two-thirds (63 percent) of Track 2 practices reported to CMS that they provided CMM in the last two quarters of PY 2, despite being required to only plan for, rather than provide, these services. Forty percent of Track 1 practices reported to CMS that they provided CMM in the last two quarters of PY 2, despite not being required to plan for or provide these services. Track 1 data, however, should be interpreted with caution. Deep-dive findings suggest that Track 1 deep-dive practices may not fully understand what CMM is, which may indicate that Track 1 practices over-report CMM activities to CMS. For example, several Track 1 deep-dive practices explicitly said they were uncertain about what CMM means when asked to describe their CMM activities. Several other deep-dive Track 1 practices demonstrated their misunderstanding by providing responses that described activities more closely related to medication reconciliation or medication review, than to CMM. This finding is expected, given that CMM was not a requirement for Track 1 practices in PY 2.

Of Track 2 practices providing CMM, about two-thirds delivered CMM through co-management with a pharmacist or service either located at the practice site (53 percent) or off-site (16 percent). The remaining 31 percent reported that the practice's primary care practitioners delivered CMM. Deep-dive Track 2 practices that used a pharmacist to provide CMM described various degrees of co-management to provide CMM services. For example, according to one practice, the practitioner and pharmacist conducted "tag-team" appointments on the same day to support co-management and enable the pharmacist to see the patient before the practitioner. In another practice, the pharmacist assumed oversight of the patient's medications after a joint patient assessment and updated the practitioner on how the patient's medication issues were resolved.

Track 2 practices that provided CMM used various methods to identify patients for these services. Track 2 practices reported to CMS that they identified patients for CMM services by looking at patients (1) recently discharged from the hospital (80 percent of practices), (2) referred by practitioner care team (78 percent), (3) with active medication issues (74 percent), (4) who were receiving longitudinal care management (73 percent), (5) with potential therapy issues (such as high-risk medications or multiple drug interactions) (72 percent), and (6) who recently visited the ED (57 percent). A few of the deep-dive Track 2 practices offering CMM services through a pharmacist said that they targeted these services to patients with diabetes, with one practice mentioning that it did so because of the CPC+ eCQM requirement to maintain an HbA1c score of less than nine. One of these practices created a report of all patients with high HbA1c levels and recent ED/hospital discharges and notified the pharmacist of these patients' upcoming visits so that the pharmacist could support comprehensive monitoring of their medications.

What facilitators or challenges did CPC+ practices experience in planning to provide comprehensive medication management?

A couple of small deep-dive practices reported challenges hiring a pharmacist. One small practice, for example, said it was not financially feasible for them to hire a pharmacist. Another small practice said it was competing with insurers who hire pharmacists to conduct medication therapy management. This feedback from small deep-dive practices is consistent with findings from the 2018 CPC+ Practice Survey, which indicate that large practices were more likely to report having an on-site pharmacist than medium- or small-size practices (35 compared with 17 and 11 percent, respectively). Practices owned by a hospital or health system were also more likely than independent practices to report having a pharmacist on site (24 compared with 15 percent).

What did CPC+ practices perceive as the benefits/or drawbacks of providing comprehensive medication management?

Several deep-dive Track 2 practices identified CMM benefits for patients. A few deep-dive practices, for example, indicated that CMM keeps patients safe by reducing adverse interactions, identifying medication problems early, and preventing hospitalizations. A couple of additional practices said that, because the pharmacist has more time to counsel patients about their medication than other practitioners, patients often better understand why they should take their medicine, which can improve patient compliance.

A few deep-dive Track 2 practices said that working with a pharmacist benefited practitioners, as well. These practices noted that the pharmacist reduced practitioner burden by taking on work that was previously done by the practitioner, such as comprehensive medication list reviews and prior authorizations. One practitioner, for example, said that prior authorizations had been "the biggest headache" and was happy to relinquish that

> **"Every provider…is going to have some number of people that have such a complicated medication regimen that you're going to need help. And that's where the pharmacy staffing at [the practice] is incredible and really helpful…[such as having] a PharmD who will help out with the medications for people that are intolerant of medications, have so many that there's some tricky interactions, or things just haven't been effective for them."**
>
> ***— Lead physician at a large, system-owned Track 2 practice***

responsibility. Another practitioner noted that the pharmacist was particularly helpful in providing guidance to practitioners when selecting medications for patients with complex medication issues, because the pharmacist understood the medication interactions and could prescribe "as well as or better than" practitioners.

E. Assessing and addressing patients' social needs

What were the CPC+ requirements in PY 2?

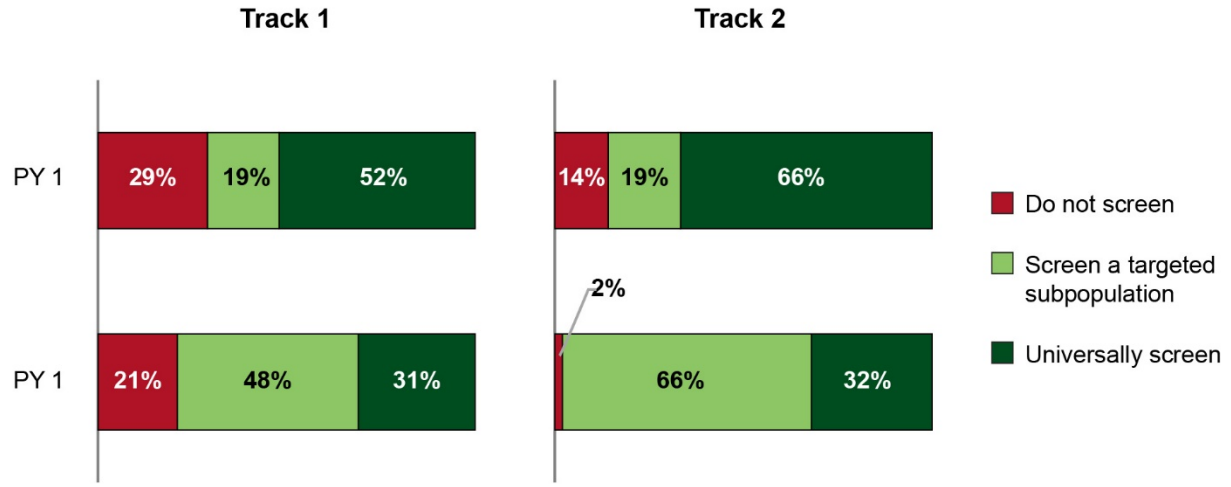
In PY 1, CPC+ required Track 2 practices to systematically assess their patients' social needs and conduct an inventory of resources to address those needs. Social needs include food and job insecurity, exposure to violence, lack of heat and shelter, lack of transportation to obtain social and health care services and materials, and other social issues (CMMI 2018). In PY 2, CPC+ additionally required Track 2 practices to address common social needs for at least their high-risk patients by (1) prioritizing common social needs in their practice population and maintaining an inventory of resources and supports available to address those needs and (2) establishing relationships with at least two resources and supports that meet patients' most significant social needs. CPC+ notes that *establishing relationships* ideally includes the primary care practice working with community-based resource organizations on the structure and process of referrals and on bidirectional information flow (CMMI 2018).

How did practices assess and address patients' social needs?

The percentage of practices overall that reported universally screening all patients for unmet social needs nearly halved (falling from 60 percent to 32 percent) from PY 1 to PY 2. The percentage of practices that reported to CMS that they screened a targeted subpopulation for unmet social needs, however, tripled (from 19 to 58 percent). This trend emerged among practices in both tracks. Almost all Track 2 practices (98 percent) reported to CMS that they routinely screened at least some patients for unmet social needs, an increase from 86 percent in PY 1. In addition, about three-quarters of Track 1 practices reported to CMS that they routinely screened at least some patients for unmet social needs in PYs 1 and 2 (71 percent in PY 1 and 79 percent in PY 2), although they were not required to do so (Figure 4.14). Practices' shift from screening all patients to only a subset may be attributed to a change in the wording of the PY 2 requirement, which stated that practices should "assess social needs for *at least* patients identified as high risk" compared with stating that practices should "systematically assess patients' social needs" in PY 1. Many deep-dive practices reported that they assessed social needs for one or more of the following subpopulations: new patients, patients at increased risk who entered care management, patients identified by a practitioner's judgment as appropriate for social needs screening, and patients who receive Medicare Annual Wellness Visits.

Figure 4.14. Percentage of practices that reported that they did not screen, screened a targeted subpopulation, or universally screened for unmet social needs, by track and program year

The percentage of practices that reported that they routinely screened for unmet social needs increased from PY 1 to PY 2, though their focus shifted from universally screening all patients to screening a targeted subpopulation in PY 2.

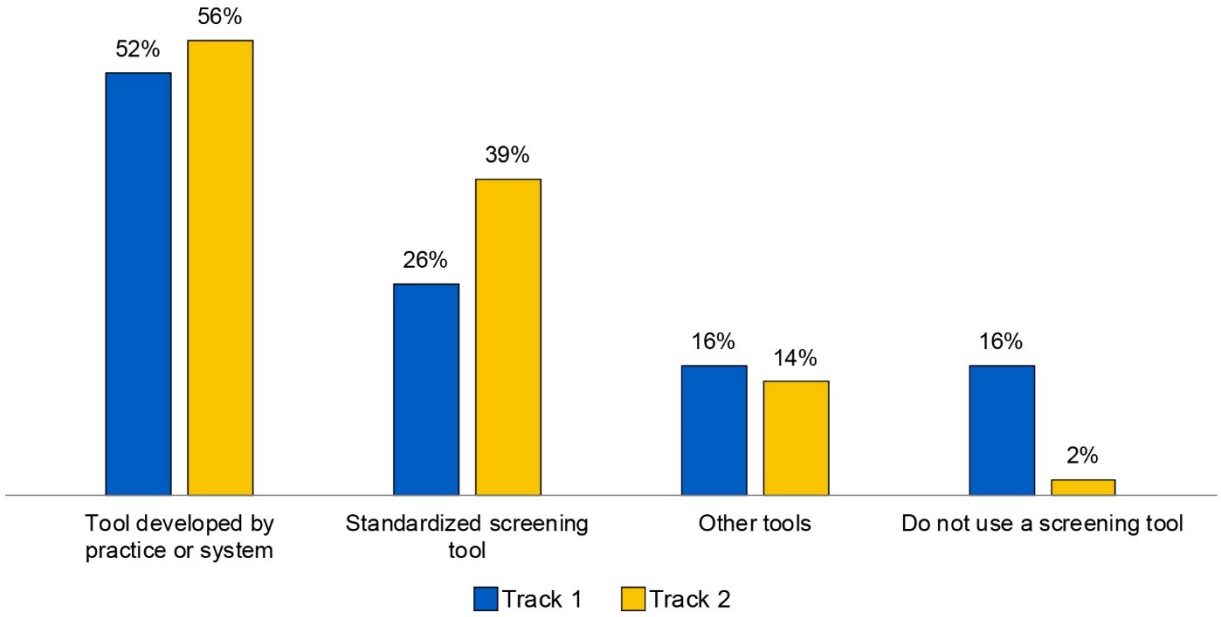


Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.
Notes: N = 1, 271 Track 1 practices and 1,445 Track 2 practices. Practices could select all responses that applied.
PY = Program Year.

More practices used screening tools to screen patients for unmet social needs in PY 2, and practices were more likely to use tools developed in house than standardized tools developed by a third party. Almost all Track 2 practices (98 percent) reported to CMS that they use a screening tool when doing so, up from 78 percent in PY 1. Though not required by CPC+ to screen for unmet social needs, 84 percent of Track 1 practices also reported to CMS that they use screening tools, an increase of 19 percentage points from PY 1 (data not shown). In PY 2, more practices that screened patients for unmet social needs reported to CMS that they used a screening tool developed by their practice or health system than used a standardized screening tool published by a third party (Figure 4.15). Moreover, whereas in PY 1 many deep-dive practices reported informally assessing the unmet social needs of patients through ad hoc conversations between patient and practitioner rather than using screening tools, no Track 2 practices and a couple Track 1 deep-dive practices reported doing so in PY 2. Several deep-dive practices noted that participating in CPC+ encouraged them to formalize their screening processes.

Figure 4.15. Type of screening tools that practices reported using among practices that routinely screened at least some patients for unmet social needs in PY 2, by track

More practices reported using a screening tool developed by their practice or health system than using a standardized screening tool published by a third party.



Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.

Notes: N = 1,001 Track 1 practices and 1,421 Track 2 practices. Practices could select all responses that applied.

PY = Program Year.

Practices reported screening for unmet social needs at higher levels than beneficiaries' reports suggest. In PY 1, 52 percent of Track 1 and 66 percent of Track 2 practices reported to CMS that they screened all patients for social needs, and 19 percent from both tracks reported screening a subpopulation. In PY 2, 31 percent of Track 1 and 32 percent of Track 2 practices reported screening all patients for social needs, and 48 and 66 percent, respectively, reported screening a subpopulation. In contrast, findings from the 2018 CPC+ Beneficiary Survey, administered 11 to 24 months into CPC+, indicated that about 10 percent of beneficiaries in each track and in non-participating practices reported that their doctor or someone else from the doctor's office asked them about non-medical problems they might need help with. Plausible explanations for the discrepancy between practices' and beneficiaries' reports include beneficiaries not recalling being screened, or some beneficiaries being served by practices that do not universally screen all beneficiaries. However, given the size of the discrepancy and the fact that beneficiaries in non-participating practices gave comparable responses to those in CPC+ practices, it is possible that CPC+ practices are not screening for unmet social needs with as many patients as they reported to CMS.

Almost all Track 2 practices (99 percent) continued to report to CMS that they maintained or had access to an inventory of social service resources in PY 2. Consistent with PY 1, more than one-half of these practices (59 percent) reported that they updated their inventory at least annually, and most of the other half said they did so on an ad hoc basis (39 percent). Despite not being required to develop an inventory, Track 1 practices reported doing so in percentages similar to Track 2 practices in PYs 1 and 2. Most deep-dive practices said that creating an inventory of commonly used or potentially helpful resources happened organically and often occurred before CPC+, because having such an inventory helped them better meet their patients' needs. However, several deep-dive practices said that although their practices had resources on hand to give to patients to support their social needs before CPC+ began, CPC+ motivated them to codify these resources into more formal directories or inventories.

Social needs practices reported prioritizing in PY 2

Practices addressed a range of social needs, with practices in both tracks reporting to CMS that they prioritized the following social needs:

- Transportation (72 percent of practices)
- Financial insecurity (64 percent)
- Food insecurity (64 percent)
- Safety from violence and abuse (55 percent)
- Housing instability (52 percent)
- Utility needs (51 percent)
- Social isolation (45 percent)

Practices increased efforts to address health-related social needs in PY 2 by actively connecting patients to resources and designating a staff person to follow up after referrals. The CPC+ Practice Survey indicates that the percentage of Track 2 practices that reported actively connecting patients to community resources increased by 15 percentage points from PY 1 to PY 2 (69 to 84 percent). Though Track 1 practices were not required to address patients' social needs, 71 percent of them also reported that they connected patients to community resources in PY 2, an increase of 24 percentage points from PY 1. In addition, the percentages of practices that reported having a designated staff person responsible for actively coordinating resources among patients, the health system, and community service agencies increased from 23 to 32 percent for Track 2 practices, and from 11 to 21 percent for Track 1 practices.

Most Track 2 practices (93 percent) reported to CMS that they had established relationships with social service agencies that address social needs, but deep-dive findings suggest that practices may not yet have established relationships that support clear processes and structures for referrals and bidirectional flow of information. Few deep-dive practices reported that they had formal relationships with agencies that address patients' social needs. However, most deep-dive practices noted that they connected patients with social supports when needed, despite not having formal referral and information sharing processes in place. Exceptions included two Track 1 deep-dive practices that reported having long-standing relationships with a few community resources long before CPC+ started. Consequently, the data that practices reported to CMS about establishing relationships should be interpreted with caution, as they may overestimate the establishment of relationships as intended in the CPC+ Implementation Guide.

More practices reported that they had integrated social needs screening tools and the inventory of social services resources into their EHR in PY 2.[35] The percentage of all practices that reported to CMS that they integrated screening tools with their EHRs grew from 59 percent in PY 1 to 72 percent in PY 2. Practices were much less likely to have integrated the inventory of resources than the social needs screening tools in the EHR, but the percentage of practices integrating their inventories increased slightly from 15 percent in PY 1 to 20 percent in PY 2.

What facilitators and/or challenges did CPC+ practices experience in assessing and addressing patients' social needs?

As in PY 1, several deep-dive practices continued to feel burdened by the amount of time it took to screen patients to identify unmet social needs. Many deep-dive practices used social workers to assess and address patients' social needs, while other practices mentioned using other types of staff (such as nurses, care managers, or practitioners) for these activities. Practices that had a staff member dedicated to managing screenings reported less burden with screening than did practices in which a practitioner screened patients during routine visits. Practitioners said that screening patients for social needs during routine visits reduced the time they had available to comprehensively cover patients' medical issues.

Some patients were resistant to deep-dive practices' attempts to assess and address their social needs. About one-half of deep-dive practices said that some patients were not accustomed to, and therefore were wary of, divulging private, non-medical information to their doctors. Similarly, several deep-dive practices reported that some patients resisted referrals to community resources because they were reluctant to admit that they had an unmet social need or felt discouraged by previous experiences with similar resources. To overcome these challenges, practices worked to build rapport with patients by explaining the purpose of their screening questions and respecting the privacy of patients who chose not to share information or did not want to access community services. A couple of deep-dive practices said that patient resistance was an early challenge that quickly dissipated after patients grew accustomed to talking with staff about their non-medical concerns.

The lack of integrated screening tools in EHRs limited deep-dive practices' use of social needs data. Most of the deep-dive practices that did not have screening tools integrated in their EHRs documented information about patients' social needs in a free-text field in the EHR, such as the progress or encounter note. A few of these practices explained that storing information in free-text fields limited their ability to easily search, generate data reports, or track a patient's progress in addressing social needs.

[35] By the start of PY 3, Track 2 practices needed to meet two advanced health IT requirements related to care coordination: (1) use an electronic screening tool to assess patients' health-related social needs and (2) electronically store an inventory of resources to meet patients' identified health-related social needs.

Several deep-dive practices found it time consuming to keep their inventory of social resources up to date. Staff at these practices said that community-based resources frequently change the services they provide, their availability, and their eligibility requirements. Practitioners at two Track 2 deep-dive practices said they opted to use an inventory of resources developed and updated regularly by the county, because it is easier than maintaining their own.

> **"The challenge with resources is that they change rapidly [and thus] constantly need to be updated. You may call on a certain resource or contact and it's no longer there, or it only applies to this bucket of people now. [Inventories are] a good place to start, but they change."**
>
> ***— Care manager at a medium-size, system-owned Track 1 practice***

What did CPC+ practices perceive as the benefits and/or drawbacks of assessing and addressing patients' social needs?

As in PY 1, many deep-dive practices continued to find it beneficial to assess patients' social needs. Practitioners commonly said that formally assessing social needs gave them the information they needed to resolve non-medical barriers that affect patients' health. They also said helping coordinate health-related social supports to meet patients' needs made their work more satisfying, because they could improve patients' well-being in ways they could not before. Similarly, several deep-dive practices valued maintaining an inventory of resources to meet patients' needs. Practitioners and staff said that having an inventory enabled them to quickly reference and share information with patients, and helped them avoid looking up the same information time and again. Moreover, a practitioner at a Track 2 practice said that the inventory enables the practice to help patients coordinate or obtain resources to meet social needs after screening for them.

F. Enhancing practice capabilities to address the needs of subpopulations of complex patients

What were the CPC+ requirements in PY 2?

In PY 1, CPC+ required Track 2 practices to characterize the needs of "subpopulations of patients with complex needs" and identify a practice capability to develop to meet those needs. In PY 2, CPC+ required Track 2 practices to define at least one subpopulation of patients with specific complex needs, develop capabilities necessary to "better address those needs, and measure and improve the quality of care and utilization of this subpopulation." Developing capabilities to manage complex conditions includes expanding the primary care practice's capabilities, expanding collaboration with specialists, and using strategies like co-location and co-management for common complex conditions. CPC+ encouraged practices to use quantitative and qualitative data to identify common and complex health conditions in their patient population.

How did CPC+ practices enhance their capabilities to address the needs of subpopulations of patients with complex needs?

Nearly all Track 2 practices (97 percent) reported to CMS that they are developing capabilities to increase the comprehensiveness of care for patients with complex needs. However, deep-dive findings suggest that practices may not understand this care delivery requirement, and their reports to CMS about their developing capabilities should be

interpreted with caution. When asked about developing capabilities to meet a subpopulation's complex needs, deep-dive practices typically described leveraging practice changes done in service of other care delivery requirements in PY 2, such as hiring or retraining existing staff (for example, social workers, diabetes educators) to better address the needs of patients with chronic conditions, or improving monitoring and outreach to patients with certain conditions via registries. Several other deep-dive practices described efforts to improve the comprehensiveness of care for patients whose care needs were not necessarily complex, such as building their capacity to provide group education or self-management classes for patients with certain chronic diseases (such as diabetes or depression). Although group education classes may expand the availability or the depth and breadth of care provided to certain subpopulations, such activities may not be consistent with the more demanding work that CMS asked Track 2 practices to do for this care delivery requirement. However, a couple of deep-dive practices reported that they increased the comprehensiveness of care for patients with complex needs by using change tactics that were recommended, though not required, by CPC+, such as co-locating specialists within the primary care practice, increasing co-management of certain conditions with specialists, or both.

Complex needs practices reported prioritizing in PY 2

Track 2 practices most commonly reported to CMS that they were enhancing their capabilities to support:

- End-of-life or palliative care (70 percent)
- Co-existing chronic conditions (51 percent)
- High-acuity chronic conditions (49 percent)
- Chronic pain (44 percent)
- Substance use disorders (41 percent)
- Alzheimer's disease or related dementias (30 percent)
- Frailty (27 percent)

Deep-dive practices used a range of qualitative and quantitative data sources to identify subpopulations with complex needs. Several deep-dive practices reported that they used qualitative approaches to identify populations, such as practitioners' own perceptions of common patient conditions. A few other deep-dive practices reported that they used data-driven approaches that aligned with eCQM reporting requirements to identify and track priority subpopulations. Despite encouragement in the CPC+ Implementation Guide, no deep-dive practices reported using CMS or payer partner data to identify subpopulations. A few practices reported that they identified priority populations and decided where to concentrate efforts to increase comprehensiveness at the system level.

What facilitators and/or challenges did CPC+ practices experience in enhancing capabilities to address the needs of subpopulations of patients with complex needs?

Several deep-dive practices indicated that health IT facilitated the identification of target populations. For example, these practices used registries and other population health tools in their EHRs to identify and support patients with common conditions in their practices. Many practices were accustomed to using these tools for their population health efforts (such as identifying and contacting patients with gaps in care, and working to improve performance on quality measures) and may have been able to leverage these tools to identify subpopulations with complex needs.

Several deep-dive practices reported that a lack of resources (including staff, time, and funding) hindered their ability to enhance capabilities to address the needs of subpopulations. For example, practitioners reported that their practice and/or system did not have enough care managers to support all patients with complex needs who would benefit from these services.

What did CPC+ practices perceive as the benefits and/or drawbacks of enhancing capabilities to address the needs of subpopulations of patients with complex needs?

Several deep-dive practices perceived that providing more comprehensive care benefited patients with complex needs. These practices reported that patients appreciated when the primary care practice met their needs in new ways. Also, practices reported that targeting subpopulations with complex needs was often more efficient than considering complex needs only on a patient-by-patient basis, and as a result, could lead to higher quality or lower costs.

Improving comprehensiveness and coordination in PY 1

Similar to the first-year experience of practices that started CPC+ in 2017, Track 2 practices that joined in 2018 generally met the PY 1 care delivery requirements. For example, Track 2 practices:

- **Established collaborative care agreements.** Most practices (93 percent) reported to CMS that they established collaborative care agreements with at least one specialist or health care organization.
- **Integrated behavioral health.** Nearly all practices (98 percent) reported to CMS that they had taken steps to integrate behavioral health at their practices and had adopted the Primary Care Behaviorist model (48 percent) rather than the Care Management for Mental Illness model (17 percent). A few deep-dive practices said they encountered challenges hiring behavioral health staff and referring patients to external behavioral health specialists due to regional shortages in behavioral health practitioners.
- **Assessed social needs.** Most practices (91 percent) reported to CMS that they screened at least some patients for unmet social needs. A few deep-dive practices said it was challenging to consistently screen all patients for unmet social needs because staff are busy with other tasks and have limited time with patients during office visits.
- **Addressed social needs.** Many practices (87 percent) reported to CMS that they maintained or had access to an inventory of social service resources. A few deep-dive practices cited difficulty building an inventory of social resources and addressing patients' social needs due to a lack of available community-based resources.

Additionally, similar to Track 1 2017 Starters, many Track 1 2018 Starters reported to CMS that they had made progress toward Track 2 care delivery requirements despite not being required to do so, such as addressing patients' behavioral health needs in the practice (89 percent), screening patients for social needs (74 percent), and maintaining an inventory of social service resources (84 percent).

CPC+ required Track 1 2018 Starters to identify high-volume and/or high-cost specialists and identify hospitals and EDs that most of their patients visited. We did not capture data on this requirement for Track 1 practices in PY 1.

4.4.4. Function 4: Patient and caregiver engagement

CMS encourages practices that joined CPC+ in 2017 to promote patient and caregiver engagement in health care delivery. This process means using patients' and caregivers' experience and expertise to improve processes and accelerate practice change. It also means building collaborative relationships with patients in support of their health goals. Because patients and caregivers see and experience health care in ways that practices often do not, they can point out areas for improvement and identify solutions that practices may not have considered (CMMI 2018). Engaged patients equipped with information about their conditions and available services are expected to take a more active role and make more informed choices about their health care (CMMI 2018).

In PY 2, CPC+ required Track 1 practices to convene a Patient and Family Advisory Council (PFAC) at least three times a year and practices in Track 2 to do so at least quarterly (Section A). CPC+ also required all practices to integrate self-management support into usual care (Section B) and Track 2 practices to engage patients in advance care planning so they can make plans about the care they would want to receive if they became unable to speak for themselves (Section C). Practices also engaged in additional activities outside of the care delivery requirements to enhance patient and caregiver engagement (Section D).

Overview of progress. Many practices convened PFACs for the first time during PY 1, and intensified PFAC efforts in PY 2 by more frequently convening meetings and taking more steps to integrate PFACs into routine efforts. Practices also made progress engaging patients and caregivers in PY 2 by more systematically identifying patients for self-management support and more routinely helping patients define their health goals. Additionally, nearly all practices engaged at least some of their patients with complex needs in advance care planning discussions in PY 2, even though this new requirement applied only to Track 2 practices. Many deep-dive practices said they engaged in advance care planning before joining CPC+, though several of these practices said they refined or expanded these efforts after joining. In addition to activities related to the care delivery requirements, several deep-dive practices reported that they continued efforts begun before CPC+, such as using patient surveys (and for a few practices, using suggestion boxes and patient portals) to engage patients and obtain their feedback. Practices reported that engaging patients enhanced patient experience, improved patient-provider communication, advanced clinical processes, and positively influenced patients' health outcomes.

Practices reported that they are continuing to improve patient and caregiver engagement, but there remains room for improvement. Since CPC+ began, practices have reported that they were not always able to make all changes the PFAC participants recommended. Sometimes they could not manage PFAC members' expectations or sufficiently explain why recommended changes did not occur, which frustrated some PFAC members. Practices also continued to face challenges motivating some patients to participate in self-management support efforts and, less frequently, to engage in initial advance care planning discussions. These challenges may be related to practitioners' and staff members' knowledge and use of evidence-based patient engagement approaches, including tools to assess patients' receptivity to and readiness for engagement, motivational interviewing, Teach-Back, and other patient activation techniques.

To use patients' input effectively to improve care processes, practices could strengthen efforts to recruit PFAC participants who represent their patient population, use patient feedback consistently, involve patients in QI projects, and share patient feedback and changes made in response to feedback with all patients. To support patients in meeting their health goals, more practices could train practitioners and staff in patient and caregiver engagement techniques in future program years.

A. Engaging patients in Patient and Family Advisory Councils

What were the CPC+ requirements in PY 2?

In PY 1, CPC+ required all practices to establish a PFAC consisting of advisors who were patients who received care at the practice or their family members or caregivers, and to integrate their recommendations into care, as appropriate. In PY 1, CMS required Track 1 practices to convene a PFAC at least once, and Track 1 CPC Classic and Track 2 practices to do so in at least two quarters. In PY 2, CMS enhanced this requirement and asked that all Track 1 practices convene a PFAC at least three times a year and that all Track 2 practices do so quarterly.

How did CPC+ practices engage patients in PFACs?

As in PY 1, nearly all practices (99 percent) reported to CMS that they had established a PFAC to work on procedures, processes, and QI, and most met CPC+ requirements for the frequency of convening the PFAC. Consistent with their track-specific requirements, 87 percent of Track 1 practices reported to CMS that they held at least three PFAC meetings in PY 2, and 86 percent of Track 2 practices reported that they held at least four PFAC meetings. Many deep-dive practices reported convening PFACs for the first time in PY 1.

Most deep-dive practices continued to use PFACs to collect feedback to guide practice improvements in PY 2 and many made changes to improve patients' experience of care in response to patient feedback. Improvements described by deep-dive practices were similar in type and scope to those made during PY 1. These typically modest changes included strategies to:

- Reduce wait time (in the office and on the telephone).
- Facilitate patient education (brochures on how to use patient portals, flyers alerting patients of 24/7 access).
- Improve clinical processes (revising forms, scheduling protocols, and medication refill policies).
- Enhance features of practices' physical space (rearranging space to improve accessibility for patients with mobility issues, improving signage).

Changes made by two deep-dive practices in response to PFAC feedback

In response to PFAC feedback that the bills patients received were confusing, a large, system-owned, Track 2 deep-dive practice:

- Asked the billing vendor to revise the bill format to improve clarity, which it did, and
- Encouraged its health system to hire a dedicated billing staff person to address and resolve patients' billing questions, which it did. This staff member now supports all practices in the system.
- Practitioners and staff said that patients expressed appreciation for the changes and valued being able to get assistance in person, rather than through a complicated automated telephone system at the central billing office.

At a small, system-owned, Track 1 practice, patients were unaware of how to prepare for appointments. In response, this practice:

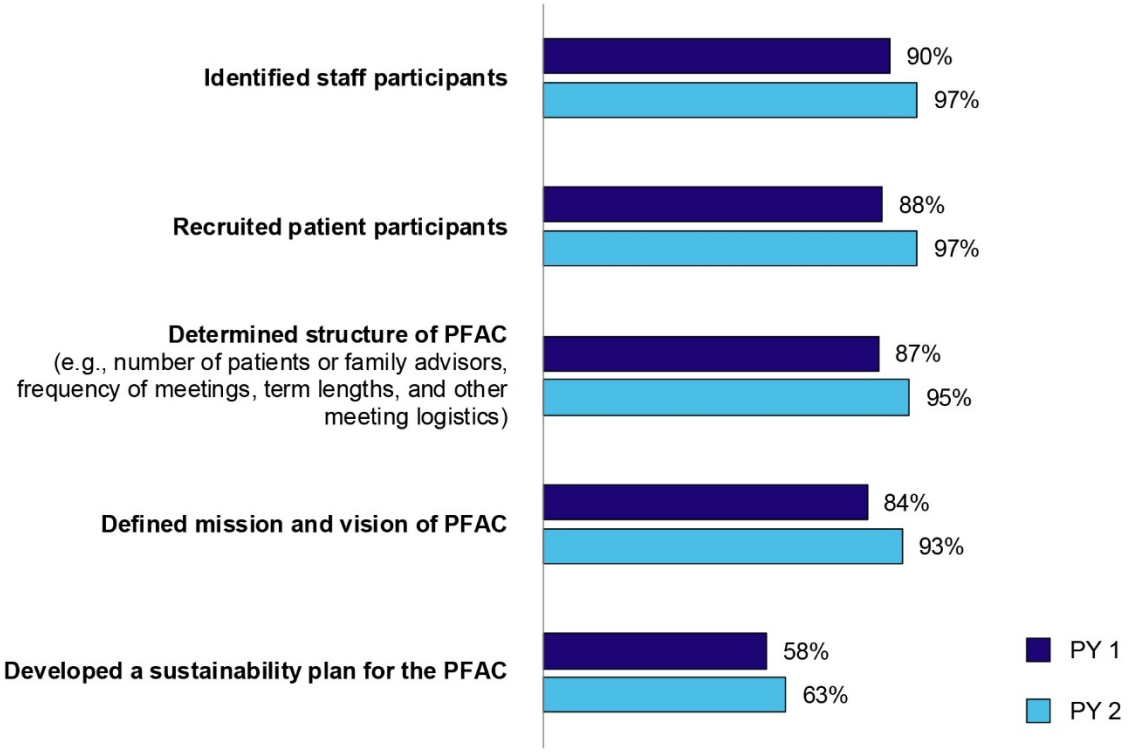
- Revised its appointment scheduling protocol so that schedulers consistently reminded patients to bring recent lab results and a list of their current medications to appointments.
- Practitioners and staff said that this change reduced laboratory test duplications and medication interactions.

Also similar to PY 1, most deep-dive practices communicated with patient advisors about changes made in response to feedback during PFAC meetings or on a case-by-case basis with patients during informal conversations. A few deep-dive practices described similar mechanisms as reported in PY 1 for communicating changes made to their full patient population, a change tactic CPC+ suggested but did not require. Examples included distributing flyers and showing a looping slide show in waiting rooms, sending newsletters via direct mail, and posting updates on patient portals. Although more deep-dive practices reported communicating changes to the full patient population than in PY 1, a few deep-dive practices expressed challenges with this communication in PY 2. For example, these practices mentioned that communication efforts were irregular or that staff did not have sufficient time to communicate the changes that had been made.

Most practices established and convened a PFAC in PY 1, and more practices took steps to integrate them into routine and systematic efforts in PY 2. Nearly every metric of PFAC implementation that practices reported to CMS increased slightly from PY 1 to PY 2 (Figure 4.16). For example, in PY 2, nearly all practices reported to CMS that they had identified staff participants and recruited patients to serve as members of the PFAC (up slightly from PY 1). Additionally, more practices had defined their PFAC's mission and vision, determined the structure of the PFAC, and developed a sustainability plan than in PY 1. However, many practices have yet to develop plans for sustaining their PFAC after CPC+ ends.

Figure 4.16. Percentage of practices that reported taking steps to integrate their PFAC into routine efforts, by program year

A greater percentage of practices reported that they took steps to integrate their PFAC into routine efforts in PY 2 than in PY 1, though many practices have yet to develop plans to sustain their PFAC.



Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.

Notes: N = 2,716.

PFAC = Patient and Family Advisory Council; PY = Program Year.

Nearly all deep-dive practices recruited patients and caregivers for the PFAC for a set term of service, though at least one deep-dive practice engaged different patients for each meeting. PFAC members' length of service varied, but deep-dive practices commonly requested that patients commit to a one- or two-year term, and many said that doing so boosted participants' familiarity with the practice and other PFAC participants over time, and improved their willingness and openness to share critical feedback. In contrast, one system-owned deep-dive practice used focus groups (which they referred to as PFAC meetings, even though it is not consistent with CMS' definition of PFACs) and therefore selected patients from across multiple practices for each meeting based on the topic. This practice either asked practitioners and staff to nominate attendees who were outspoken about an issue or used data to identify patients experiencing a certain condition. The facilitator of this PFAC described using meetings to obtain feedback from patients on specific issues (such as improving a planned self-management support group on depression) and to provide information on specific topics (such as social services available in the community).

Most system-owned deep-dive practices reported convening a PFAC for each practice location, but a few system-owned practices held multipractice PFACs in PY 2. These practices cited various reasons for holding multipractice PFAC meetings including efficiencies for system-level staff, who struggled to facilitate multiple independent meetings in PY 1; the desire to focus on system-wide QI; and overcoming low patient advisor attendance at single practices. For example, one multipractice PFAC drew on patients from four practices who provided feedback that guided practice-specific and system-level improvements.

Practices demonstrated progress between PY 1 and PY 2, but there is likely room for improvement in terms of consistently using patient feedback and engaging patients and caregivers in establishing practice improvement projects where appropriate. Nearly all practices (98 percent) reported in the 2018 CPC+ Practice Survey that they collected feedback from a PFAC; however, only 55 percent of those practices consistently reported using the feedback to guide practice improvements (up from 45 percent in PY 1). Many deep-dive practices shared examples of practice improvements made in response to patient feedback, but only about two-thirds of all practices (68 percent) reported to CMS that they often or always engaged patients and caregivers in establishing improvement projects (up from 54 percent in PY 1)—a change tactic CPC+ suggested but did not require. No deep-dive practices reported formally involving patients and caregivers in their QI teams. Instead, most deep-dive practices passed recommendations from the PFAC to their QI teams.

What facilitators and/or challenges did CPC+ practices experience in engaging patients in PFACs?

Consistent with PY 1 findings, in PY 2, many deep-dive practices struggled to recruit patient advisors, ensure their attendance at PFAC meetings, and achieve representation of their overall patient population. Difficulty finding a meeting time that worked for all potential patient advisors meant that practices inadvertently excluded and thus missed out on the opinions of patients who work, are younger, or care for young children. As in PY 1, most practices reported to CMS that their PFAC was "moderately" (47 percent) or "slightly" (22 percent) representative of their overall patient population, and an additional 30 percent said their PFAC was "very" or "completely" representative. Also similar to PY 1, several deep-dive practices experienced challenges focusing meetings on constructive and actionable conversations, as some patient advisors wanted to talk about their personal experiences and had trouble providing feedback specific to their practices.

In PY 2, many deep-dive practices said that including practitioners, staff, and patient advisors with particular characteristics was critical to PFAC success. Several deep-dive practices said that PFACs worked best when staff were open to feedback, committed to following through with suggested changes, and skilled at facilitating conversation in meetings and staying on task. Several-deep dive practices also said that it was important to include patient advisors who were engaged, represented patients in the practice, and were willing to provide constructive feedback.

What did CPC+ practices perceive as the benefits and/or drawbacks of engaging patients in PFACs?

Similar to PY 1, most deep-dive practices found PFACs valuable and noted that they improved patient experiences, patient-provider communication, and clinical processes. Deep-dive practices found PFACs valuable because they provided an opportunity for practices to hear from patients about problems or challenges that the practice was unaware of or did not understand fully. Practices also noted that patients valued being heard during the PFAC meetings and when talking directly with practitioners and other clinical and non-clinical staff about their concerns.

> **"It's been interesting to learn about their ideas of what needs to be worked on, versus ours, and what we feel needs to be worked on. It helps us prioritize, and shifts our mindset of what really needs to be done."**
>
> ***—Medical assistant at a medium-size, system-owned Track 1 practice***

In PY 2, several deep-dive practices noted that the practice's inability to make suggested changes led to frustration and dissatisfaction among some patient advisors. This unintended consequence occurred when practices were unable to make changes suggested by PFAC members, either because the issue was out of the practice's control (such as updating building signage or improving public transportation) or unrealistic to implement (such as adding a radiology department to the practice). Similar to PY 1 findings, several deep-dive practices owned by health systems reported unique challenges related to their system affiliation. These practices described frustration among PFAC members more frequently than independent practices because of the "red tape" involved and the need to get approval from systems administrators before making changes.

B. Planning for and providing self-management support

What were the CPC+ requirements in PY 2?

Self-management support gives patients with chronic conditions tools to manage their health day to day and take an active role in their health care. The support activities focus on increasing patients' motivation, confidence, and ability to understand and manage their health.[36] In PY 1, all practices were required to assess their capabilities and plan for support of patients' self-management, but only Track 1 CPC Classic and Track 2 practices were required to implement these services. In PY 2, all CPC+ practices were required to implement self-management support for at least three high-risk chronic conditions.

How did CPC+ practices approach self-management support?

As in PY 1, nearly all practices (97 percent) reported to CMS that they implemented self-management support for at least three high-risk conditions in PY 2 and, according to deep-dive practices, continued to use similar strategies for providing self-management support.

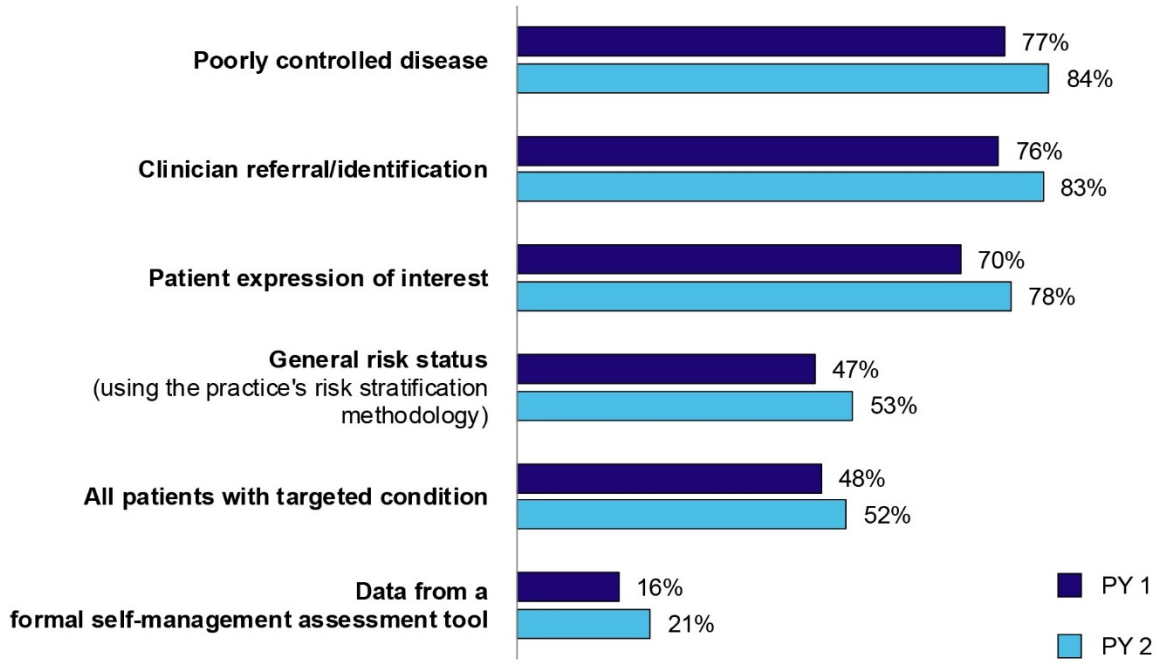
[36] Self-management support somewhat overlaps conceptually with the use of care plans in longitudinal care management (described in Section 4.6.2). A key component of developing a mutually agreed-upon care plan is engaging patients to identify strategies and implement actions to meet their own health care goals.

This finding suggests that, although Track 1 practices were not required to do so until PY 2, they have been providing self-management support since PY 1 and continued this work in PY 2. Practices most commonly provided self-management support for the same chronic conditions in PY 2 as they did in PY 1: diabetes (94 percent), tobacco cessation (69 percent), hypertension (67 percent), congestive heart failure (63 percent), and COPD (62 percent). Deep-dive practices reported using strategies to provide self-management support in PY 2 that were similar to those used in PY 1, such as teaching condition-specific skills during routine medical visits and consultations, providing on-site educational classes, and referring patients to outside resources.

In PY 2, more practices systematically identified patients for self-management support than in PY 1. The percentage of practices that reported to CMS that they systematically identified patients for self-management support increased from 92 percent in PY 1 to nearly all (99 percent) in PY 2. The approaches for identifying patients remained fairly stable over time, but slightly more practices used each strategy in PY 2 (Figure 4.17).

Figure 4.17. Percentage of practices that reported using various sources of information and/or patient characteristics to identify patients for self-management support, by program year

Practices most commonly reported providing self-management support to patients with poorly controlled disease, who were identified or referred by a clinician as needing self-management support, or who expressed an interest in self-management support. More practices reported using each source of information and/or patient characteristic in PY 2 than in PY 1.



Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.

Notes: N = 2,716. Practices could select all responses that applied.

PY = Program Year.

More practices reported helping patients define self-management goals in PY 2. Most practices (90 percent) reported to CMS that they "always" or "often" encouraged patients to choose self-management goals that were meaningful to them. According to the 2018 CPC+ Practice Survey, the percentage of practices that set specific self-management goals with most patients was lower (72 percent), though it increased since PY 1 (by 16 percentage points). About two-thirds of practices (64 percent) reported to CMS that they "often" or "always" included family and caregivers in setting goals and developing care plans. Several deep-dive practices reported that they engaged patients in collaborative goal setting and structured follow-up. Several practices said they used motivational interviewing or other evidence-based methods such as shared decision making and Teach-Back techniques to help patients set goals and reinforce patients' self-management skills. A few deep-dive practices said they integrated self-management goals into care plans so that practitioners, patients, and their caregivers can monitor the patient's progress collaboratively.

> **"You validate [the patients'] feelings and let them know it's not something that they're going through alone. We give them encouragement…help them take the next steps and navigate toward getting help."**
>
> **— Social worker at a large, system-based Track 1 practice**

Beneficiaries reported that practices help them define self-management goals. Deep-dive findings are consistent with results from the 2018 CPC+ Beneficiary Survey. About 80 percent of beneficiaries in CPC+ practices reported that someone from their doctor's office talked with them in the last six months about how to be healthy enough to do the things they like to do—although this percentage was similar to the percentage of beneficiaries in non-participating practices who reported having this conversation with someone from their doctor's office. Despite practices' attention to supporting patients in self-management, however, only roughly half of beneficiaries in CPC+ practices reported on the 2018 CPC+ Beneficiary Survey that their doctor or someone from the doctor's office asked them in the last six months whether there are things that make it hard for them to take care of their own health; this percentage is also similar to the percentage of beneficiaries in non-participating practices reporting that this discussion took place.

Practices varied in how frequently they trained their staff in specific self-management techniques and assessed patients' readiness for self-management; there has been some progress, but many practices have room for improvement.

- **About two-thirds of practices (62 percent) reported to CMS that they "often" or "always" trained staff in specific self-management support techniques for patients and caregivers.** Although practices are making progress, more practices could offer such training to their practitioners and staff. The 2018 CPC+ Practice Survey indicated that, in PY 2, 48 percent of practices reported using staff who were trained in assessing patient readiness and motivating health behavior change to set specific goals for self-management with most patients with chronic conditions, compared with 35 percent in PY 1. A few deep-dive practices reported training their staff in self-management skills. For example, providers at a small, Track 2 deep-dive practice participated in an annual system-wide "boot-camp," where staff practiced these skills to support patients with diabetes, COPD, Alzheimer's disease, and general case management.

- **Less than one-third of practices (31 percent) reported to CMS that they "often" or "always" measured patients' skills and progress when implementing self-management support.** An additional 43 percent of practices reported that they "rarely" or "never" measured patients' skills and progress when implementing self-management support, and the remaining 27 percent said they did so "sometimes." Several deep-dive practices indicated that they assessed patients' readiness, but only a couple of them were able to describe the specific tools they used (such as asking patients how ready they were to lose weight or quit smoking on a 5- or 10-point scale), and one reported assessing patients' readiness using questions embedded in their EHR. A few deep-dive practices described taking an intuitive approach to assessing patients' readiness, which practitioners and staff described as "conversation," "feeling the patient out," and asking the "questions they always asked." A few of the deep-dive practices that said they assessed patients' readiness reported that the use of assessments was inconsistent: either only some staff (such as care managers or diabetic educators) implemented them, or practitioners did so irregularly. A few other deep-dive practices reported that, despite having the tools, they did not systematically assess patients' readiness for self-management support, because they had inadequate time and staffing resources.

What facilitators and/or challenges did CPC+ practices experience in planning for and providing self-management support?

As in PY 1, many deep-dive practices experienced difficulties effectively activating and motivating some patients to engage in self-management support. As in PY 1, these challenges were exacerbated by structural barriers to patient engagement including patients' financial challenges, lack of transportation, and family and employment obligations.

In PY 2, several deep-dive practices described ways in which effective teamwork and communication among practitioners and staff facilitated the provision of self-management support to patients. Teamwork facilitated effective handoffs when clinicians referred patients to services provided by care managers and educators. For example, one deep-dive practice noted that patients were more willing to engage with their social workers by phone when clinicians introduced them to each other in person first. Deep-dive practices also described how effective communication ensured that practitioners, staff, and patients understood patients' self-management goals and plans in the same way. Another practice said that close coordination between the dietitian and social worker helped them "stick to the same page" and provide consistent direction to patients. Teamwork also facilitated shared learning and mutual support among practitioners and staff, which enabled them to provide patients with better self-management support.

What did CPC+ practices perceive as the benefits and/or drawbacks of providing self-management support?

Several deep-dive practices recognized the positive value and benefits of self-management support to patients. These deep-dive practices reported that self-management support helped patients better understand their disease, empowered patients to take better care of themselves, kept patients engaged and accountable, and helped patients to see change as achievable. For example, one deep-dive practice noted that self-management helped patients make small, gradual changes—and thus lower their HbA1c or reduce their stress and anxiety.

"It's been really fulfilling to see people take a little bit more control of their health."

— Certified Diabetes Educator at a large, system-based Track 2 practice

A few deep-dive practices described benefits of self-management support for primary care practices. These practices said that collaborative self-management techniques and structured follow-up provided practices with ongoing contact with patients, which enabled practitioners and staff to build a comprehensive understanding of patients' conditions, provide better treatment for associated comorbidities, and better manage patients' medications. A couple of deep-dive practices reported that self-management support helped them improve their quality metrics. For example, staff at one practice said they saw quantifiable improvements in their HbA1c metrics. Another deep-dive practice shared its belief that self-management support helped the practice reduce hospital admissions and ED rates.

C. Providing advance care planning

What were the CPC+ requirements in PY 2?

In PY 2, Track 2 practices were required to identify and engage a subpopulation of patients and caregivers in advance care planning. Advance care planning is a process of discussing and documenting a patient's goals and preferences for medical care at the end of life or other time when they cannot make the decision themselves (CMMI 2018). It enables patients to make plans about the care they would want to receive should they become unable to speak for themselves. This requirement was new in PY 2.

How did CPC+ practices approach advance care planning?

Nearly all Track 2 practices (96 percent) reported on the 2018 CPC+ Practice Survey that they discussed advance care planning with at least some of their high-risk patients, and more than half of all practices (57 percent) reported they did so with many or all of their high-risk patients. The 2018 CPC+ Practice Survey also indicates that, despite not being required to do so, Track 1 practices were equally likely to discuss advance care planning with at least some of their high-risk patients (96 percent) and many or all high-risk patients (54 percent). Findings from the 2018 CPC+ Beneficiary

***"Before it was just going over what is written in the form, but now we are more engaged…. We are more inclusive with the patient and their caregivers or other family members.* [Advance care planning] has more become comprehensive since we started CPC+. "**

— Lead physician at a medium-size, system-based Track 2 practice

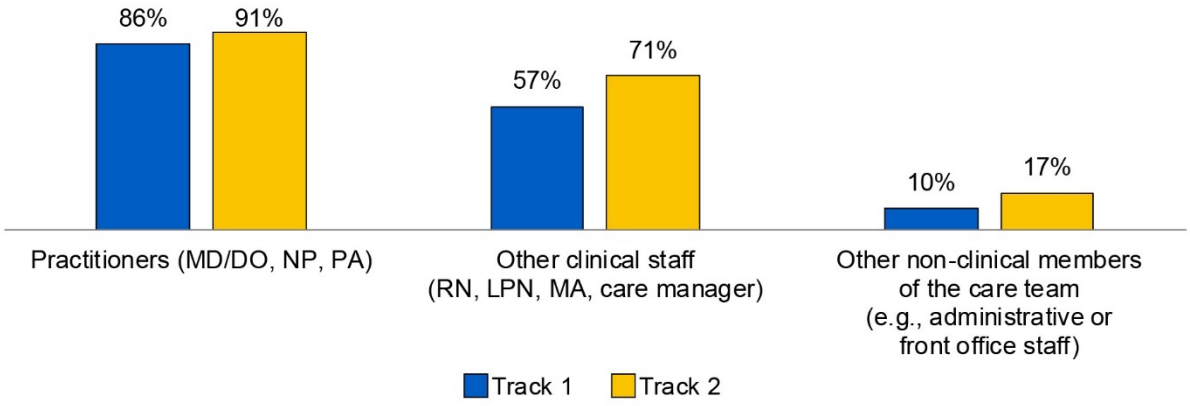
Survey are consistent with this finding. More than 60 percent of beneficiaries in each track, regardless of risk status, reported that they had an advance can plan, and approximately 40 percent of beneficiaries in each track reported that someone from the practice had asked them about their end-of-life care wishes or creating an advance care plan. Many deep-dive practices, including practices in both tracks, said that advance care planning was a standard activity in their practice before joining CPC+, though two-thirds of these practices said they refined or expanded their advance care planning efforts after joining.

Most commonly, practices reported to CMS that they identified for advance care planning older patients or those who were seriously ill (67 percent) and patients whom clinicians or the care teams referred (63 percent). Forty-three percent of all practices identified patients for advance care planning using their risk-stratification process. A few deep-dive practices reported that they offered advance care planning to their entire patient population.

Practices typically used multidisciplinary care team members to support advance care planning. Most practices in both tracks reported to CMS that they involved practitioners (MD/DO, NP, PA) in advance care planning. Many deep-dive practices reported also involving non-practitioners and other staff in advance care planning, and several deep-dive practices specifically noted involving care management staff and social workers. At a couple of deep-dive practices, social workers guided patients through the entire advance care planning process. In a couple of others, care managers engaged patients with complex needs in advance care planning. Track 2 practices were more likely than Track 1 practices to involve other clinical staff (registered nurses, licensed practical nurses, medical assistants, care managers) and non-clinical team members (administrative or front desk staff) in these efforts (Figure 4.18).

Figure 4.18. Type of staff practices typically reported involving in advance care planning in PY 2, by track

Track 2 practices were more likely to report involving staff other than practitioners, including other clinical and non-clinical staff, in advance care planning than Track 1 practices in PY 2.



Source: Mathematica's analysis of 2018 practice-reported care delivery data submitted to CMS.

Notes: N = 1,270 Track 1 practices and 1,445 Track 2 practices. Practices could select all responses that applied.

DO = Doctor of Osteopathy; LPN = licensed practical nurse; MA = medical assistant; MD = Doctor of Medicine; NP = nurse practitioner; PA = physician assistant; PY = Program Year; RN = registered nurse.

Clinicians and staff at many practices implemented key advance care planning concepts. Track 1 and Track 2 practices (81 percent of practices in each track) reported to CMS that they discussed the patients' values, goals, and care preferences at the end of life as part of advance care planning conversations. Most practices in both tracks (87 percent for Track 1 and 88 percent for Track 2) also reported to CMS that they assisted patients in understanding and completing relevant documentation such as advance directives, physician orders for life-sustaining treatment/medical orders for life-sustaining treatment forms, or health care power of attorney. About two-thirds of practices in each track reported that their practice's advance care planning conversations aim to designate the patient's health care surrogate or proxy.

Deep-dive practices engaged patients in advance care planning activities both during and outside of office appointments. At many deep-dive practices (including several in Track 2 and a couple in Track 1), staff—typically practitioners—initiated advance care planning conversations, assessed patients' interest and level of understanding, and provided introductory educational materials and forms to patients during regular office visits. Several deep-dive practices said they either mailed advance care planning materials to interested patients before appointments so they could discuss them during the office visit with their practitioners or sent materials home with patients after appointments; according to these practices, patients often need additional time to think through the complex issues and decisions involved.

At several deep-dive practices, practitioners referred patients to other care team members for further support after initiating the advance care planning conversation. These practices reported that clinicians (nurses, social workers, or care managers) met with patients outside of regular office appointments. A couple of deep-dive practices hosted educational events for patients interested in advance care planning; another practice educated patients who expressed interest in (or who practitioners identified as appropriate for) the topic, using tablets that were loaded with videos and available in multiple languages.

Consistent with deep-dive findings, most practices (91 percent) reported to CMS that they stored advance care planning documents in their EHR or other health IT systems, and 12 percent also reported storing documents in a patient portal. Many deep-dive practices described following up with patients after appointments to receive missing or newly completed advance care planning forms, and a couple of deep-dive practices described processes that enabled patients to complete these documents themselves. For example, one practice's patient portal enabled patients to complete advance care planning documents and upload them to the portal; information from the portal was automatically linked to the EHR.

What facilitators and/or challenges did CPC+ practices experience in providing advance care planning?

A shared belief among practitioners and staff in the value of advance care planning to patients and that it is "the right thing to do" facilitated efforts at many deep-dive practices. Several practices said that their practitioners and staff were "on the same page" regarding the benefits of advance care planning and described ways that collective practitioner and staff buy-in aided implementation of this care delivery requirement. For example, they reported that buy-in promoted practitioners' and staff members' willingness to learn new skills and adopt changes to care processes that supported the integration of advance care planning.

Many deep-dive practices indicated that prior experience and education or training enhanced their ability to implement advance care planning. Three deep-dive practices reported receiving helpful assistance in training their practitioners and staff about advance care planning from outside sources such as a local university's palliative care program and a local hospice program. In contrast, practitioners at a few deep-dive practices reported that they felt unprepared for advance care planning and were thus uncomfortable having these discussions with patients. These practitioners said they would benefit from additional training and support.

Several deep-dive practices reported that using resources offered by external sources augmented the advance care planning support they provided to patients. These practices leveraged resources from statewide initiatives and nonprofit organizations, including educational materials and forms tailored to state-specific requirements, when working with patients. A few deep-dive practices identified Five Wishes, a legal advance directive document, as a tool that was easy for patients to use. Additionally, a couple of practices referred patients and their families to events hosted by community organizations, such as hospitals and community centers, to learn more about advance care planning.

Several deep-dive practices reported that some patients were initially reluctant to engage in advance care planning. Practitioners and staff observed that some patients were "superstitious" or had cultural beliefs that made them reluctant to discuss end-of-life wishes. Practitioners and staff also cited as a challenge to offering this service some patients' belief that advance care planning would lead family and providers to "just give up on them" if they indicated they did not want certain life-sustaining measures.

Several deep-dive practices indicated that the complexity of materials and time required for advance care planning and tracking impeded implementation. Because advance care planning requires tracking multiple documents and includes discussions related to complex, difficult issues, several deep-dive practices said the level of effort required was a challenge. A few deep-dive practices developed tracking systems to help them manage the complexity, either manually or by using EHR templates. For example, one practice developed a binder that staff used to track the completion of advance care planning discussions, the distribution of materials, and the need to complete documents. To afford themselves more time to work through the complex subject matter and documents, a few deep-dive practices initiated advance care planning conversations during Medicare Annual Wellness visits, which are longer than regular office appointments. Other practices, as noted above, worked with patients on advance care planning during additional meetings between regular visits.

"[Advance care planning] is time consuming. [We have to] adjust our expectations for the amount of time that is required to do this and do it right."

— Lead physician at a large, system-based practice, spring 2019

Deep-dive practices highlighted positive and negative ways in which their EHRs influenced advance care planning. Several deep-dive practices described features of their EHRs that supported advance care planning. For example, EHRs visually flagged the presence of planning documents on the top of the patient's chart, had an embedded template for entering and tracking advance care planning information, and had a specific section of the record for storing and easily accessing documents. Conversely, a few deep-dive practices noted that insufficient EHR

functionality impeded advance care planning; challenges often related to the storage of scanned documents, which made the information difficult to find, organize, or access when needed. This challenge is consistent with the finding that only one-third of practices indicated on the 2018 CPC+ Practice Survey that preferences for end-of-life care for many or all of the practice's high-risk patients were documented and accessible to the care team.

What did CPC+ practices perceive as the benefits and/or drawbacks of providing advance care planning?

Nearly all deep-dive practices viewed advance care planning as beneficial for patients, though a few cited discomfort with the topic as a downside for some patients. Many deep-dive practices viewed advance care planning as a valuable service that benefited patients and their families in critical decision making at the end of life. Documenting patients' preferences — in case they became unable to speak for themselves—provided "guidance and peace of mind" for patients and families and made them feel cared for. Practitioners and staff also said that advance care planning helped to alleviate family members' and providers' fears of not adhering to patients' wishes during end-of-life decisions. Conversely, a few practices noted that advance care planning was difficult for some patients, who found the process "depressing" and/or emotionally challenging.

D. Promoting patient and caregiver engagement in other ways

How did practices promote patient and caregiver engagement using strategies that complemented the CPC+ requirements?

As in PY 1, several deep-dive practices reported using methods in addition to PFACs—most commonly surveys—to collect feedback on patients' care experiences. These practices reported continuing efforts they typically began before CPC+ to use existing surveys such as the CAHPS or surveys developed by the practice or its affiliated system to solicit feedback from patients. Similar to PY 1, practices varied in how frequently they fielded surveys and whether they surveyed a sample of patients or their full patient population. A couple of deep-dive practices also continued to use suggestion boxes and patient portals to engage patients and solicit feedback. Also consistent with PY 1, practices described using input solicited via these methods to make improvements similar to the types they made in response to PFAC suggestions.

Improving patient and caregiver engagement in PY 1

Similar to the first-year experience of practices that started CPC+ in 2017:

- Nearly all 2018 Starters (98 percent) reported to CMS that they had taken steps to establish a PFAC, with 96 percent of Track 1 practices conducting at least one PFAC meeting and 91 percent of Track 2 practices conducting at least two PFAC meetings, as required by CPC+ in PY 1.
- All Track 2 2018 Starters and most Track 1 2018 Starters (97 percent) reported to CMS that they had implemented self-management support, despite that CMS required only Track 2 practices to do so in PY 1.
- More than half of 2018 Starter deep-dive practices struggled to activate and motivate some patients to engage in self-management.

A few deep-dive practices across both tracks noted that, despite having staff trained on techniques to engage patients in self-management support, practitioners did not consistently use these techniques.

4.4.5. Function 5: Planned care and population health

CPC+ encourages practices to organize care delivery to meet the needs of all of their patients. This approach to care delivery, referred to as "planned care and population health" in CPC+, calls for practices to use data and a team-based approach to care to proactively identify the needs of their patients and efficiently manage their care.

In PY 2, CPC+ required all practices to regularly use eCQM and CMS and payer partner data feedback to identify high-priority areas for population health management (Section A).[37] CPC+ also required Track 2 practices to hold care team meetings at least weekly to review data (Section B). These meetings are intended to enhance practices' capacity to improve the quality of care provided to their patient population by using the skills and abilities of everyone on the team to guide testing of tactics to improve care, rather than relying on a single practitioner to do so (CMMI 2018). Practices also engaged in additional activities beyond the care delivery requirements to enhance planned care and population health (Section C).

Overview of progress. Although there were no changes to the care delivery requirements for this function in PY 2, practices advanced their efforts to plan care and promote population health. As in PY 1, many practices continued to review eCQM and utilization data at least quarterly. Many practices in both tracks also continued to hold care team meetings to review data, but only one-third of Track 2 practices met the Track 2-only requirement to conduct data-focused team meetings at least weekly. Although many deep-dive

[37] CMS financially rewards CPC+ practices that are not in SSP for their performance on claims-based measures of inpatient hospitalization and ED utilization, eCQMs, and patient experience-of-care measures. Track 1 practices can receive up to $2.50 per beneficiary per month (PBPM) in payments for performance, and Track 2 practices can receive as much as $4.00 PBPM. Practices participating in SSP are not eligible for these payments because they are part of ACOs that participate in a shared savings program with CMS.

practices used data to guide QI efforts before joining CPC+, most of these practices also reported they have expanded their focus on planned care and population health during CPC+—for example, by reviewing data more frequently or hiring new staff to help monitor data and assist with QI efforts.

Many deep-dive practices in systems benefited from system-level supports, such as assistance from system-level population health staff in interpreting data and in identifying helpful strategies to improve care delivery, which made it easier for practitioners and staff to understand, review, and use these data for QI. At several deep-dive practices, health IT improvements such as enhanced capabilities to document eCQMs within the EHR, helped practices use data for QI in PY 2. Practices generally perceived value in using data and meeting as a care team to discuss data-driven QI initiatives, although practices reported that they saw more value in using eCQMs to guide QI than using CMS and payer partner feedback and other data sources. Deep-dive practices noted that eCQMs were actionable in primary care, because practices can modify clinical workflows and processes in response to those data, whereas primary care practices have less control over the factors that influence utilization measures, which are also affected by actors outside of primary care (such as specialists and hospital EDs).

The challenges practices faced planning care and promoting population health in PY 1, however, continued throughout PY 2. Concerns related to the timeliness of utilization data and accuracy of eCQM data persisted. Limited practitioner and staff time continued to hinder practices' ability to document eCQMs and, for Track 2 practices, to hold data-focused care team meetings on the recommended weekly basis.

In future program years, practices may benefit from continuing to build practitioners' and staff members' capacity to use data and a team-based approach to care to proactively manage the needs of their patients, either by hiring new staff or dedicating more time for existing practitioners and staff to focus on these efforts. They may also benefit from more timely and actionable data feedback from CMS and payer partners and additional health IT enhancements and strategies that support practitioners' and staff's ability to accurately and efficiently document and use data.

A. Using eCQM and CMS and payer partner data feedback to proactively manage and improve population health

What were the CPC+ requirements in PY 2?

In PY 1, all practices were required to use data feedback provided by CMS and payer partners at least quarterly on *at least two utilization measures* at the practice level. Practices were also required to use data on *at least three eCQMs*, derived from the EHR, at least quarterly at the practice and panel levels. To track and analyze performance on eCQMs, by midway through PY 2, Track 2 practices were required to use an electronic dashboard. In PY 2, CMS continued to require practices to use these data to set goals to improve population health management. (Chapter 3 provides additional information on the data feedback CMS and payer partners provided to CPC+ practices, and how practices used the data feedback.)

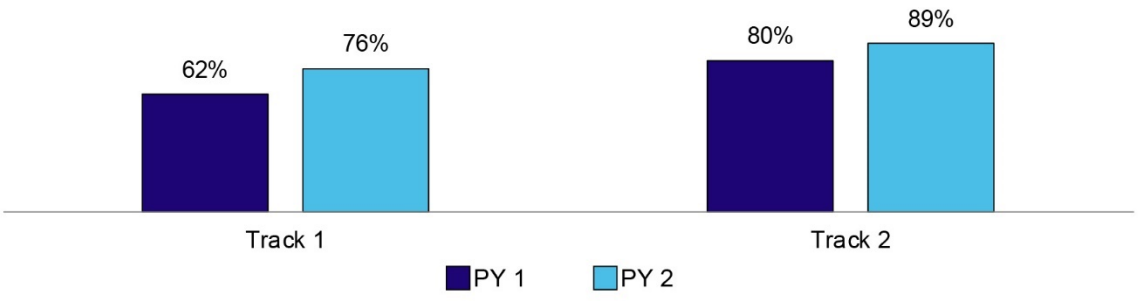
How did CPC+ practices use eCQM and CMS and payer partner data feedback to proactively manage and improve population health?

As in PY 1, many practices (84 percent) reported to CMS that they reviewed data feedback from CMS at least quarterly in PY 2, and most practices (94 percent) reported that they reviewed eCQM data at least quarterly in PY 2. In PY 2, practices also focused on similar measures to guide QI activities as in PY 1. Regarding *utilization measures, the most common measures that p*ractices reported to CMS that they focused on for QI efforts were ED visits (88 percent) and inpatient stays (74 percent). Regarding *eCQMs,* the most common measures that practices focused on were Diabetes–Hemoglobin HbA1c Poor Control (90 percent), Colorectal Cancer Screening (78 percent), Breast Cancer Screening (77 percent), and Controlling High Blood Pressure (74 percent). As in PY 1, several deep-dive practices in both tracks used dashboards to track and monitor data, as was required for Track 2 practices by midway through PY 2. Dashboards enabled these practitioners and staff to select specific measures to display and run reports at different levels (such as by practice or practitioner).

Practices increased their use of performance data (including eCQMs) to guide QI in PY 2. The proportion of practices that reported in the 2018 CPC+ Practice Survey that they *usually* used performance measures to guide QI increased from the prior year, with Track 2 practices remaining more likely than Track 1 practices to report using them in PY 2 (Figure 4.19). The most common types of measure that practices reported routinely using to guide QI were quality-of-care measures, followed by patient experience measures from surveys and cost or utilization metrics (Figure 4.20). Additionally, several deep-dive practices described increasing efforts to monitor eCQMs by disseminating eCQM reports to practitioners and staff more frequently, hiring staff to assist with tracking eCQMs, and assigning existing staff new responsibilities for following up with patients who had gaps in care identified via eCQMs. Among the deep-dive practices that increased their focus on eCQMs in PY 2, a few attributed this change to CPC+.

Figure 4.19. Proportion of practices that reported usually using performance measures to guide QI activities, by track and program year

Practices reported that they increased use of performance measures to guide QI activities from PY 1 to PY 2. Track 2 practices remained more likely to report that they usually used these measures for QI than Track 1 practices.



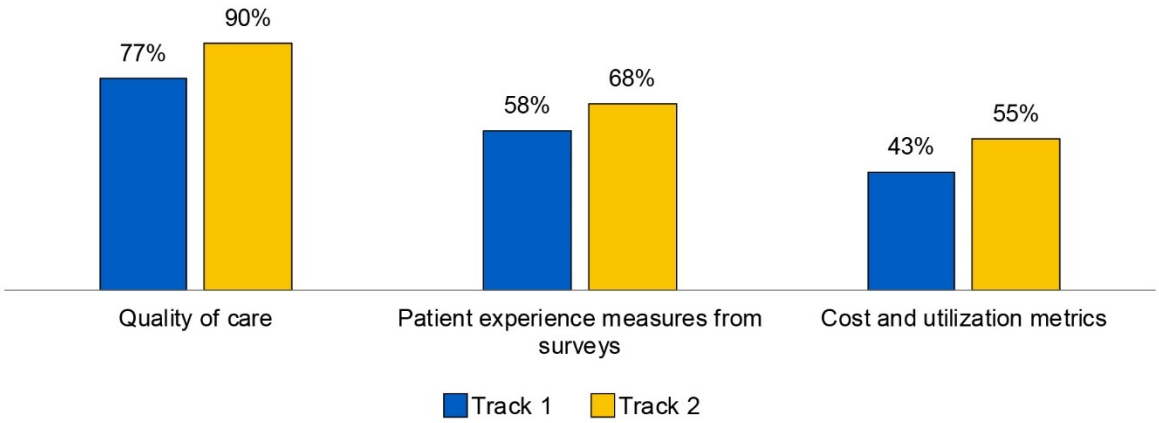
Source: Mathematica's analysis of data from the independent evaluation's 2017 and 2018 CPC+ Practice Surveys.

Notes: N = 1,303 Track 1 practices and 1,459 Track 2 practices. Due to item nonresponse, denominators vary slightly across items (by less than 5 percent).

PY = Program Year; QI = quality improvement.

Figure 4.20. Proportion of practices that reported routinely using each of three types of performance measures to guide QI in PY 2, by track

More practices routinely used quality-of-care measures to guide QI activities than other types of measures. A larger percentage of Track 2 practices routinely used each type of measure to guide QI than Track 1 practices.



Source: Mathematica's analysis of data from the independent evaluation's 2017 and 2018 CPC+ Practice Surveys.

Notes: N = 1,303 Track 1 practices and 1,461 Track 2 practices. Due to item nonresponse, denominators vary slightly across items (by less than 5 percent).

PY = Program Year; QI = quality improvement.

Closer look: How did practices perform on electronic Clinical Quality Measures in PY 2?

CPC+ practices are required to report eCQMs annually. Performance on the measures contributes to 75 percent of the quality component of the Performance-based Incentive Payment (PBIP). (Chapter 3 provides additional information on CMS' PBIP.) The set of electronic Clinical Quality Measures (eCQMs) available for practices to report changed between PY 1 and PY 2. There were 14 measures available to practices in PY 1 and 19 measures available in PY 2, with 12 measures appearing in both years. In PY 2, practices were required to report seven measures that they could choose, plus two required outcome measures: (1) Diabetes: Hemoglobin A1c (HbA1c) Poor Control (> 9 percent) and (2) Controlling High Blood Pressure. In future performance years, these eCQMs twill be the only two that practices are required to report.

Performance on eCQMs in PY 2 relative to benchmarks from 2017 Merit-based Incentive Payment System (MIPS) determined the contribution of eCQM performance to the quality component of the PBIP. If a practice met the 30th percentile benchmark for a single measure, then the practice received half the total amount of the quality component of the PBIP for the measure. The fraction of the payment increased until performance met or exceeded the 70th percentile benchmark, at which point practices kept the full quality component of the PBIP for the measure. Analyses indicate:

Closer look *(continued)*

- **Practices' average performance improved over time for 9 of the 12 measures that appeared in both PY 1 and PY 2.** Average improvements ranged from 0.2 to 12 percentage points on measures related to cognitive assessment for dementia; fall risk screening; receipt of specialist reports; cervical, colorectal, and breast cancer screening; diabetes eye exams and hemoglobin A1C control; and tobacco use screening and cessation interventions. These improvements suggest that CPC+ practices are using eCQMs as intended to monitor and potentially improve quality of care. However, the improvements in eCQM performance scores over time cannot be interpreted as the impacts of CPC+ on quality of care, as eCQM performance is not observed for a comparison group. As a result, it is unclear whether improvements at CPC+ practices were bigger or smaller than expected if the practices had not participated in CPC+.
- **There were minimal changes in the other three measures:** (1) controlling high blood pressure, (2) initiation and engagement of alcohol and other drug dependence treatment, (3) and use of high-risk medications in the elderly.
- **Practices had room for improvement on the two required outcome measures.** Only 5 percent of practices exceeded the 70th percentile benchmark for HbA1c control. For the measure tracking blood pressure control, 48 percent of practices exceeded the 70th percentile benchmark.

Source: Data on eCQM performance analyzed by the implementation and monitoring contractor.

What facilitators and/or challenges did CPC+ practices experience in using eCQM and CMS and payer partner data feedback to proactively manage and improve population health?

Deep-dive practices reported similar challenges (such as issues with data quality and data documentation) and facilitators (such as system-level support) to using CMS and payer partner data feedback and eCQMs in PY 1 and PY 2. As in PY 1, several deep-dive practices voiced concerns about the timeliness of data feedback on utilization from CMS and payer partners. Also similar to PY 1, several deep-dive practices reported difficulties documenting eCQMs (such as challenges finding time to document data for eCQMs or record services provided by specialists outside the practice) and issues with eCQM data quality and usability (such as concerns that their EHRs were miscalculating measures or were otherwise displaying inaccurate data). Although these challenges were common among both independent and system-owned practices, several system-owned deep-dive practices reported that they continued to receive helpful support from system-level staff on the use of eCQM and CMS and payer partner data feedback in PY 2.

In PY 2, several deep-dive practices noted health IT enhancements (beyond the Track 2 health IT requirement to use dashboards) that helped them use eCQMs more efficiently for planned care and population health efforts. These enhancements included EHR features that helped practices improve documentation and performance on eCQMs. For example, one practice reported they can now easily document mammograms that patients received at clinics that use the same EHR, and they no longer need to scan results from other clinics manually. Two other deep-dive practices described using their new EHR features to identify when a patient is overdue for services: one practice set up an alert to inform practitioners and staff when patients are overdue, and the other practice set up a process through which automated calls are made to patients.

What did CPC+ practices perceive are the benefits and/or drawbacks of using eCQM and CMS and payer partner data feedback to proactively manage and improve population health?

In PY 2, practices generally perceived value in using eCQM data, and to a lesser extent, data feedback from CMS and payer partners. During PY 2, 81 percent of practices gave eCQMs ratings of 4 or 5 (on a scale from 1 [low] to 5 [high]), in terms of their level of helpfulness for QI work. In comparison, only 41 percent of practices rated the helpfulness of payer partner data feedback from CMS as 4 or 5. Among the many deep-dive practices that said they valued tracking and monitoring eCQMs, practices most commonly noted that doing so (1) inspired healthy competition among practitioners, (2) helped them assess practice performance against benchmarks, and (3) reminded practitioners and staff to consistently check whether patients were due or overdue for screenings and services tied to eCQM performance. Among the several deep-dive practices that perceived value in utilization and cost data, practices most commonly noted that these data were useful for educating practitioners and staff on the importance of reducing unnecessary utilization and identifying problematic trends (such as increased use of ED and hospital services and increased referrals to high-tech radiology or high-cost specialists).

> *"[Electronic Clinical Quality Measures] help us remember to order screenings for patients that might be able to save their life."*
>
> *— Care manager at a small, system-owned Track 2 practice*

Several deep-dive practices saw downsides to using eCQMs or CMS and payer partner data feedback to manage and improve population health. A few deep-dive practices did not believe that efforts to document and improve performance on eCQMs were associated with improvements in morbidity and mortality; therefore, they viewed the associated documentation and monitoring efforts as a "waste of time." A few other deep-dive practices shared that the difficulty of improving performance on cost and utilization measures limits their usefulness. For example, one practice said that, although it may see that its use of high-cost specialists is higher than desired, it is often difficult to get patients to switch to lower-cost specialists, because patients want to see the specialists in

> **"If [patients] have a hemoglobin A1c less than nine…their numbers look better, but are they really healthier… and do we really see a decrease in hospitalizations? I don't see that they have the studies out there to show that. So I think there's some skepticism from some of the doctors in that regard."**
>
> ***— System leader at a small, system-owned Track 1 practice***

the most convenient location even if they charge more. Consistent with the PY 1 finding, practitioners at several deep-dive practices described challenges with patients not adhering to their recommendations to receive preventive care (such as mammograms or colorectal cancer screenings) or to change behavior (such as exercise more), which hindered practices' ability to improve on some quality measures.

Examples of quality improvement projects implemented by two deep-dive practices

To improve performance on the blood pressure control eCQM, a small, system-owned Track 2 practice decided to undertake a QI project to improve adherence to blood pressure measurement protocols. The practice worked with the quality department at the health system to train practice staff on how to measure blood pressure correctly (that is, retaking blood pressure if elevated during the first measurement). In addition, the practice purchased magnets for staff to place on the exam room door when patients had an elevated initial blood pressure reading. The magnets helped remind staff to re-measure blood pressure before the end of the visit.

A medium, system-owned Track 2 practice implemented a QI project to reduce ED utilization rates. To assess whether patients understood their options for after-hours access to a practitioner, the practice surveyed patients at check-out and discovered that 40 percent of patients were not aware they could be connected to a care team member after normal business hours. As a next step, the practice planned to develop and implement strategies to boost patient awareness of their options for seeking health care after normal business hours.

B. Using care team meetings to review data and guide improvements in population health

What were the CPC+ requirements in PY 2?

In PY 1, CMS required Track 2 practices to conduct care team meetings at least weekly to review practice- and panel-level data feedback from CMS and payer partners and from internal monitoring (for example, eCQMs and registry reports), and use these data to guide and test tactics to improve health care quality and achieve CPC+ practice goals. These requirements remained the same in PY 2.

How did CPC+ practices use care team meetings to review data and guide improvements in population health?

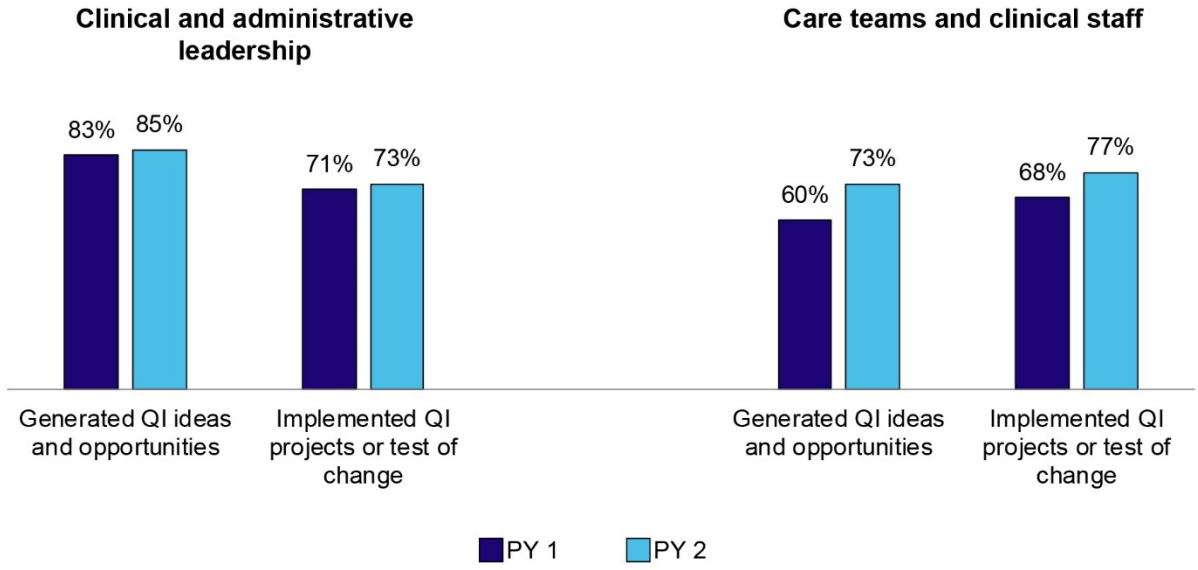
Although many Track 2 practices reported regularly conducting data-focused care team meetings throughout the first two program years, as in PY 1, many did not meet the CPC+ requirement to hold these meetings at least weekly. In PY 2, one-third of Track 2 practices reported to CMS they held care team meetings to review QI data at least weekly, as required, and an additional 50 percent did so less than weekly but at least monthly. Also similar to PY 1, most Track 1 practices reported to CMS that they held data-focused care team meetings despite not being required to do so, though only 13 percent of Track 1 practices held QI-focused meetings at least weekly (and another 49 percent did so less than weekly but at least monthly). As in PY 1,

Track 2 deep-dive practices commonly said that QI-focused care team meetings included reviewing quality targets, identifying opportunities for improvement, assessing workflows, and training practitioners and staff to improve performance on quality measures.

Although many practices continued to rely on clinical and administrative leaders to generate and implement QI ideas, practices were more likely engage other members of the practice in QI efforts in PY 2 than in PY 1. In PY 2, 85 percent of practices reported to CMS that clinical and administrative leadership primarily generated QI ideas, and 73 percent reported that clinical and administrative leadership implemented QI projects. There were no notable differences in these percentages from PY 1 to PY 2 (Figure 4.21). However, compared with PY 1, more practices reported to CMS in PY 2 that care teams and other clinical staff were involved in generating ideas for QI projects (a 13 percentage point increase) and implementing QI projects (a 9 percentage point increase). Within Track 2, practices that participated in SSP were more likely to report to CMS in PY 2 that care teams and other clinical staff generated QI ideas than non-SSP practices (82 compared with 69 percent) (data not shown).

Figure 4.21. Proportion of practices reporting various individuals' involvement in QI, by program year

Clinical and administrative leaders continued to be involved in generating QI ideas and implementing QI projects at many practices. Care teams and other clinical staff were more involved in generating ideas for and implementing QI projects in PY 2 than in PY 1.



Source: Mathematica's analysis of 2017 and 2018 practice-reported care delivery data submitted to CMS.

Notes: N = 2,716. Due to item nonresponse, denominators vary slightly across items (by less than 5 percent).

PY = Program Year; QI = quality improvement.

What facilitators and/or challenges did CPC+ practices experience in using care team meetings to review data and guide improvements in population health?

Consistent with PY 1, several deep-dive practices said that designating a meeting facilitator helped to keep meetings focused. The types of individuals designated as care team meeting facilitators varied by practice and included care managers, practice managers, practitioners and—at a couple of system-owned deep-dive practices—system-level population health specialists. Meeting facilitators at these deep-dive practices typically set agendas for data-focused care team meetings and provided support by guiding practitioners and staff through agenda items.

Several deep-dive practices also continued to report that including staff with different roles and expertise in data-focused care team meetings provided the diverse perspectives needed to ensure patients received the care and services they needed. One practice, for example, described encouraging the behavioral health specialist and pharmacist to attend data-focused care team meetings so that staff could provide perspectives on data trends and share ideas for ways to improve performance on measures.

Similar to PY 1, several deep-dive practices reported that constraints on practitioners' time posed the greatest challenge to holding data-focused care team meetings. A few practices also indicated it was difficult to find time to review data (such as quality measure reports or gaps in care lists) before meetings, in addition to other responsibilities.

What did CPC+ practices perceive as the benefits and/or drawbacks of using care team meetings to review data and guide improvements in population health?

Several deep-dive practices valued data-focused care team meetings. These practices said that reviewing data as a care team fostered team communication and helped practitioners and staff focus on the practices' QI goals. For example, one practitioner commented that having regular data- and QI-focused care team meetings helped support "practitioners' goals to provide quality care to patients and to focus on areas in need of improvement." Practices also said they valued the collaborative nature of the meetings because it enabled the team to share best practices and enabled staff with different roles to offer their perspectives.

C. Promoting planned care and population health in other ways

How did practices promote planned care and population health using strategies that complement the CPC+ requirements?

Beyond the requirements to use eCQM and CMS and payer partner feedback data to guide QI efforts and, for Track 2 practices, to review data during weekly care team meetings, many practices reported engaging in additional activities to promote planned care and population health. These activities included using team-based approaches to care planning, hiring dedicated QI staff and expanding QI teams, and using "proven" QI strategies. As in PY 1, practices commonly reported using team-based approaches (beyond data-focused care team meetings) to plan care for patients. For example, nearly one-half of practices reported to CMS that they used scheduled care team meetings to discuss high-risk patients and plan their care at least weekly (45 percent) and held structured huddles focused on patient care at least daily (52

percent). A few deep-dive practices described systematic pre-visit planning activities, such reviewing charts to identify patients who were due or past due for tests or services.

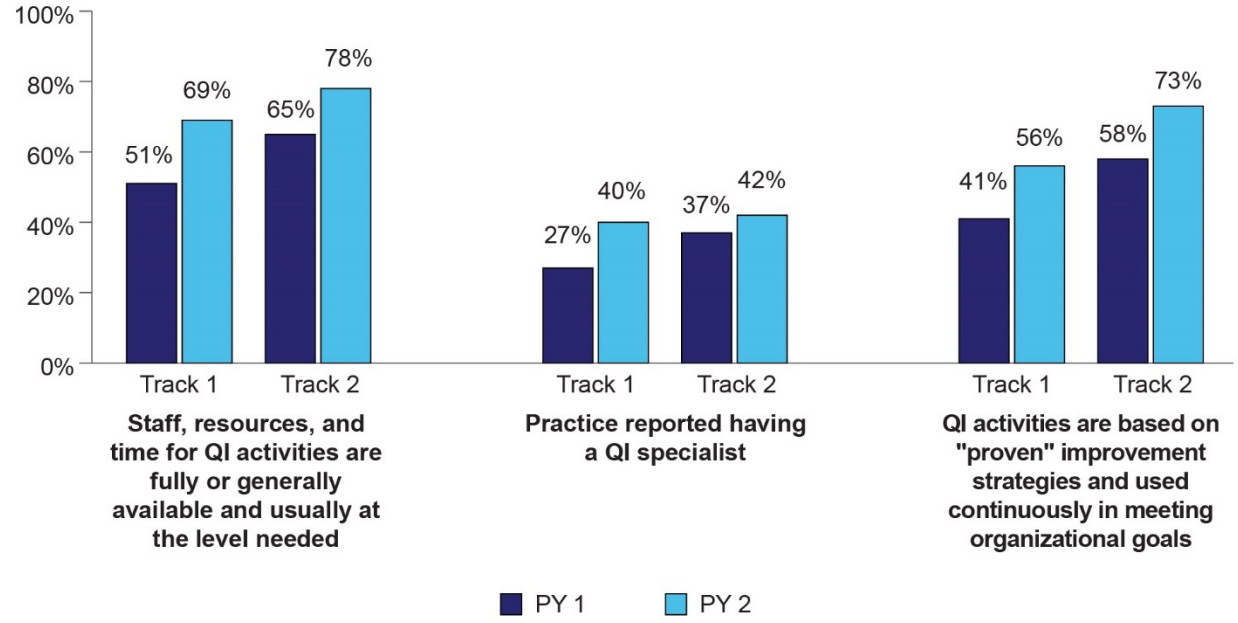
In PY 2, practices increased their staffing and resources for QI. Compared with PY 1, a larger proportion of CPC+ practices reported on the 2018 CPC+ Practice Survey that they:

- Had sufficient access to staff, resources, and time at the level needed for QI activities, and
- Had full- or part-time QI specialists working at the practice site.

Track 2 practices continued to report that they had greater access to staff (including QI specialists), resources, and time for QI activities than Track 1 practices in PYs 1 and 2 (Figure 4.22).

Figure 4.22. Proportion of practices that reported having resources for quality improvement and using "proven" quality improvement strategies, by track and program year

Practices reported increasing their focus on QI between PY 1 and PY 2 by dedicating more staff and resources to QI and more consistently using "proven" QI strategies. Track 1 practices reported greater improvement between PY 1 and PY 2 than Track 2 practices, yet across the three measures, Track 2 practices remained more focused on QI than Track 1 practices.



Source: Mathematica's analysis of data from the independent evaluation's 2017 and 2018 CPC+ Practice Surveys.

Notes: N = 1,304 Track 1 practices and 1,461 Track 2 practices. Due to item nonresponse, denominators vary slightly across items (by less than 5 percent).

PY = Program Year; QI = quality improvement.

Practices increased their use of evidence-based QI strategies in PY 2. Compared with PY 1, a larger proportion of CPC+ practices also reported on the 2018 CPC+ Practice Survey that they continuously used QI activities based on "proven" improvement strategies to meet organizational goals, and more Track 2 practices than Track 1 practices in PYs 1 and 2 reported that they

continuously used "proven" QI strategies (Figure 4.22). Many deep-dive practices described conducting a current or recent QI activity to guide their improvement efforts, and several of these practices used Plan-Do-Study-Act (PDSA) cycles.[38] A system-level CPC+ coordinator, for example, described using PDSA cycles to explore the reasons behind a decline in their breast cancer screening rate.

What facilitators and/or challenges did CPC+ practices experience in using QI approaches to enhance planned care and population health in ways that complement CPC+ requirements?

In PY 2, deep-dive practices and system leaders used strategies to facilitate practitioner and staff engagement in QI efforts. Several deep-dive practices reported that it can be difficult to gain buy-in for QI activities, because they require culture shifts and extra time and work for practitioners and staff who are already busy seeing patients and for practices that feel understaffed. To help overcome these challenges, a few deep-dive practices reported that they (1) educated practitioners and staff about the ways that QI helps their patients; (2) shared data, especially in group settings, to help practitioners and staff see what was actually happening in terms of quality, which may differ from their perceptions; and (3) coached practitioners and staff, for example, encouraging them to work toward quality goals. A few other system-owned deep-dive practices found that offering incentives to practitioners and staff was helpful, such as offering bonuses to physicians for meeting goals or providing continuing education credits to staff for participating in QI activities.

System-level staff and resources supported many system-owned deep-dive practices' QI activities. Many system-owned deep-dive practices said that their system either employed a QI lead (typically a QI department head or CPC+ coordinator) who helped them prepare and use data for QI, or facilitated committees that focused on QI. Several deep-dive practices and their system leaders provided examples of how system-level staff had supported practices' QI efforts. These included:

- Designing and sharing workflows to help practices determine the most effective way to improve performance.
- Creating a standardized work plan template to guide practices in setting goals for improvement and measuring changes.
- Educating practices on the PDSA model, including the steps and strategies for engaging practitioners and staff in making practice changes.
- Sharing QI lessons learned from other practices within or outside the system.

[38] PDSA cycles are an evidence-based QI strategy for testing a change in the way care is delivered by developing a plan to test the change (Plan), carrying out the test (Do), observing and learning from the results of the test (Study), and determining what modifications should be made to the practice change or the test (Act).

Improving planned care and population health in PY 1

Similar to the first-year experience of practices that started CPC+ in 2017:

- Most 2018 Starters (90 percent) reported to CMS that they had access to claims data feedback at the practice- and/or panel-level from CMS and from payer partners, and many practices (61 percent) reviewed these data at least quarterly.
- Nearly all 2018 Starters (99 percent) reported to CMS that they had access to eCQM data, but only two-thirds reported to CMS that they had access to these data at both the practice and panel level, as required by CPC+; many practices (78 percent) reviewed eCQM data at least quarterly.
  - Several deep-dive 2018 Starter practices cited data quality issues (such as incomplete EHR documentation, difficulties getting data from external providers, and issues with EHRs perceived to be miscalculating rates) as a challenge to using eCQM data for population health efforts.
- All Track 2 2018 Starters reported to CMS that they convened regular care team meetings to review data but few (17 percent) met the CPC+ requirement to hold these meetings at least weekly.

Several deep-dive 2018 Starter practices had not started using utilization measures to guide population health efforts, despite having access to these data; practices cited competing priorities and difficulty interpreting data feedback reports as the most common challenges.

4.5. Cross-cutting factors influencing practice transformation

CPC+ practices experienced a number of cross-cutting factors that affected implementation across one or more Comprehensive Primary Care Functions. The findings regarding supportive and hindering factors highlight the importance of identifying and understanding contextual factors in evaluating changes in the provision of care made by CPC+ practices. Many of these contextual factors are beyond the immediate control of individual CPC+ practices (see Chapter 1, Figure 1.1). As deep-dive practices reported, however, factors such as the availability of hospitals, EDs, and specialists, the challenges of operating within a FFS payment system, and the adequacy of health IT, can support or hinder practices' efforts to improve how they deliver the Comprehensive Primary Care Functions. In this section, we describe the major cross-cutting facilitators and barriers to CPC+ practices' transformation work in PY 2.

4.5.1. Factors that supported CPC+ implementation

Similar factors generally supported CPC+ implementation in PY 1 and PY 2, but practices placed more emphasis on a couple of factors in PY 2. For example, as practices ramped up their work for CPC+, they increasingly reported that having adequate staff available to implement CPC+ care delivery requirements was important. In addition, practices indicated that the relationships they built with external providers (including hospitals, EDs, and specialists) in PY 1 became critical for continuing and expanding their work, especially related to care management and care coordination in PY 2.

The following factors supported practices' implementation of CPC+ in PY 2:

- **Adequate staff.** Many deep-dive practices reported that having staff with time dedicated to CPC+ activities made it easier to implement CPC+ requirements, because these staff had fewer competing priorities. For example, deep-dive practices with dedicated care management staff typically had an easier time conducting "warm handoffs" of patients from a practitioner to a care manager, providing timely follow-up after a hospital or ED visit, and keeping practitioners informed about patients receiving care management services than practices without dedicated care management staff. Similarly, practices that had a social worker or nurse who was dedicated to screening patients for unmet social needs reported less burden implementing this care delivery requirement than practices in which practitioners were responsible for conducting these screenings during routine visits. As in PY 1, many deep-dive practices said that the financial resources made available to them through CPC+ enabled them to hire staff that facilitated their ability to make care delivery changes.

> **"We want to be able to provide services to [patients] without it being extra burden on the providers and staff we have. We've hired more [staff] so that we're less stressed."**
>
> ***—— Practice manager at a small, independent Track 2 practice***

- **Teamwork.** Many deep-dive practices reported that using a team-based approach to care fostered trust and communication among practitioners and staff, and improved the quality of patient care. For example, practices noted that working as a team made it easier for practitioners to coordinate care with care managers and other practice staff, and helped reinforce messages to patients about managing their health conditions.
- **Established relationships with external providers.** The work that practices did in PY 1 to establish relationships with external providers—including local hospitals, EDs, and specialists—paid off in PY 2 by helping practices provide coordinated care. For example, many deep-dive practices reported that providing episodic care management became easier once they had formed relationships with hospitals and established means for sharing information. System-owned deep-dive practices also said that having relationships with specialists who were part of their larger health system enabled them to develop collaborative care agreements with shared goals for their mutual patients.
- **Perceived value in CPC+ requirements.** Several deep-dive practices, across both tracks, continued to report that practitioners and staff were more willing to learn new skills and adapt workflows to support CPC+ requirements if they shared the belief that these changes would improve patient care. In PY 2, practices most commonly noted this facilitator with regard to advance care planning.
- **Affiliation with a larger health care organization.** Many deep-dive system-owned practices continued to benefit from resources provided by a larger health care organization, which helped practices meet CPC+ care delivery and reporting requirements and alleviated burden on practitioners and staff. These resources included education and training for practitioners and staff, practice-based and centralized clinical staff (such as care managers, care coordinators, pharmacists, behavioral health specialists, psychologists, social workers, and dietitians), and administrative support (such as CPC+ coordinators, health IT specialists, data analysts, and QI and population health staff).

- **Advanced health IT features and functionalities.** As in PY 1, deep-dive practices had an easier time implementing care delivery requirements if their health IT (such as EHRs, patient portals, and other computer infrastructure) had features and functionalities that made it easy to organize, analyze, and access information. For example, practices reported that being able to easily view practitioners' patient panel assignments in the EHR and analyze these data made it easier to maintain accurate patient panels. Practices reported that having useful functionalities built into their EHRs also supported their efforts to calculate and integrate risk scores into practice workflows, document and access patients' advance care planning materials, document test results from external providers, track and monitor eCQMs, and identify and receive alerts about gaps in care for individual patients.

Practices that lack one or more of these facilitating factors—such as sufficient staff to implement CPC+ care delivery requirements, sophisticated health IT, or access to health system resources—may need more support or creative ideas about identifying and using resources to implement CPC+ changes.

4.5.2. Factors that hindered CPC+ implementation

Each of the factors that hindered CPC+ implementation in PY 1 continued to challenge practices' ability to implement CPC+ in PY 2. However, challenges related to the time and staff required to implement CPC+ became more pervasive as practices continued their work in PY 2 and the care delivery requirements increased. In contrast, a few barriers to implementation in PY 1 persisted but were less pervasive in PY 2. For example, fewer deep-dive practices reported difficulties integrating care managers into workflows in PY 2. Deep-dive practices' lack of understanding of care delivery requirements and perception that some care delivery requirements were not beneficial also waned somewhat in PY 2.

In PY 2, the following factors hindered CPC+ implementation:

- **Practitioner and staff overload.** Many deep-dive practices noted that concurrently implementing CPC+ care delivery requirements—many of which required practitioners and staff to learn new skills and develop and integrate new workflows—was overwhelming and burdened practitioners and other practice staff, especially when paired with ongoing CPC+ reporting requirements. For example, deep-dive practices reported that it was time consuming to screen and collect CPC+ required information from patients during visits (to develop care plans, assess social needs, and engage in advance care planning), systematically document collected information, and provide services in line with the information collected. As a result, some practices did not implement all of the CPC+ requirements in PY 2, or did so inconsistently (for example, by holding infrequent ad hoc care team meetings to discuss data instead of regularly scheduled meetings). Practitioner and staff overload was exacerbated for deep-dive practices that faced challenges hiring desired staff. Several deep-dive practices mentioned a lack of qualified care managers and behavioral health staff in their community as a limiting factor. A couple of deep-dive practices noted lack of funding as a barrier to hiring care managers, and one deep-dive practice said it was not financially feasible for the practice to hire a pharmacist.

Allowing practices more flexibility in the timeline for implementing care delivery requirements could help make implementation of CPC+ more manageable for practitioners and staff. Providing additional guidance, such as more detailed instruction and examples of how to meet the care delivery requirements, and stating clearly in the CPC+ Implementation Guide what "must" be done versus what is a suggestion would also help. Finally, aligning CPC+ reporting requirements with other programs such as PCMH and ACO initiatives (for example, by requiring practices to report the same performance measures across CMS and payer partners' initiatives) might also help reduce practitioner burden.

- **Difficulty engaging patients in CPC+ efforts.** As in PY 1, many deep-dive practices continued to face various challenges to engaging patients in CPC+ efforts. For example, some patients had limited transportation resources and familial and employment obligations, which made it difficult for them to participate in CPC+ efforts such as care management visits or patient engagement activities. Practices also described difficulties overcoming patients' reluctance to share sensitive information, especially during group visits or when discussing unmet social needs during a regular office visit. Finally, practices faced difficulty motivating patients to make behavior changes or receive preventive services, which made it difficult for staff to provide care management and self-management support services or improve some quality measures.

Practices continue to need to strengthen their understanding of the factors that impact patient engagement for CPC+ activities and build their competencies in activating and motivating patients to engage in managing their own health. CMS, the National Learning Team, and Regional Learning Network and health systems could consider offering additional learning activities aimed at developing this capacity, to enable practices to identify the key barriers to engagement across care delivery requirements that they face, and determine which barriers they can address. For example, practices might need to train practitioners and staff on assessing and responding to different levels of patient motivation, or provide incentives and supports to patients to make it easier for them to participate. Incentives and supports could include providing CPC+ services in ways that are accessible and convenient for patients, such as offering on-site self-management support groups or transportation vouchers.

- **Health IT features and functionalities that practices perceived to be unsatisfactory.** Many practices cited challenges related to EHRs that were difficult to use or that lacked useful functionalities—particularly when implementing care delivery requirements that required systematically documenting information in the EHR (such as creating care plans or tracking patients' social needs) or using the EHR to generate scores or metrics (such as applying risk scores or measuring continuity of care). As practices began more advanced work for CPC+ in PY 2, they noted that limited health IT functionality hindered implementation in additional ways, such as making it challenging to create, store, and access advance care planning documents and to document alternative visits in their EHR.

CPC+ practices continue to need support from health IT vendors to develop and/or start to use health IT functionalities necessary to carry out the care delivery requirements. This support is particularly necessary for creating and maintaining care plans, assessing and documenting patients' social needs, and making advance care planning documents available to the care team. Health IT vendors should continue to implement or improve these functionalities to make it easier for practices to implement care delivery changes.

- **Challenges providing comprehensive primary care within an FFS payment system.** As in PY 1, deep-dive practices reported challenges balancing FFS and productivity incentives (which pressure practitioners to see as many patients as possible and thus spend less time with each patient) with the time required to implement CPC+ care delivery requirements, such as engaging patients in self-management support or working closely with a care manager to discuss a patient's care. In addition, several system leaders of deep-dive practices acknowledged challenges from competing financial priorities, and the tension between meeting CPC+ goals to reduce preventable hospitalizations/ED admissions and maintaining their hospital's financial viability.

"Should our priorities be going all the way with this [CPC+ and other] quality stuff when it's only making a little bit of money or saving a little bit in [quality and readmission] penalties, when our bigger picture is, let's take care of the masses and make sure that our volume stays up to where we can keep our doors open?"

—System leader for a medium-sized, system-owned Track 2 practice

Deep-dive practices and system leaders note that the volume-based FFS incentives that influence the behavior of specialists and hospitals continue to present a challenge to reducing costs and make it challenging for practices to prioritize delivering a value-based model. Because primary care services account for approximately 5 percent of health care expenditures (Reid et al. 2019; Koller et al. 2017), specialists, hospitals, and post-acute care facilities also influence cost-control efforts.

Factors influencing practice transformation in PY 1

Practices that started CPC+ in 2018 reported factors that helped or hindered CPC+ implementation in PY 1 similar to those reported by practices that started in 2017. These factors included the availability of practitioners and staff with sufficient time to implement and deliver the care delivery requirements, health IT features and functionalities, access to resources from larger health care organizations, practitioner and staff buy-in to the care delivery changes required by CPC+, practices' ability to engage patients, and, for system-owned practices, competing financial priorities.

4.6. Practices' perspectives on sustainability and spread

CPC+ does not explicitly require practices to sustain changes made for CPC+ after it ends in 2022, but CMS hopes that successful changes to care delivery resulting from CPC+ will endure. We asked deep-dive practices about sustainability and spread in early PY 3 (March to May 2019), just over two years into the five-year model.[39]

CMS is also interested in the extent to which systems spread the changes made for CPC+ to non-participating practices, including primary and specialty care practices. For example, health systems and medical groups may standardize workflows and processes across all primary care and specialty practices, so that a change required for CPC+ would be implemented in nonparticipating practices, as well. This section provides insights into how CPC+ practices and their health systems are thinking about sustaining changes made for CPC+, what sustainability efforts practices have pursued, and how practices have spread care delivery changes to non-participating and specialty practices, and by extension, their patients.

4.6.1. How are practices preparing to sustain changes made as part of CPC+?

Similar to PY 1, practices and their health systems remained focused on implementing CPC+ and perceived it to be too early to plan for sustainability in PY 2. Despite this finding, deep-dive practices reported that they were interested in sustaining changes made for CPC+, specifically those changes related to care transitions, care management, behavioral health integration, and the use of quality measures and other data. Practices may believe changes in these areas have helped them improve care delivery the most. However, practices worried about their ability to afford the salaries of new staff hired for CPC+ without CPC+ payments.

"I believe that a lot of the things that we're doing [for CPC+] really drive better outcomes and reduce costs. They kind of achieve the triple aim. They're great ideas, [and] I would like to continue them, but I don't know if some of it will continue because of the time intensiveness of it. And also if it's not aligned toward payments, it sometimes gets difficult to try to drive it."

—System leader of a medium-size, system-owned Track 1 practice

Both independent and system-owned practices reported focusing on implementing CPC+ in PY 2, and a few practices noted that the first step of sustaining changes made for CPC+ was to implement them well. For example, one practice said that if they implement CPC+ in a way that improves practitioner and patient satisfaction, then leaders and staff will not want to eliminate those changes when CPC+ funding ends. Another practice explained that when staff perceive that changes made for CPC+ are effective and routine, they will resist reverting to their previous workflows. Likewise, one

[39] In the middle of our data collection period, on April 22, 2019, CMS announced Primary Care First (PCF), a new alternative payment model for primary care practices (https://innovation.cms.gov/initiatives/primary-care-first-model-options/). CMS did not announce details on the payment model until after our interviews ended. CMS will implement PCF in the CPC+ regions as well as several additional states. CPC+ practices will be eligible to join PCF in 2021. Given the timing of CMS' announcement, we did not ask deep-dive practices about PCF during this round of data collection; few deep-dive practices brought it up on their own as a potential way to sustain changes begun in CPC+. In our next round of deep-dive data collection, we will explore how PCF is influencing practices' thoughts about sustainability and spread.

practice noted that, if CPC+ is implemented well and leads to improved patient outcomes and reduced costs, it will be easier to convince system or practice leaders of the need to sustain changes made for CPC+. Additionally, a few deep-dive practices noted that they did not want to distract from their current focus on implementing CPC+ by planning for the end of CPC+. One system-level CPC+ coordinator explained that trying to consider financial sustainability of the CPC+ care delivery requirements would prevent her from implementing innovative approaches to meet the current requirements.

The few deep-dive practices that had started planning for sustainability were in the early stages of doing so and typically focused on researching potential options for ongoing funding. These practices reported that they identified billing codes that offer FFS reimbursements for activities conducted by new staff hired for CPC+, such as social workers, pharmacists, diabetes educators, nutritionists, or care managers. They also began to collect data about cost savings achieved, to make the case to practice and system leaders for internal funding. Of the few deep-dive practices that had started planning for sustainability, most were part of a larger health system or medical group, perhaps reflecting that systems had more resources available to dedicate to long-term planning.[40] Long-term planning in these cases appeared to be the responsibility of system-level staff, whereas practice-level staff were responsible for the day-to-day operations. System-level staff were typically more knowledgeable about sustainability plans than practice-level staff. A couple of deep-dive practices that were part of systems said they preferred to maintain this division of responsibility, because practice-level staff had to focus their limited time and/or resources on managing current CPC+ implementation responsibilities.

A few deep-dive practices expressed concerns that moving to newer payment models, particularly from commercial payers, might be insufficient to sustain CPC+ services for all patients after CPC+ ends. A few practices thought that moving to value-based payment models would inevitably result in new funding opportunities, by commercial payers or even CMS, which could replace CPC+ funds. However, a few other practices explained that the risk of new payment models, especially those from commercial payers, is that they may restrict which patients are eligible for certain services. In contrast, the multi-payer design of the model and the size of the CPC+ payments enabled them to provide these services for all patients.

Several deep-dive practices requested technical assistance from CMS to help them plan for sustaining changes made for CPC+. For example, a few practices wanted guidance on how to bill Medicare on a FFS basis for services provided by new staff hired for CPC+. Aligned with their belief that implementing CPC+ well will help them ultimately sustain it, a few practices said that CMS should continue sharing strategies, best practices, and examples of how practices have effectively implemented CPC+. One practice suggested that CMS provide tools to plan for the future, such as a timeline for next steps after CPC+, or a template to guide practices' planning processes.

[40] Most deep-dive practices that had started planning for sustainability did not participate in the Medicare Shared Savings Program (SSP). Findings from the deep-dive study did not explain why lack of participation in SSP would encourage sustainability planning. One potential explanation is that having an ACO contract makes practices more confident that value-based payments are or will become available that provide reimbursement for some of the CPC+ changes.

4.6.2. How are practices spreading CPC+ to additional practices?

In PY 2, an increased proportion of deep-dive practices reported that all primary care practices in their system—regardless of CPC+ participation—had implemented the same or similar changes, and benefited from shared resources like system-based care managers hired for CPC+. Among these several deep-dive practices, process changes and resources focused on:

- Improving documentation and reporting of clinical data.
- Implementing more QI initiatives.
- Managing patients with complex needs and patients recently discharged from the hospital or ED.
- Accessing health IT upgrades and trainings.

"CPC+ is a program, [but] population health is our strategy. We don't care if they're part of CPC+ or not. If we're developing things [to meet CPC+ requirements] that are best practice and best care, we're going to offer it to everybody."

—Health system leader of a small, system-owned Track 2 practice

Additionally, system leaders found it less burdensome to apply CPC+ requirements to all practices within their system rather than determining which practices should offer particular services under different initiatives. Deep-dive practices commonly said that CPC+ had the most stringent requirements among similar initiatives and thus offered the opportunity to provide the highest quality care. Applying the CPC+ requirements to all practices enabled practitioners to focus on providing high quality care to all patients, which had the added benefit of helping systems meet their overall quality goals, many of which have financial implications.

Several system-owned practices reported that CPC+ and other initiatives affected non-CPC+ practices in their system, even though their system did not focus on standardizing changes made for CPC+ across all practices. For example, one health system purchased retinal scanners to help CPC+ practices improve their performance on the quality measure for eye exams of patients with diabetes. As a result, all primary care practices in that system had access to these in-house retinal scanners. A few practices noted that to achieve PCMH designation and SSP participation, non-CPC+ practices in their system had adopted changes similar to those required for CPC+.

Most deep-dive system leaders reported that some changes made for CPC+ had spread to specialists in their system. This result occurred by improving specialists' engagement with QI initiatives, increasing their focus on team-based care, and giving them access to new resources. For example:

- **Several deep-dive practices said that specialists in their health system were now expected to report on and use eCQMs required by CPC+.** Two system leaders said that the system holds all practitioners—primary and specialty care—to the same or similar quality measures, including those reported for CPC+. Another health system reported rolling

"[CPC+ made us] highly attuned to the data and making sure it's right. The system as a whole is benefitting from that. [Specialists] now also have the ability to pull quality data as it relates to their patients."

—Health system leader of a large, system-owned Track 2 practice

out more education about quality measures to specialists as a result of CPC+, to help specialists understand how their care delivery can impact quality measures of CPC+ practices. For example, a specialist who notices a patient has high blood pressure should confirm the blood pressure value and alert the primary care provider. Another system leader said that improving quality measure documentation and reporting for CPC+ enabled them to start using quality measures to pay incentive payments to primary and specialty care practitioners.

- **Several deep-dive practices found that CPC+ raised awareness among specialists of the importance of collaborating with primary care to improve patients' overall well-being.** A few system leaders thought that the collaborative care agreements required for CPC+ helped specialists understand the importance of different care team members' roles and improved communication between specialists and primary care providers. For example, a couple of deep-dive practices noted that, since CPC+ has been implemented, when a specialist sees a patient with diabetes whose blood sugar level has not been recently tested, the specialist is more likely to communicate about that issue with the primary care practitioner.

> **"If you had told us [two years ago] that the chair of neurosurgery at [our health system] would be talking about primary care transformation, we would not have believed you. CPC+ has put primary care in general in the spotlight in a way that never had happened before."**
>
> ***—System leader of a large, system-owned Track 2 practice***

- **A couple of system leaders reported that CPC+ increased staff resources available to specialists.** In both instances, practices gave an example of how the primary care department shared the social workers and population health staff hired for CPC+ with the oncology department. The oncology departments found these resources so helpful, they are considering hiring similar staff for their department.

Early efforts to sustain and spread CPC+ in PY 1

Similar to the first-year experience of practices that started CPC+ in 2017, practices that started in 2018:

- Signaled interest in sustaining changes made for CPC+, but thought it was too early to start planning for sustainability. Instead, practices focused on implementing CPC+ and noted that they valued the new process and workflows implemented to meet CPC+ care delivery requirements. A couple of large- and medium-size, system-owned practices were confident that their health systems would fund changes made for CPC+ going forward because the systems had always planned to make these changes eventually.
- Expanded changes made for CPC+ to non-CPC+ primary care practices in their system. A few system leaders thought that other primary care practices could benefit from implementing CPC+ care delivery requirements, and one system leader explained that standardizing resources and workflows across all primary care practices benefited the system by simplifying their administrative work.

A few practices that started in 2018 reported that participating in CPC+ led their health system to focus more on quality measures, not just for primary care practices but also for specialty care practices.

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5. HOW DID CPC+ AFFECT THE EARLY EXPERIENCES OF MEDICARE FFS BENEFICIARIES?

Patient-centeredness is a core tenet of CPC+, and several aspects of CPC+ aim to improve patient experience through transformation of care delivery. A good experience with health care—particularly with care continuity—is positively associated with patients' engagement and adherence to medication and other care regimens (CMMI 2018). Better patient experience in primary care is also associated with lower utilization of inpatient and emergency department (ED) services (CMMI 2018).

CPC+ practices' efforts to transform primary care delivery are expected to improve patients' experiences and satisfaction with care in various ways. First, improvements in access and continuity should help patients at CPC+ practices to receive care more readily, to get the right care at the right time, and to develop more meaningful, longitudinal relationships with their providers. Second, CPC+'s emphasis on care management aims to strengthen practices' ability to work with patients to optimally manage their care needs, particularly outside of traditional office visits. Third, CPC+'s promotion of episodic care management aims to strengthen practices' ability to support patients experiencing an acute event, such as an ED visit or a hospitalization. Fourth, CPC+ encourages primary care practices to provide more comprehensive and coordinated care, thereby meeting patients' physical, behavioral health, and social needs. Finally, CPC+ requirements to engage patients are expected to help providers listen to, respect, and support patients in meeting their health goals, resulting in better experiences for patients.

This chapter examines the experiences of Medicare fee-for-service (FFS) beneficiaries during Program Year 2 (PY 2) in practices that began CPC+ in 2017, relative to comparison practices.[41] The analysis uses a large sample of nearly 18,000 Medicare FFS beneficiaries who represent the population of beneficiaries and practices in CPC+ and comparison practices selected to be similar before CPC+ began. Patient experience data were collected using a modified version of the Clinician and Group Consumer Assessment of Healthcare Providers and Systems 6-Month Survey (CAHPS version 3.0).

Responses to the beneficiary survey suggest that, in the second year of CPC+, experiences of beneficiaries in CPC+ practices were similar to those of beneficiaries in the comparison practices. These ratings were similar regardless of track and whether the practices were participating in the Medicare Shared Savings Program (SSP) at the start of CPC+. There were no substantial differences in any of 10 composite measures, which were loosely based on the CPC+ functions and summarized 37 individual measures. Findings suggest early, favorable differences between CPC+ and comparison practices in 3 of the 39 individual measures in the survey (two measures were not included in the composite measures). The three measures are the focus of CPC+ care delivery requirements for both tracks that relate to receiving timely follow-up, but in each case the effects occurred in only one track: (1) for Track 1 practices, follow-up after an ED visit; (2) for Track 2 practices, follow-up after a hospitalization; and (3) for Track 2 practices,

[41] CMS separately surveyed samples of all patients (Medicare FFS and non-Medicare FFS) served by CPC+ practices to calculate practices' Performance-based Incentive Payments.

timely responses to health questions outside of regular office hours. These findings are in line with the patient-centered medical home (PCMH) literature, which finds limited effects on patient experience up to four years after practices began transformation. This may reflect that some practice changes are not large enough or visible enough to the average patient to alter measures of patient experience.

In Sections 5.1 to 5.3 of this chapter, we summarize the key takeaways from the analysis, our methodological approach, and the detailed findings from the analysis. In Section 5.4, we discuss the key findings and their implications. The Appendices to this report, which are in a separate volume, provide further details about the survey sampling, fielding, content, and analysis methods and contains tables showing the complete results (Ghosh et al. 2020).

5.1. Key takeaways on the effect of CPC+ on the experiences of Medicare beneficiaries

- **Beneficiaries' experiences with care at CPC+ and comparison practices were generally similar, with a few substantial differences.** Despite CPC+ practices beginning the hard work of practice transformation to improve care delivery, Medicare FFS beneficiaries' experiences with care during PY 2 at CPC+ practices that began in 2017 were generally no different from those of beneficiaries at comparison practices. The exceptions were three measures that exhibited substantial differences (we defined a difference to be substantially important if it was both five percentage points or more and statistically significant at the 10 percent level). The three measures reflect CPC+ care delivery requirements for follow-up interactions after ED visits and hospitalizations, and ensuring patients have 24/7 access:
  - Track 1 beneficiaries in CPC+ practices were more likely than beneficiaries in Track 1 comparison practices to report receiving timely follow-up from the doctor's office after an ED visit.
  - Track 2 beneficiaries in CPC+ practices were more likely than beneficiaries in Track 2 comparison practices to report receiving timely follow-up from the doctor's office after an overnight hospital stay.
  - Track 2 beneficiaries in CPC+ practices were more likely than beneficiaries in Track 2 comparison practices to report receiving a timely answer to any health questions asked of the doctor's office outside regular office hours.

  It is not clear why the effects for the three items were not observed in both tracks, as both tracks had the same care delivery requirements for follow-up care after ED and hospital visits, and for ensuring patients had 24/7 access to care team practitioners with real-time access to the electronic health record (EHR).

- **Room for improvement.** Beneficiaries' ratings ranged across the 10 composite measures but indicated that both Track 1 and Track 2 CPC+ practices and their comparison practices had room for substantial improvement in the questions included in four composite measures that loosely map to the Comprehensive Primary Care Functions: (1) access, (2) continuity of care outside the doctor's office, (3) comprehensiveness, and (4) coordination of care.

- **Subgroups of beneficiaries had similar experiences.** At this early stage in implementation, CPC+ did not appear to have differential effects on ratings for subgroups of beneficiaries defined by the characteristics of their practice or three measures of health status.
- **Plan to track future effects.** We will examine effects again in PY 3 and PY 5, to track potential changes in beneficiaries' experiences as practices build on initial changes and continue to transform care delivery in response to CPC+.

5.2. Methods

This section describes survey content, measures, and administration, as well as our analytic methods. More details on these topics can be found in Appendix 5.

5.2.1. Survey content

The CPC+ beneficiary survey asks patients about their experiences with the primary care practice, including the primary care providers and other office staff over the previous six months. This translates to patients' experiences with care received in PY 2 (11 to 20 months and 12 to 24 months after CPC+ began for CPC+ and comparison patients, respectively).

We adapted the CPC+ beneficiary survey instrument from the core CAHPS survey (AHRQ 2015) and, for several items, from the CAHPS 3.0 PCMH (AHRQ 2016a) and CAHPS 2.0 Health Information Technology supplemental modules (AHRQ 2012). We modified most of the CAHPS questions to better reflect the innovative features of the CPC+ model, such as focusing on team-based care provided via a range of modes beyond traditional office visits. We also developed and added a few new items specifically for the CPC+ evaluation. We conducted three rounds of cognitive testing interviews with a total of 34 respondents to test the new and revised questions, and to determine how long it would take respondents to complete the survey.

5.2.2. Survey measures

To help summarize patient experiences by topic, we created 10 summary composite measures based loosely on the key Comprehensive Primary Care Functions and other domains such as teamwork, helpfulness of office staff, and overall experience with care received from the provider's office that are important to CPC+. We grouped the 39 questions that asked about patient experience into the 10 composite measures, and used a confirmatory factor analysis to confirm that the questions fit well into the assigned domain. Table 5.1 details the 37 questions that were ultimately grouped into the 10 summary composite measures.[42] The numbers of items in the composites ranged from 1 to 11. The six composite measures with more than one item had

[42] The 37 questions used for analysis represent 32 unique survey questions. One of the survey questions asks respondents to check any of 8 response options that apply to them. For the development of the composite measures, we treated those 8 response options as separate questions, resulting in a total of 39 items. Two of the 39 items were not used in the composite measures because they were not statistically related to the other questions and did not map to a Comprehensive Primary Care Function. The two questions asked if, in the last six months, the patient (1) had a scheduled appointment with the doctor's office, and (2) had received help from the doctor's office to fill prescriptions, set up medical tests, or schedule appointments.

adequate reliability with McDonald's omega values between 0.82 and 0.96 (Nunnally and Bernstein 1994; Lance 2006).

The 10 summary measures do not map perfectly to the care delivery requirements, nor do they completely capture all aspects of the Comprehensive Primary Care Functions. For example, the care management domain includes some questions that align with the care delivery requirements (such as timely follow-up care after an ED or hospital visit) as well as questions that relate to care management but are not covered in the care delivery requirements (such as being asked about prescription medicines or obstacles to taking care of the patient's health). Conversely, other aspects of care management covered in the care delivery requirements were excluded from the survey if (1) patients would be unaware of a practice strategy (for example, risk stratification) or (2) patients found the concept too difficult to understand during survey pretesting (for example, care plans).

In addition to the 39 questions that ask about patients' experience at the practice and are used in this analysis, the survey also included additional questions that were used to screen respondents' eligibility to answer certain questions (that is, only patients who had an ED visit in the past six months should answer questions about whether the practice followed up with them after the ED visit). It also asked about their eligibility to respond to the survey in general and included several questions on demographics. See Appendix 5, Table 5.5, for a list of all questions in the beneficiary survey.

Table 5.1. Experiences included in the beneficiary survey composite measures

Composite measure 1: Access (11 questions)

- How often the patient:
  - Got care as soon as needed when contacting the doctor's office for care needed right away
  - Got care as soon as needed when making an appointment for check-up or routine care
  - Received timely answers to health questions when contacting the doctor's office during regular office hours
  - Received timely answers to health questions when contacting the doctor's office outside of regular office hours
  - Received timely answers to health questions asked of the doctor's office via email, patient portal, or text messaging
  - Had appointments that started within 15 minutes of the scheduled appointment time
- Whether the patient received care from the primary care doctors and their staff in the following ways:
  - Via phone, email, text messaging, or patient portal
  - Had a same day appointment or walk-in visit
  - Had a video appointment
  - Attended a group medical appointment with patients with similar medical issues
- Whether someone from this doctor's office provided the patient with information about how to access care during evenings, weekends, or holidays

Composite measure 2: Continuity within the primary care office (1 question)

- How often the patient received care from his or her preferred primary care doctor

Table 5.1. ***(continued)***

Composite measure 3: Continuity outside of the primary care office (2 questions)

- Whether the patient's doctor or someone from the doctor's office came to see the patient[43]
  - In the hospital
  - At another location (excluding the doctor's office or hospital) to provide health care

Composite measure 4: Care management (4 questions)

- Whether someone from this doctor's office:
  - Asked about all of the patient's prescription medications
  - Asked the patient if there are things in life that make it hard for the patient to take care of his or her health
  - Provided timely follow-up care after an emergency department visit
  - Provided timely follow-up care after a hospital stay

Composite measure 5: Comprehensiveness (6 questions)

- Whether someone in the provider's office:
  - Knew important information about the patient's medical history
  - Asked the patient if he or she had any problems with physical pain or discomfort
  - Asked the patient if he or she had experienced depression symptoms
  - Talked with the patient about things in his or her life that cause worry or stress
  - Asked the patient about non-medical problems such as housing insecurity, food insecurity, lack of reliable transportation, or trouble paying utility bills
- Asked the patient if he or she had any problems with abuse or violence

Composite measure 6: Coordination (1 question)

- How often people from this doctor's office coordinated well with specialists to care for the patient

Composite measure 7: Patient and family caregiver engagement (8 questions)

- How often the patient received his or her test results from this doctor's office
- How often people from this doctor's office:
  - Explained medical things in a way that was easy to understand
  - Listened carefully to the patient
  - Showed respect for what the patient had to say
  - Spent enough time with the patient
- Whether someone from this doctor's office:
  - Talked about the patient's personal health goals
  - Asked the patient about his or her end-of-life care wishes
- Whether the patient currently has an end-of-life care plan

Composite measure 8: Helpful, courteous, and respectful office staff (2 questions)

- How often clerks and receptionists at this doctor's office:
  - Were helpful
  - Treated the patient with courtesy and respect

Composite measure 9: Teamwork (1 question)

- How often people from this doctor's office coordinated well among themselves to care for the patient

Composite measure 10: Patients' rating of the primary care doctors and staff (1 question)

- Patients' rating of care received from primary care doctors and staff from the doctor's office on a scale of 0 to 10, with 0 being the worst and 10 being the best

[43] The two questions in the continuity outside of the primary care office composite measure also measure aspects of care management, such as visits to skilled nursing facilities or hospitals to support transitional care. However, these questions were not statistically correlated with the questions in the care management composite measure and are therefore a separate composite measure.

5.2.3. Survey administration

We administered the CPC+ beneficiary survey to a sample of Medicare FFS beneficiaries who were attributed to CPC+ practices and their matched comparison practices. We administered the surveys by mail to beneficiaries in CPC+ practices from May through August 2018 (17 to 20 months after CPC+ began) and to beneficiaries in comparison practices from June through December 2018 (18 to 24 months after CPC+ began).[44] We did not offer incentive payments.

5.2.4. Survey sample and response rates

The survey included a large sample of Medicare FFS beneficiaries designed to represent the population of practices and beneficiaries. We invited about 20,000 of the roughly 1.8 million Medicare FFS beneficiaries attributed to CPC+ practices (10,006 in Track 1 and 9,995 in Track 2) and about 27,000 of the approximately 3.6 million beneficiaries attributed to comparison practices (24,140 in Track 1 comparison practices and 19,212 in Track 2 comparison practices [counts not mutually exclusive[45]]) to respond to the beneficiary survey (Table 5.2). Using survey responses, we identified attributed Medicare FFS beneficiaries who reported having received care from the practice at least once in the six months before the start of the survey to be included in the analytic sample.

We exceeded the 40 percent target response rate recommended by CAHPS guidelines (AHRQ 2016a). Table 5.2 below details the survey sample and response rates by research group and track.

The analytic sample contained approximately 80 percent of CPC+ practices in each track, 48 percent of Track 1 comparison practices, and 54 percent of Track 2 comparison practices.

The average response time for beneficiaries in the CPC+ and comparison practices was 17 and 20 months after CPC+ began, respectively.

[44] The survey field period for the comparison beneficiaries was longer than that for the CPC+ beneficiaries because we fielded the comparison survey to two sample groups: a preliminary and a final comparison group for each track. The first sample of comparison beneficiaries—surveyed in June through September 2018—was drawn from preliminary comparison practices for the 2017 Starters. The second sample—surveyed in September through December 2018—was drawn from the practices in the final comparison group for the 2017 Starters that were not the preliminary comparison practices. The combination of these two samples ensured full representation of the final comparison group for each track.

[45] As described in Chapter 6, because the characteristics of CPC+ practices in both tracks overlap, comparison practices can be matched to CPC+ practices in both tracks. Therefore, the beneficiaries in practices matched to CPC+ practices in both tracks (that is in Track 1 and Track 2 comparison practices) were surveyed once but their survey responses are used in both the Track 1 and Track 2 analyses. Among the 26,907 comparison beneficiaries in the sample, 16,445 were attributed to a comparison practice that is matched to both Track 1 and Track 2.

Table 5.2. Attributed Medicare FFS beneficiary survey sample and response rates, by research group and track

	CPC+			Comparison[a]		
	Track 1	Track 2	Total	Track 1	Track 2	Total
Number of patients						
Population	811,775	986,220	1,797,995	2,582,796	2,205,969	3,580,360
Sent surveys	10,006	9,995	20,001	24,140	19,212	26,907
In analytic sample[b]	3,924	3,989	7,913	7,320	7,056	9,849
Response rate (percentage, unweighted)	41.2	41.9	41.5	42.9	42.8	42.6
Number of practices						
Population	1,373	1,515	2,888	5,209	3,754	6,874
With completed surveys in analytic sample (percentage)	1,121 (81.6)	1,210 (79.9)	2,331 (80.7)	2,476 (47.5)	2,012 (53.6)	3,223 (46.9)

[a] Comparison beneficiaries could be in practices matched to Track 1 and Track 2.

[b] Beneficiaries included in the analytic sample are those who returned an eligible, completed survey.

FFS = fee-for-service.

5.2.5. Analysis

Analytic comparisons. For each of the 39 survey questions measuring patient experience and the 10 composite measures created using a subset of those questions, we compared ratings between patients in CPC+ and comparison practices to observe where patient experience differed between the two groups during the second year of the five-year initiative. Because we were not able to collect data before CPC+ began, differences may reflect preexisting differences between CPC+ and comparison practices.

Our main analyses examined the proportion of respondents who answered each question with the *best* response. To test the sensitivity of these findings, we also conducted the same analyses using the *average* response. This is because 17 of the 39 questions have response categories on a four-point ordinal scale. Evaluating changes in average response allowed us to observe changes in the other response categories (such as shifts from the second to the third category) that would otherwise go unnoticed in the analysis of best responses. See Appendix 5, Section D, for more information on our decision to use the best response versus the average response as our primary measure.

Regression analysis. We calculated the predicted probability that beneficiaries responded to each question with the best response and the average response using logistic and ordinary least squares regressions with recycled predictions. For each outcome, we estimated separate regressions for Track 1 and Track 2. Because most questions were answered by more than 95 percent of survey respondents to whom the question applied, we calculated findings among non-missing data and did not adjust for question nonresponse. All regressions controlled for baseline (pre-CPC+) beneficiary and practice characteristics, and self-reported education level at the time of the survey. Table 5.6 in Appendix 5 lists the control variables. For all regressions, we weighted estimates using beneficiary-level nonresponse and matching weights as described in Section B of Appendix 5. To account for correlation in responses within practices, our regression models used cluster-robust standard errors, clustering at the practice level.

To calculate the composite measures for the primary analysis, we first averaged nonmissing binary indicators for whether the beneficiary's response was the best option across each question in the composite. For the sensitivity analysis of averages, we averaged nonmissing standardized responses across each question in the composite.[46] We then used ordinary least squares regressions with the same control variables, weights, and cluster-robust standard errors described above to create aggregate composite measures.

Subgroup effects. The impacts of CPC+ on patient experience could differ for different types of practices and beneficiaries. Therefore, we also looked at ratings of CPC+ and comparison practices by eight key subgroups of beneficiaries for whom theory suggests that CPC+ is likely to have differential effects, such as patients who are chronically ill and other patients with complex needs (Brown et al. 2012; Rich et al. 2012). (See Appendix 5, Section D, for information and the data sources used to define each subgroup.) The subgroups we analyzed were as follows:

- Practice characteristics
  - Whether the beneficiary's practice was participating in SSP at the start of CPC+
  - Whether the beneficiary's practice participated in prior primary care practice transformation activities, defined as whether the practice was recognized as a medical home or had participated in the Multi-payer Advanced Primary Care Practice demonstration or CPC Classic
  - Whether the beneficiary's practice was owned by a hospital or a health system
  - The size of the beneficiary's practice (measured by number of primary care practitioners in the practice site: large [six or more practitioners], medium [three to five practitioners], or small [one or two practitioners])
  - Whether the beneficiary's practice was in a rural, suburban, or urban area
- Patient characteristics
  - The beneficiary's high-risk health status, measured in three different ways using Medicare FFS claims, by whether the beneficiary at baseline had:
    - A top quartile hierarchical condition category (HCC) risk score—a measure of risk for subsequent health care expenditures (Pope et al. 2004)
    - A top 10 percent HCC score or dementia
    - One of the following behavioral health conditions: schizophrenia or major depressive, bipolar, and paranoid disorders, or drug/alcohol psychosis or drug/alcohol dependence

Power. Using two-tailed tests at the 10 percent significance level, the analysis had 80 percent power to detect differences between CPC+ and comparison beneficiaries of one to four percentage points for the composite measures and most individual questions. Exceptions were

[46] Because questions within a composite measure can be on different scales, we first standardized responses to be between 0 and 1.

for questions that applied to a small proportion of respondents, such as beneficiaries who had contacted the doctor's office outside of regular office hours, or via a patient portal or text messaging, as well as beneficiaries who in the past six months had gone to the ED for care or stayed overnight in the hospital, where we could detect differences of 6 to 10 percentage points. Among subgroups, minimum detectable effects are larger because the sample sizes were smaller.

Statistical and substantial importance. Although we tested for CPC+ effects for each of 39 individual questions that asked about patient experience, we focused on the 10 composite measures to limit the detection of impacts due to chance. Despite this, we must interpret our results with caution. With 39 survey questions and 10 composite measures, across the two tracks, we tested for 98 primary impacts, not including the subgroup analyses. The subgroup analyses only examined the 10 composite measures, and with eight subgroups in each track, we conducted an additional 160 tests. Additionally, the analysis based on averages added 98 more tests (39 survey questions and 10 composites across two tracks). This means that, by chance alone, we would expect to find statistically significant differences in 36 tests using the 10 percent significance level. To mitigate against incorrectly concluding there were effects of CPC+, we considered responses between beneficiaries in CPC+ and comparison practices to be statistically different and of substantial importance if the difference met two criteria: (1) the *p*-value was less than 0.10 and (2) the difference between the two groups was five percentage points or larger.[47] Additionally, although we did not apply any formal multiple comparison corrections, we interpreted our findings by assessing findings from the implementation analysis, related outcomes, sensitivity analyses, and subgroup analyses to avoid concluding that CPC+ had effects simply because we tested so many outcomes.

5.3. Results

5.3.1. Composite measures

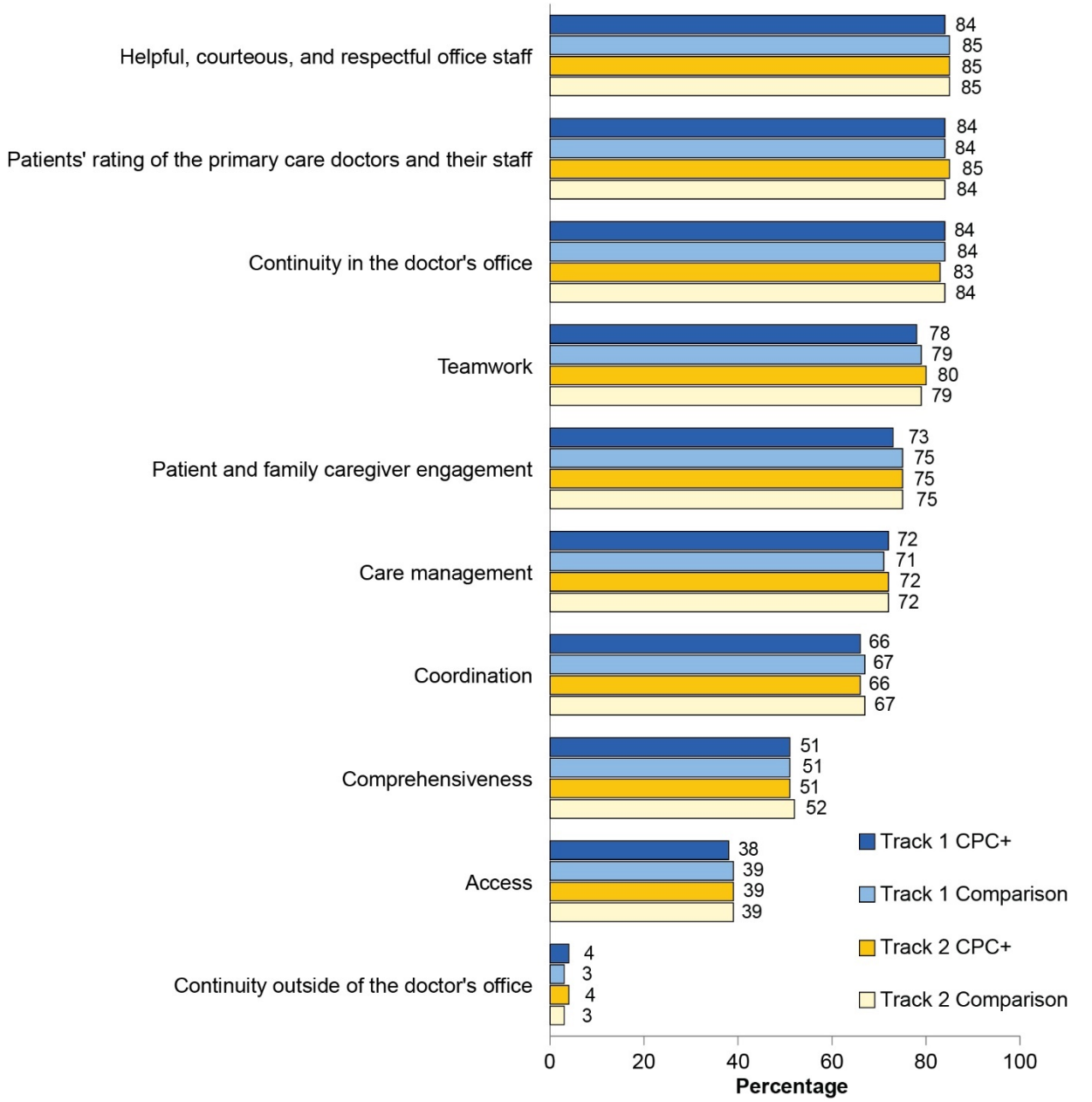
In each track, patients gave similar ratings to CPC+ and comparison practices for each of the 10 composite measures. Any differences in patients' ratings between CPC+ practices and comparison practices that were statistically significant were small—less than 1.5 percentage points—and therefore not substantively important (as noted above, defined as both statistically significant at the 0.10 level and five percentage points or more). Although we did not formally test differences between tracks, patients' ratings were similar for CPC+ practices in Track 1 and Track 2. Figure 5.1 shows the percentage of beneficiaries who gave the best rating for each of the 10 composite measures for CPC+ and comparison practices, separately by track.

Sensitivity analyses found comparable results. We examined average responses to observe changes in the other response categories (such as shifts from the second to the third response category) that would otherwise go unnoticed in the analysis of best responses and also found that ratings for CPC+ and the comparison group were similar**.**

[47] We did not find any literature that defines what magnitude difference would be substantively important for CAHPS measures or other patient experience outcomes. In consultation with CAHPS experts, we decided to define a substantial difference as five percentage points.

Figure 5.1. Percentage of Medicare FFS beneficiaries who gave the best response in PY 2 for 10 composite measures, for CPC+ practices that began CPC+ in 2017 and their comparison practices

Beneficiaries in CPC+ Track 1, Track 2, and their respective comparison practices all gave similar ratings for 10 composite measures of care experience during CPC+'s second year.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Beneficiary Survey for patient experience measures.

Note: Each outcome is regression adjusted, controlling for baseline (pre-CPC+) beneficiary and practice characteristics, and beneficiaries' self-reported education level at the time of the survey (described in Appendix 5, Table 5.6, in the Appendices to this report). We weighted estimates using beneficiary-level nonresponse and matching weights, and used cluster-robust standard errors with clustering at the practice level to account for correlation in responses within practices.

Responses for these composites were not statistically significantly different between CPC+ and comparison beneficiaries at the $p < 0.10$ level.

FFS = fee-for-service.

Our findings did not differ based on practice or patient characteristics.

- *Practice characteristics.* Patients' ratings suggest that there was not a differential effect of CPC+ on practices based on baseline (1) SSP participation; (2) ownership by a health care system or hospital, or independent ownership; (3) the size of their practice;[48] (4) whether the practice was urban, suburban, or rural; or (5) whether the practice had prior primary care practice transformation experience (Appendix Tables 5.9, 5.10a–5.10d).
- *Patient characteristics.* We also examined whether differences in ratings of CPC+ and comparison practices differed by three measures of beneficiaries' high-risk status. Patients' ratings suggest that the effect of CPC+ on patient experience did not differ with respect to these characteristics for most of the composite measures (Appendix Tables 5.11a–5.11c). Among the 60 comparisons made, we found two differences, and would have expected six by chance. These differences were for isolated composite measures and were not consistent across tracks.[49]

CPC+ patients' ratings of care in PY 2 varied across the composite measures, indicating more room for improvement in some domains. As described in Section 5.2.2 of this chapter, composite measures do not map perfectly to the care delivery requirements, nor do they completely capture all aspects of the Comprehensive Primary Care Functions. Findings were as follows:

- In both tracks, patients rated CPC+ practices highly on the survey questions about care management; patient and family caregiver engagement; teamwork; helpful, courteous, and respectful staff; continuity of care in the doctor's office; and overall ratings of the primary care doctors and their staff. More than 70 percent of the responding beneficiaries in CPC+ practices provided the most favorable responses to the questions in these composite measures (Figure 5.1).
- Patients' ratings of the questions included in the other four composites—access, continuity outside the doctor's office, comprehensiveness, and coordination—were lower. Patients' ratings of the two questions in the composite measure for continuity outside the doctor's office presented the largest opportunity for improvement in both tracks, with about 4 percent of

[48] There was one statistically significant CPC+-comparison difference among small practices in Track 1 (Appendix Table 5.10b). Beneficiaries in small CPC+ practices were more likely to rate the care they received from their primary care doctors and staff as the best level of care possible (scores of 9 or 10 out of 10) than beneficiaries in small comparison practices (88 percent of CPC+ beneficiaries compared to 82 percent of comparison beneficiaries). There were no substantial differences in medium or large practices in Track 1, or in Track 2 practices of all sizes.

[49] There were two statistically significant and substantive differential effects of CPC+ for patients with serious mental illness (defined as those with one of the following behavioral health conditions at baseline: schizophrenia or major depressive, bipolar, and paranoid disorders, or drug/alcohol psychosis or drug/alcohol dependence) in Track 2: one each in the composite measures for continuity outside of the doctor's office and teamwork. Although the estimated effects—an unfavorable effect of 6 percentage points in continuity outside of the doctor's office and a favorable effect of 22 percentage points in teamwork—were large, we did not find sufficient evidence to suggest this was a true impact of CPC+ among this population. Given the needs of these patients, if there were a true impact, we would expect to see differences in these patients' experiences on other composite measures, such as care management and comprehensiveness, which ask patients whether (1) providers and their staff talk with them about their prescription medicines; (2) they felt sad, empty, or depressed; or (3) there are things in their life that cause worry or stress. We would also expect to see effects in both tracks.

beneficiaries in each track and the respective comparison practices providing the best response. The questions in this composite asked patients whether their doctor or someone from the doctor's office came to see them at the hospital or at another location outside of the doctor's office to provide health care. Although CPC+ does not require primary care doctors and staff to visit patients at the hospital or another location outside the doctor's office, the model does require Track 2 practices to "deliver care in at least one way that is an alternative to traditional office visit-based care," such as at senior centers and assisted living facilities. Thus, we might expect to see greater improvement over time in ratings of continuity outside the office for patients at Track 2 CPC+ practices than for patients at Track 1 CPC+ practices or comparison practices. However, we would still expect low rates of patients reporting this care in general, because most patients are not hospitalized or could come to the office for care.

5.3.2. Individual questions

Consistent with the findings for the composite measures, patient ratings of CPC+ and comparison practices were similar for most of the individual questions in the survey. Among 78 comparisons we examined (39 individual questions for each of two tracks), ratings of CPC+ and comparison practices were statistically different for 21 comparisons, more than the 8 we would expect by chance alone. However, the differences between CPC+ and comparison practices for 18 of these 21 comparisons were small, less than 5 percentage points. There were larger, more than 5 percentage point differences, for 3 of these comparisons. The three questions include two that measured timely follow-up in the care management composite and one that measured access to care (Figure 5.2):

- **ED follow-up.** Among beneficiaries who reported an ED visit in the past six months, beneficiaries in *Track 1* practices were more likely than beneficiaries in the comparison practices matched to Track 1 to report that they received timely follow-up from the doctor's office within one week (65 versus 59 percent, *p*-value = 0.02).

  This is consistent with the CPC+ *care management* care delivery requirement to ensure patients with ED visits receive a follow-up interaction within one week of discharge. It is also consistent with practice-reported survey data. From PY 1 to PY 2, there was a 25 percentage point increase among practices in Track 1 and a 17 percentage point increase among practices in Track 2 reporting that they followed up with most or all patients within one week after an ED visit. By PY 2, similar percentages of CPC+ practices in both tracks reported in the practice survey that they followed up with most or all patients within one week after an ED visit (62 percent and 68 percent of Track 1 and Track 2 *practices*, respectively). Similarly, in the beneficiary survey, 65 percent of *patients* in CPC+ practices in each track reported this timely follow-up.

- **Hospital follow-up.** Among beneficiaries who reported that they had stayed in a hospital overnight or longer in the past six months, beneficiaries in *Track 2* practices were more likely than beneficiaries in the comparison practices to report that the doctor's office contacted them within three days (60 versus 54 percent, *p*-value = 0.04).

  This is consistent with the CPC+ *care management* care delivery requirement to contact at least 75 percent of patients who were hospitalized in target hospitals

(including observation stays) within two business days. It is also consistent with practice-reported survey data. From PY 1 to PY 2, there was a 20 percentage point increase among practices in Track 1 and a 12 percentage point increase among practices in Track 2 reporting that they followed up with most or all patients within three days of hospital discharge. Despite the larger increase reported among Track 1 than Track 2 practices, more Track 2 practices reported following up with patients after discharge in PY 2 (65 percent of Track 1 practices compared to 75 percent of Track 2 practices), which could explain why this effect was seen only among patients in Track 2 practices.

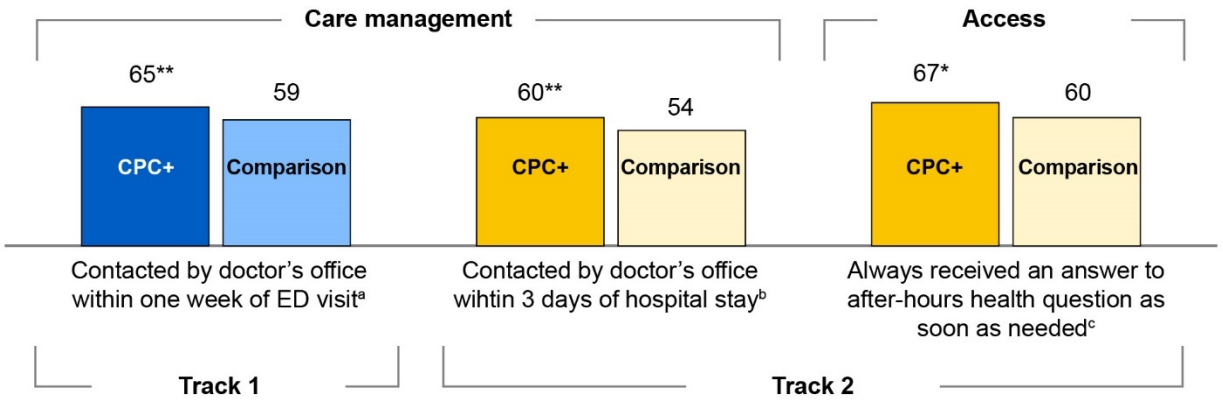
- **After-hours questions.** Among beneficiaries who contacted the doctor's office with a health question outside of regular office hours in the past six months, 67 percent of beneficiaries in CPC+ *Track 2* practices reported they always received an answer to their question as soon as needed—the best response—compared with 60 percent of beneficiaries in comparison practices matched to Track 2 (p-value = 0.08).

This is consistent with the CPC+ *access* care delivery requirement to ensure patients have 24/7 access to a care team practitioner with real-time access to the EHR. It is also consistent with practice-reported survey data. From PY 1 to PY 2, there was a 14 percentage point increase among practices in Track 1 and a 5 percentage point increase among practices in Track 2 reporting that patients had after-hours access to a physician, physician assistant/nurse practitioner, or nurse who had real-time access to the patient's EHR. By PY 2, 53 percent of Track 1 practices and 60 percent of Track 2 practices reported after-hours access to this extent, which might explain why this effect was seen only among Track 2 practices.

In each case, there were no CPC+-comparison differences for the patient survey question in the other track.

Figure 5.2. Percentage of Medicare FFS beneficiaries who gave the best response in PY 2 for CPC+ practices that began CPC+ in 2017 and their comparison practices

CPC+ improved timely follow-up after ED visits, hospitalizations, and after-hours questions.



Source: Mathematica's analysis of data from the independent evaluation's 2018 CPC+ Beneficiary Survey for patient experience measures.

Figure 5.2. ***(continued)***

Note: Each outcome is regression adjusted, controlling for baseline (pre-CPC+) beneficiary and practice characteristics, and beneficiaries' self-reported education level at the time of the survey (described in Appendix 5, Table 5.6, in the Appendices to this report). We weighted estimates using beneficiary-level nonresponse and matching weights, and used cluster-robust standard errors, with clustering at the practice level to account for correlation in responses within practices.

[a] Among respondents who visited the ED for care in the past six months.

[b] Among respondents who stayed in a hospital overnight or longer in the past six months.

[c] Among respondents who asked the doctor's office a health question outside of regular office hours in the past six months.

*/** The percentage of beneficiaries who gave the best response was statistically different between CPC+ and comparison practices at the 0.10/0.05 level, respectively.

FFS = fee-for-service.

5.4. Discussion

One to two years into practices' implementation of the Comprehensive Primary Care Functions, beneficiaries in CPC+ and comparison practices gave similar ratings of their experiences with care, suggesting that about one-third of the way into CPC+, beneficiaries' experiences with care at CPC+ practices are similar to those of beneficiaries at comparison practices. The notable exceptions pertained to follow-up care after ED visits and hospitalizations and in response to after-hours questions. These are all CPC+ care delivery requirements.

Data from the practice survey indicate that the CPC+ practices improved in these areas between PY 1 and PY 2. However, the practice survey indicated improvements for practices in *both* tracks in these three aspects of care delivery, whereas the patient survey found CPC+-comparison differences in only one track for each of the three. Notably, the practice survey did not include information from comparison practices, therefore, the practice survey data are not directly comparable to the CPC+-comparison differences indicated by the patient survey.

Our findings in the second year of CPC+ are comparable with findings in the literature that have found limited effects of PCMH models on patient experience, measured using different patient survey instruments and different PCMH domains:

- Four studies that looked at the impact of medical home transformation on patient experience of care found no statistically significant effects on patient experience one to two years after the intervention began (Jaén et al. 2010; Maeng et al. 2013; Heyworth et al. 2014; Reddy et al. 2015).
- Five other studies found statistically significant, favorable, but generally relatively small or isolated effects in some dimensions of patient experience with care; however, findings were inconsistent across the studies (Dorr et al. 2016; Kern et al. 2013; Swankoski et al. 2018; Reid et al. 2010; Sarinopolous et al. 2017, Nichols et al. 2017; Kahn et al. 2016). The CPC Classic study (Swankoski et al. 2018) found favorable results similar to the ones presented here for follow-up care after ED visits and hospitalizations.

Thus, the evidence raises the possibility that, although practices substantially change how they structure and deliver care during primary care transformation, there may be limited changes in patients' perceptions of care, at least as measured by current survey instruments.

Future annual reports will monitor the effects of CPC+ on patient experience in PY 3 and PY 5, to see if stronger effects of CPC+ on patient experience emerge.

6. THE TWO-YEAR IMPACT OF CPC+ ON EXPENDITURES, SERVICE USE, AND QUALITY OF CARE FOR MEDICARE FFS BENEFICIARIES

By transforming the way practices deliver care, CPC+ is designed to help practitioners better manage and coordinate patients' care, and to help patients better manage their own health and use health care resources more efficiently. Over time, CMS hypothesizes that these improvements in health and efficiency will lower expenditures and service use and improve quality of care for Medicare fee-for-service (FFS) beneficiaries. Based on the CPC+ model design and literature on related models, we expected that—if the model were successful—at this stage we would see improvements in quality-of-care indicators and utilization measures that can be affected by primary care in the short to medium term (for example, emergency department [ED] visits or process-of-care measures for patients with diabetes). However, we did not expect to see impacts on Medicare expenditures without CMS' enhanced payments for CPC+ and the Medicare Shared Savings Program (SSP) after only two years of the five-year intervention.

In this chapter, we describe the effects of CPC+ for Medicare FFS beneficiaries on claims-based measures of expenditures, service use, and selected aspects of quality for practices that began CPC+ in 2017 during the first two program years (January 2017 through December 2018). Appendix 6.A provides Program Year (PY) 1 impact estimates for the combined sample of practices that began in 2017 and 2018, using the most recent data available for the combined sample.

As in the first annual report, we estimated the impact of CPC+ on Medicare FFS beneficiaries by using difference-in-differences regressions. This technique compares the changes over time in mean beneficiary outcomes between (1) beneficiaries served by the CPC+ practices and (2) beneficiaries served by a set of similar comparison practices that were not participating in CPC+. For Track 1, we compared outcomes for more than 1.1 million Medicare FFS beneficiaries served by nearly 1,400 CPC+ practices with outcomes for nearly 4 million beneficiaries served by more than 5,000 comparison practices. The corresponding sample sizes in Track 2 were more than 1.4 million Medicare FFS beneficiaries in more than 1,500 CPC+ practices and more than 3.3 million beneficiaries in nearly 4,000 comparison practices.

CMS theorized that changes in care delivery made by CPC+ practices would, over the course of the initiative, result in a reduction in overall Medicare expenditures great enough to offset CMS' enhanced payments to practices made *on top of usual payments for services*. To test this hypothesis, we analyzed Medicare expenditures[50] for FFS beneficiaries (1) without CMS' enhanced payments and (2) with CMS' enhanced payments. As we describe in Chapter 3, the enhanced payments

[50] Medicare Part A and B expenditures without CMS' enhanced payments include (1) traditional FFS payments for Medicare Part A and Part B services and (2) alternative to FFS payments for those services, which CMS provided to practices participating in Track 2 of CPC+ (referred to as the Comprehensive Primary Care Payment). We do not include Medicare Part D payments, payments made by commercial insurers for supplemental Medicare coverage, or the out-of-pocket expenditures of beneficiaries in this measure.

Track 1 and Track 2 practices received included payments for participating in CPC+ as well as payments to reward practices for performance on cost, utilization, and or/quality metrics.

Our analysis indicates that, in the first two years, CPC+ had a few, very small favorable impacts for Medicare FFS beneficiaries on service use and quality of care but slightly increased expenditures when including CMS' enhanced CPC+ payments. Early estimates for both Track 1 and Track 2 show that CPC+ may have decreased outpatient ED visits and ambulatory primary care visits by approximately 1 percent each, and it may have increased the percentage of beneficiaries receiving recommended diabetes services and breast cancer screening by one percentage point or less. However, CPC+ did not reduce Medicare expenditures for usual services and, when including CMS' enhanced payments, CPC+ *increased* costs by 2 to 3 percent. Estimated effects of CPC+ in both tracks on acute hospitalizations, 30-day readmissions, and mortality were small and not statistically significant, suggesting CPC+ did not alter these outcomes. The estimated impacts were generally similar in PY 1 and PY 2.

In Section 6.1 of this chapter, we summarize the key takeaways from the analysis, and in Section 6.2 we describe the methodological approach. In Section 6.3, we describe findings for Tracks 1 and 2, separately. In Section 6.4, we discuss key findings and their implications. The Appendices to this report, which are in a separate volume, provide further details on methods, claims-based measures, and results (Ghosh et al. 2020).

6.1. Key takeaways about the effect of CPC+ on expenditures, service use, and quality of care for Medicare FFS beneficiaries

In this section, we describe impact estimates over PY 1 and PY 2 combined for practices that began CPC+ in 2017. Impact estimates were generally similar in each of the first two years of CPC+. Therefore, we note only when they were not similar.

- **Expenditures. CPC+ did not reduce expenditures for usual services for Medicare FFS beneficiaries, and, after including CMS' enhanced payments, it *increased* costs by 2 to 3 percent, depending on the track.**
  - **CPC+ did not appear to affect expenditures when excluding CMS' enhanced payments.** In both tracks, impact estimates were close to zero and were not statistically significant—pointing toward small unfavorable relative increases of $4 and $5 per beneficiary per month (PBPM) in Track 1 and Track 2, respectively. These estimated increases were each about one-half a percent of the projected CPC+ mean (that is, the projected CPC+ mean in the absence of the intervention; Table 6.1). The findings for each track were robust to various sensitivity tests and generally did not vary by beneficiary- or practice-level subgroup, or by SSP status. However, we found limited evidence for more unfavorable effects among practices owned by a hospital or health system, in both tracks, driven by differential effects on hospitalizations. Additionally, estimated impacts on Medicare expenditures were somewhat worse for non-SSP practices, especially in Track 2, although almost none of the differences in impact estimates on Medicare expenditures between SSP and non-SSP practices were statistically significant. Given the preliminary and inconclusive nature of this evidence, we will continue examining these differences by practice subgroups in future reports to see if more robust evidence emerges.

- **When including CMS' enhanced payments, CPC+ increased costs for Medicare FFS beneficiaries.** Over the first two program years, Medicare expenditures, including CMS' payments to practices for participating in CPC+ (care management fees [CMFs] and the comprehensiveness supplement for Track 2 practices), increased by $17 and $30 PBPM (1.8 and 3.3 percent), respectively, in Track 1 and Track 2 ($p < 0.01$ for each track). For each track, the estimated increase in Medicare expenditures was slightly larger than the average CMFs practices received for Medicare FFS beneficiaries. After including all enhanced payments for participation *and* for performance (PBIPs that practices retained and the shared savings payments made to their ACOs for practices that participated in SSP), expenditures for Track 1 and Track 2 practices increased by $18 and $30 PBPM (1.9 and 3.3 percent), respectively, relative to comparison practices ($p < 0.01$ for each track). Figure 6.1 shows that CMFs accounted for most of the total increase.
- **There was almost no chance that CPC+ was cost neutral in PY 1 and PY 2. According to our Bayesian analysis,** there was a less than a 0.1 percent probability that savings in Medicare expenditures were large enough to offset the average CMFs practices received, and an even lower chance that they offset *all* of CMS' payments (which include PBIPs, SSP payments, and the comprehensiveness supplement, in addition to CMFs).

Figure 6.1. Per beneficiary per month impact estimate for Medicare expenditures during the first two program years, with CMS' enhanced payments, by track

CMFs accounted for the largest share of the increase in Medicare expenditures after including enhanced payments for CPC+ and SSP.

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: The impact estimates on expenditures without enhanced payments ($3.6 in Track 1 and $4.9 in Track 2) were not statistically significant. The impact estimate including PBIPs and SSP payments is smaller for Track 2 than Track 1. This is because the change in the Track 2 impact estimate attributable to PBIPs was around $1.3 and the change for SSP payments was -$1.2 (that is, SSP payments that we allocated to CPC+ practices were lower than payments allocated to nonparticipating practices by $1.2), resulting in an overall change of only about $0.1.

CMF = care management fee; PBIP = Performance-based Incentive Payment; PBPM = per beneficiary per month; SSP = Medicare Shared Savings Plan.

- **Service use. Beneficiaries attributed to CPC+ practices in both tracks experienced two small impacts on service use: (1) a slightly greater reduction in outpatient ED visits and (2) a slightly lower rate of growth in ambulatory care visits to primary care practitioners than those attributed to comparison practices. There was no evidence of effects on acute hospitalizations in either track, and there was a small net increase in ambulatory specialist visits for Track 1 practices only.**
  - *Outpatient ED visits.* In both tracks, Medicare FFS beneficiaries of CPC+ and comparison practices had fewer outpatient ED visits per year during the first two program years than in the year before CPC+ began. However, the decrease was slightly larger for the CPC+ practices, leading to a small net decrease relative to the comparison group of about 6.5 visits per 1,000 (1.3 percent; $p < 0.01$ for each track). (Outpatient ED visits include ED visits that do not lead to a hospitalization, as well as observation stays.)
  - *Primary care visits.* For CPC+ practices relative to comparison practices, there was a small net decrease in annualized ambulatory primary care visits billed to Medicare. These visits increased by 35 fewer visits per 1,000 attributed beneficiaries (0.8 percent; $p < 0.05$) in Track 1, and by 49 fewer visits per 1,000 attributed beneficiaries (1.1 percent; $p < 0.01$) in Track 2, for CPC+ versus comparison practices.
  - *Specialist visits.* During the first two years, there was a small net increase in ambulatory visits with specialists among beneficiaries of Track 1 CPC+ practices, relative to comparison practices, of about 20 specialist visits per 1,000 beneficiaries (0.5 percent; $p < 0.05$). For Track 2 CPC+ practices, there was little or no change in ambulatory specialist visits, relative to the comparison practices.
  - *Hospitalizations.* There were no effects on acute hospitalizations in either track.

- **Quality of care. Among the limited claims-based quality measures, CPC+ was associated with small improvements of one percentage point or less. These small improvements occurred in the areas of (1) planned care and population health measures—for recommended services among beneficiaries with diabetes and for breast cancer screening among females; and (2) a patient and caregiver engagement measure of receiving hospice services.** In both tracks, but especially in Track 2, the improvements in planned care and population health measures were larger for the non-SSP group (Table 6.2), but differences in impact estimates by SSP status were statistically significant for only a few measures. In both tracks, there were no discernible effects of CPC+ on either 30-day unplanned readmissions or mortality.

- **It is too early to draw conclusions about the likely longer-term effects of CPC+ on Medicare expenditures, service use, or quality.** The persistence in favorable estimates for ED visits and selected quality-of-care measures for the 2017 Starters from PY 1 to PY 2 is promising, but it is still early in the initiative to know whether CPC+ will ultimately improve key outcomes and reduce Medicare expenditures. Given other literature and the CPC+ theory of change, we did not necessarily expect to see favorable effects on expenditures, or sizable effects on other outcomes, in the first two program years. We expect any favorable effects of CPC+ to grow in the remaining three years as the participating practices continue to implement CPC+, and as practice changes affect patients' health, service use, and cost.

Table 6.1. Summary table of impacts (in percentages) on expenditures and service use measures for Medicare FFS beneficiaries over the first two program years, for 2017 Starters, by track and SSP participation status

	Track 1				Track 2			
	CPC+ mean through PY 2, overall	Percentage impacts, overall	Percentage impacts, SSP	Percentage impacts, non-SSP	CPC+ mean through PY 2, overall	Percentage impacts, overall	Percentage impacts, SSP	Percentage impacts, non-SSP
Monthly Medicare Part A and B expenditures (PBPM)								
Excluding enhanced payments[a]	$921	0.4%	0.1%	0.8%	$919	0.5%	0.0%	***0.9%****
Including CPC+ CMFs[b]	$934	***1.8%*****	***1.5%*****	***2.2%*****	$944	***3.3%*****	***2.7%*****	***3.8%*****
Including CPC+ CMFs and PBIPs[b]	$934	***1.9%*****	NA	***2.4%*****	$946	***3.4%*****	NA	***4.0%*****
Including CPC+ CMFs, PBIPs, and shared savings payments to SSP ACOs[b]	$938	***1.9%*****	***1.5%*****	NA	$947	***3.3%*****	***2.4%*****	NA
Monthly Medicare expenditures by service category (PBPM)								
Inpatient expenditures	$317	0.5%	0.0%	1.0%	$323	0.9%	-0.1%	***1.8%*d***
Expenditures on acute inpatient care[c]	$281	-0.1%	-0.7%	0.5%	$287	0.6%	-0.6%	***1.6%*d***
Outpatient expenditures	$187	0.6%	0.5%	0.7%	$188	0.2%	0.5%	-0.1%
Expenditures on physician and nonphysician Part B noninstitutional services in any setting	$265	0.2%	-0.2%	0.7%	$257	0.0%	***-1.0%****	***0.9%****
Expenditures on ambulatory visits with primary care practitioners	$25	-0.6%	-0.8%	-0.2%	$26	***2.3%*****	***2.7%*****	***2.0%*****
Expenditures on ambulatory visits with specialists	$24	***0.6%****	0.3%	***1.1%*****	$23	-0.3%	-0.7%	0.0%
Skilled nursing home expenditures	$64	0.2%	-0.2%	0.6%	$63	0.4%	1.8%	-1.0%
Home health expenditures	$39	***-2.1%*****	***-2.4%*****	***-1.8%****	$40	***-1.6%****	-1.3%	***-1.8%****
Hospice expenditures	$25	***5.7%*****	***8.0%*****	3.2%	$26	***6.0%*****	***5.2%****	***6.6%*****
Durable medical equipment expenditures	$22	-0.7%	***-2.5%****	1.2%	$21	1.7%	0.5%	***2.6%****
Annualized service use (per 1,000 beneficiaries per year)								
Acute hospitalizations (short-stay acute care and CAHs)	286	-0.5%	-0.9%	-0.1%	290	-0.3%	0.0%	-0.6%
Total ED visits, including observation stays	699	***-1.3%****	***-1.4%*****	***-1.2%****	699	***-1.1%*****	***-1.0%****	***-1.3%****
Outpatient ED visits, including observation stays	485	***-1.3%*****	***-1.4%****	***-1.2%****	483	***-1.3%*****	***-1.6%****	-1.0%
Ambulatory primary care visits (including to FQHCs, RHCs, and CAHs)	4,297	***-0.8%****	-0.6%	***-1.0%****	4,356	***-1.1%*****	-0.7%	***-1.4%****
Ambulatory specialty care visits	4,220	***0.5%****	0.3%	***0.7%****	4,104	-0.1%	-0.6%	0.3%

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Table 6.1. ***(continued)***

Notes: We base impact estimates on a difference-in-differences analysis; they reflect the difference in the regression-adjusted average outcome for attributed Medicare FFS beneficiaries in CPC+ practices in PY 1 and PY 2 compared with the average outcome in the baseline year, relative to the same difference over time for attributed Medicare FFS beneficiaries in comparison practices. ***Yellow shading with bold, italicized text*** signifies that the underlying impact estimate (in dollars PBPM for expenditures and in per 1,000 beneficiaries per year for service use) was statistically significant at the 10 percent level using a two-sided test. Expenditures on Part B noninstitutional services include (1) ambulatory primary care visits, (2) ambulatory specialist visits, and (3) non-ambulatory physician visits as well as services provided by other noninstitutional providers (the third category is not shown separately). For Medicare service use, measures of outpatient ED visits and total ED visits include observation stays. Ambulatory visits with primary care practitioners and specialists include office-based visits and visits at home, as well as visits in other settings, such as FQHCs, RHCs, and CAHs.

This analysis includes (first number for Track 1 and second for Track 2) – (1) 1,373 and 1,515 CPC+ practices (2) 5,243 and 3,783 comparison practices, (3) approximately 1.2 million and 1.4 million CPC+ beneficiaries, (4) approximately 4.0 and 3.4 million comparison beneficiaries, (5) approximately 2.8 million and 3.4 million CPC+ beneficiary-year observations and (6) approximately 9.2 and 7.8 million comparison beneficiary-year observations. After accounting for weights that adjust for matching and time observed in Medicare FFS, the effective sample sizes fall but are still substantial. For the comparison group, the effective sample size is 38 to 50 percent of the size of the actual comparison group. The effective sample size for the CPC+ group is about 96 percent of the actual sample size because it is affected only by time observed (and not by the matching weights).

Although this table indicates which estimates are statistically significant, when we interpret evidence, we combine evidence from the magnitude of the effect, the p-values, findings on related outcomes, subgroups, sensitivity tests, and other data sources about model implementation.

[a] For Track 2 practices, Medicare Part A and B expenditures *without* enhanced payments include the base CPCPs, but not the 10 percent comprehensiveness supplement. We include CPCPs in Part B spending because Track 2 practices agreed to lower Part B payment for evaluation and management services in exchange for CPCPs.

[b] For Track 2 practices, Medicare Part A and B expenditures *with* enhanced payments include the base CPCPs, as well as the 10 percent comprehensiveness supplement.

[c] Acute inpatient care includes short-stay acute hospital admissions and admissions to critical access hospitals. Expenditures on non-acute hospital admissions, such as inpatient rehabilitation and psychiatric hospital admissions, are included in inpatient expenditures but not shown separately

*/**/*** Underlying impact estimate in dollars PBPM for expenditures and in per 1,000 beneficiaries per year for service use was significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

NA = not applicable, because only CPC+ practices that participate in SSP are eligible to receive shared savings payments, and only non-SSP practices are eligible to receive Performance-based Incentive Payments.

ACO = accountable care organization; CAH = critical access hospital; CMF = care management fee; CPCP = Comprehensive Primary Care Payment; ED = emergency department; FFS = fee-for-service; FQHC = federally qualified health center; PBIP = Performance-based Incentive Payment; PBPM = per beneficiary per month; PY = Program Year; RHC = rural health center; SSP = Medicare Shared Savings Program.

Table 6.2. Summary table of impacts (in percentage points) on claims-based quality-of-care measures for Medicare FFS beneficiaries over the first two program years, for 2017 Starters, by track and SSP participation status

	Track 1				Track 2			
	CPC+ mean averaged over PY 1 and PY 2, overall[a]	Impact estimates (percentage points), overall	Impact estimates (percentage points), SSP	Impact estimates (percentage points), non-SSP	CPC+ mean averaged over PY 1 and PY 2, overall[a]	Impact estimates (percentage points), overall	Impact estimates (percentage points), SSP	Impact estimates (percentage points), non-SSP
Planned care and population health measures for beneficiaries ages 18–75 with diabetes (annualized)								
Received HbA1c test	91.2%	0.1	0.3	-0.1	92.8%	***0.3****	0.2	***0.4****
Received eye exam	65.2%	***1.0*****	0.2	***1.8*****	66.6%	***0.6****	0.4	***0.7****
Received attention for nephropathy	82.1%	***0.8*****	***0.6****	***1.0*****	83.7%	***0.6****	0.2	***0.9*****
Diabetes Composite Measure 1 (received all three tests above: HbA1c test, eye exam, attention for nephropathy)	53.0%	***1.1*****	0.4	***1.8*****	55.7%	***0.9*****	0.7	***1.0*****
Diabetes Composite Measure 2 (received none of the three tests above)	2.3%	***-0.2*****	***-0.2****	***-0.2****	2.0%	***-0.1****	0.0	***-0.3*****
Planned care and population health measures for female beneficiaries ages 52–74 (annualized)								
Received breast cancer screening	70.0%	***0.7*****	0.2	***1.3*****	72.2%	***0.7*****	0.3	***1.0*****
Care coordination measures								
Percentage of discharges that had a 30-day all-cause unplanned readmission	15.8%	0.2	0.2	0.1	15.8%	0.0	0.2	-0.2
Patient and caregiver engagement measures (annualized)								
Received hospice services	2.8%	***0.1****	***0.1*****	0.0	2.9%	***0.1*****	0.0	***0.1*****

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: We base impact estimates on a difference-in-differences analysis; they reflect the difference in the regression-adjusted average outcome for attributed Medicare FFS beneficiaries in CPC+ practices in PY 1 and PY 2 compared with the average outcome in the baseline year, relative to the same difference over time for attributed Medicare FFS beneficiaries in comparison practices. Yellow shading ***with bold, italicized text*** signifies that an estimate was statistically significant at the 10 percent level using a two-sided test. For the readmissions outcome, which is estimated at the discharge level, we also controlled for discharge-level risk factors. For the binary quality-of-care outcomes, we present the absolute impact estimate on the relevant measures only in percentage points. We do so because percentage impacts for some of the measures are likely to be misleadingly large, given the low means for the measures. We grouped the claims-based quality-of-care measures into four domains according to the Comprehensive Primary Care Functions under which they appear in the 2018 Implementation Guide (CMMI 2018).

For the planned care and population health measures for beneficiaries ages 18-75 with diabetes, the analysis includes (first number for Track 1 and second for Track 2), approximately (1) 187,000 and 226,000 CPC+ beneficiaries, (2) 627,000 and 520,000 comparison beneficiaries, (3) 382,000 and 462,000 CPC+ beneficiary-year observations, and (4) 1.3 million and 1.1 million comparison beneficiary-year observations. For the breast cancer screening measure for female beneficiaries ages 52-74, the analysis includes (first number for Track 1 and second for Track 2), approximately (1) 304,000 and 365,000 CPC+ beneficiaries, (2) 999,000 and 838,000 comparison beneficiaries, (3) 629,000 and 755,000 CPC+ beneficiary-year observations and (4) 2.1 million and 1.7 million comparison beneficiary-year observations. For the 30-day readmissions measure, the analysis includes (first number for Track 1 and second for Track 2), approximately (1) 683,000 and 838,000 index discharges for CPC+ practices and (2) 2.2 million and 1.9 million index discharges for comparison practices. The sample sizes for the use of hospice services measure as well as the number of CPC+ and comparison practices in each track for all measures, are the same as in Table 6.1. After accounting for weights that adjust for matching and time observed in

Table 6.2. ***(continued)***

Medicare FFS, the effective sample sizes fall but are still substantial. For the comparison group, the effective sample size is 38 to 52 percent of the size of the actual comparison group. The effective sample size for the CPC+ group is about 95 to 99 percent of the actual sample size because it is affected only by time observed (and not by the matching weights). For the analysis of unplanned 30-day readmissions, we use only matching weights—therefore, the effective sample size for the number of index discharges shown in the table is about 39 to 52 percent of the actual sample size for the comparison group only.

Although this table indicates which estimates are statistically significant, when we interpret evidence, we combine evidence from the magnitude of the effect, the *p*-values, findings on related outcomes, subgroups, sensitivity tests, and other data sources about model implementation.

[a] The mean for each outcome is the weighted average of the means for PY 1 and PY 2, where the weights are the number of eligible beneficiaries or discharges in the CPC+ group in that year.

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

FFS = fee-for-service; PY = Program Year; SSP = Medicare Shared Savings Program.

6.2. Methods

We estimated impacts for Medicare FFS beneficiaries on claims-based outcomes—including Medicare expenditures, health care service use, and a limited set of quality-of-care measures. To estimate impacts, we used a difference-in-differences approach; that is, we compared the changes in outcomes over time for CPC+ beneficiaries relative to changes in a matched comparison group. We selected the matched comparison group through covariate-balancing propensity score (CBPS) weighting to ensure that CPC+ and comparison practices and their attributed beneficiaries had similar characteristics before the start of CPC+.

Our main analysis examines impacts over the first two program years for practices that joined CPC+ in 2017 and that were participating in CPC+ as of April 1, 2017—the end of the first program quarter.[51] We also re-ran our impact estimates for the first program year to include both practices that started in 2017 and those that joined in 2018; we include these findings in Appendix 6.A. For the combined sample, we examine the first year only for this report due to lags in claims availability. Due to the relatively small number of 2018 Starters, we do not assess impacts separately for them.

6.2.1. Sample of Medicare FFS beneficiaries

The analysis sample we used for our impact evaluation consists of beneficiaries we attributed to CPC+ practices and beneficiaries we attributed to comparison practices (as described below, our attribution approach is fairly similar to the approach CMS used for payment). Once we attributed a beneficiary in any baseline or intervention quarter, we continued to include that beneficiary in future baseline and intervention quarters, even if the beneficiary's practice later left CPC+ or if we later attributed the beneficiary to a non-CPC+ practice. We followed the same intent-to-treat (ITT) approach for comparison beneficiaries, to ensure comparability with the CPC+ sample.

For Track 1, our main analyses included 1,189,438 unique Medicare FFS beneficiaries served by 1,373 CPC+ practices and 3,974,531 unique beneficiaries served by 5,243 matched comparison practices during either baseline or the first two program years.[52]

[51] Of the 2,905 CPC+ practices that started the initiative on January 1, 2017, 17 practices (0.6 percent) withdrew in the first three months before the selection of the intent-to-treat (ITT) sample, and 2,888 practices were participating as of April 1, 2017. These 2,888 practices are in the ITT sample; that is, all 2,888 practices are considered to have received the intervention and, therefore, remain in the analysis throughout the evaluation, regardless of actual participation status. We excluded the 17 practices that withdrew in the first three months, because they were unlikely to have made much progress implementing CPC+ during that time.

[52] After accounting for weights that adjust for matching and time observed in Medicare FFS, the effective sample sizes in the main analysis for the baseline period are about 95 percent of the actual sample size for the CPC+ sample in both Tracks 1 and 2 and about 45 and 40 percent of the actual sample size for comparison sample in Tracks 1 and 2, respectively. Calculations assume that observations are independent. Although this approach of treating them as independent is a simplification, these calculations demonstrate the impact of weighting, specifically, on the effective sample size.

For Track 2, the main analyses included 1,443,553 unique Medicare FFS beneficiaries served by 1,515 CPC+ practices and 3,360,712 served by 3,783 matched comparison practices during either baseline or the first two program years.

To attribute each beneficiary to a CPC+ or comparison practice, we first defined the set of practitioners within a practice site using data we purchased from SK&A (a commercial health care data vendor that maintains and verifies lists of practitioners who work in practices throughout the country), along with a the tax identification number (TIN) that we inferred from the Medicare claims data.[53,54]

We then attributed each beneficiary to a practice in a way that is largely similar to CMS' attribution approach but has a few notable differences. For instance, while CMS uses a roster of primary care practitioners reported by CPC+ practices to determine the composition of CPC+ practices, to maintain consistency in identifying practice composition across CPC+ and comparison practices for the purposes of the evaluation, we use SK&A's roster to obtain information on National Provider Identifiers (NPIs) of primary care practitioners affiliated with a practice. For a detailed description of the similarities and differences between CMS' approach and the evaluation's approach for beneficiary attribution, see Appendix 6.B.

We used the following approach to attribute beneficiaries for the evaluation:

- If a beneficiary's *most recent* eligible primary care service in the previous two years was for chronic care management (CCM), we attributed the beneficiary to the practice that provided that CCM-related service.
- Beginning in the first quarter of 2018, if a beneficiary was not attributed on the basis of CCM-related billing, and the beneficiary had an annual wellness visit or a Welcome to Medicare visit in the 24-month lookback period, we attributed the beneficiary to the practice that provided the most recent annual wellness visit or a Welcome to Medicare visit.[55]
- Otherwise, we attributed the beneficiary to the practice with the plurality, or largest share, of primary care visits during the previous two years (including cases where a beneficiary was billed for CCM, but the most recent visit was not for CCM-related services).

[53] CMS tracks the set of primary care practitioners based on National Provider Identifiers (NPIs) at each CPC+ practice site, but we did not have similar data for the comparison practices, so we used SK&A data for both CPC+ and comparison practices.

[54] We use an algorithm that picks the tax identification number (TIN) most frequently billed in Medicare claims data for primary care services by the NPIs of primary care practitioners that the SK&A roster indicates are located at a practice. For more detail on this process, please see Appendix 6.B.

[55] We apply the attribution criteria for an annual wellness visit and a Welcome to Medicare visit to the attribution algorithm for the first quarter of 2018 onward, to align with the same change CMS made to the CPC+ payment attribution algorithm.

- To be eligible for attribution in a given calendar quarter, at the start of that quarter, a beneficiary had to be alive, have both Part A and B Medicare FFS coverage with Medicare as the primary payer, and not be covered under a Medicare Advantage or other Medicare health plan.[56]

  This method differs from CMS' approach. Specifically, for payment attribution, CMS also requires that beneficiaries (1) not have end-stage renal disease and not be enrolled in hospice,[57] (2) not be institutionalized long-term, and (3) not be enrolled in any other CMS program or model that includes a Medicare FFS shared savings opportunity, except SSP. For the evaluation, we do not apply these three exclusions in identifying attributed beneficiaries, because CMS expects the intervention to affect all beneficiaries[58] attributed to the practice, not just those for whom CMS calculates payments.

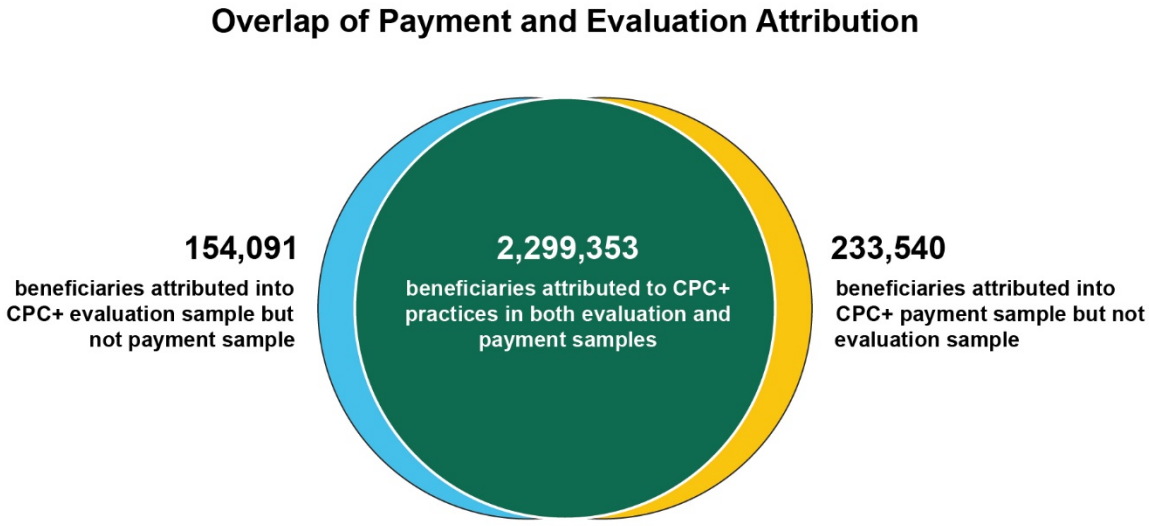
Although CMS and the evaluation used different approaches to attribute practitioners and patients, the resulting samples overlap considerably. As we show in Figure 6.2, more than 90 percent of the beneficiaries attributed to 2017 Starter CPC+ practices in our evaluation sample for the first eight CPC+ quarters were also attributed to the payment attribution sample. Also, 86 to 90 percent of beneficiaries attributed to the payment attribution sample by CMS each quarter were also attributed to CPC+ practices for the evaluation. Appendix 6.B describes the attribution steps for the evaluation and the differences between the payment and evaluation attribution process and sample in more detail.

[56] For evaluation attribution, we determine eligibility status on the day of the start of the quarter. For payment attribution, CMS determines eligibility status one month before the quarter starts because CMS needs the list of attributed beneficiaries before the start of the quarter to calculate the care management fees and other CPC+ payments, such as the Comprehensive Primary Care Payment for beneficiaries attributed to each CPC+ practice.

[57] Note that this CMS criterion applies only to beneficiaries who have not been previously attributed to the CPC+ practice. If beneficiaries have been previously attributed to a CPC+ practice, then developing end-stage renal disease or enrolling in hospice does not disqualify them from being attributed to that CPC+ practice. For the evaluation, all beneficiaries with end-stage renal disease and those enrolled in hospice are eligible for attribution.

[58] Ideally, we would go one step further and include *all* patients the practice serves, but the evaluation has readily available data only for Medicare FFS beneficiaries. Also, our sample does require beneficiaries to be attributed to a practice—and does not include all Medicare FFS beneficiaries ever seen by the practice—because it would be difficult for a practice to affect the outcomes of beneficiaries that were primarily under the care of another practice.

Figure 6.2. Attribution of Medicare FFS beneficiaries for the 2017 Starters during PY 1 and PY 2



Source: Comparison of attributed Medicare FFS beneficiaries in Mathematica's evaluation sample for the first two program years (January 2017 through December 2018) and those in CMS' payment sample for the second through the ninth program quarter (April 2017 through March 2019), which used the same set of two-year lookback periods. We used Medicare FFS beneficiary attribution lists provided by CMS to define the payment sample.

FFS = fee-for-service; PY = Program Year.

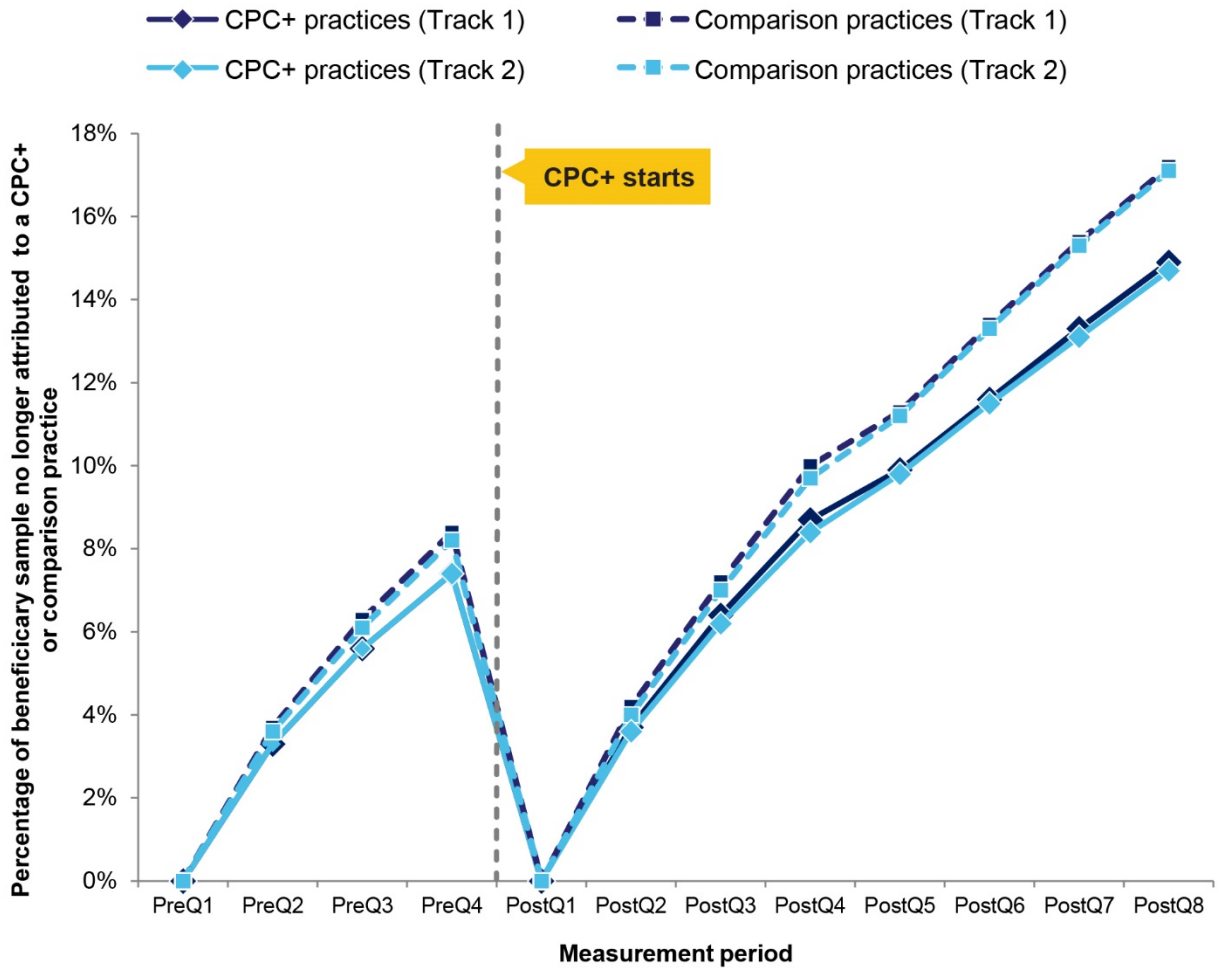
We use an ITT approach for our evaluation.[59] Under our ITT approach, beneficiaries remain attributed to the first CPC+ practice or comparison practice to which they were attributed in the baseline or follow-up period, even if they began seeing a different primary care practice more frequently later in that period (as long as they satisfy the eligibility criteria). Specifically, we attributed beneficiaries to the first practice they were attributed to during the intervention period and continued to attribute them to that practice for all subsequent program years. Similarly, for the baseline year, we attributed beneficiaries to the practice they were first attributed to in that year (2016 for 2017 Starters). Over the course of CPC+, CPC+ practices' and comparison practices' patient panels may change in different ways; the ITT approach helps mitigate any effect of those differential changes. Such differential changes could occur if, for instance, CPC+ practices start seeing a greater proportion of sicker beneficiaries due to the CPC+ payment incentives, or alternatively, lose their healthier beneficiaries in attribution due to greater use of telehealth/non-face-to-face visits.

Figure 6.3 shows the percentage of beneficiaries in the main analysis sample (2017 Starters) who were no longer attributed to a CPC+ or comparison practice during the quarter but were retained after being attributed in a previous quarter, due to the ITT approach. In the first quarter of the baseline and the first quarter of intervention periods, all beneficiaries in the analytic sample were also originally attributed to a CPC+ or comparison practice. By the last quarter of PY 2 (2018), for both Tracks 1 and 2, around 15 percent of beneficiaries in CPC+ practices and 17 percent of

[59] For payment attribution, CMS does not use an ITT approach and refreshes attribution status each quarter.

beneficiaries in comparison practices were no longer attributed to a CPC+ or comparison practice, respectively, but were still in the research sample. This finding suggests that, over time, a slightly higher proportion of beneficiaries in CPC+ practices continued receiving billable care from the same practices, and therefore continued to be attributed to the same practices, than beneficiaries in comparison practices. If a large percentage of beneficiaries that are assigned to a practice are no longer attributed, we can expect any impacts of CPC+ to be diluted. We will continue to monitor this percentage in future reports.

Figure 6.3. Percentage of beneficiaries in the analytic sample who were no longer attributed to a CPC+ or comparison practice but retained in the research sample due to the ITT approach, among 2017 Starters, by track



Notes: The numbers in this figure represent the percentage of beneficiaries who were no longer attributed to a CPC+ or comparison practice but were retained in the analytic sample due to the ITT sample construction approach. We conduct assignment separately in the baseline and intervention periods. In the first quarter of the baseline period (PreQ1) and in the first quarter of the intervention period (PostQ1), the sample includes only beneficiaries actually attributed during these quarters, but beneficiaries remain in the sample in subsequent quarters even if they are no longer attributed to a CPC+ or comparison practice. Therefore, the percentage of beneficiaries not attributed is zero in PreQ1 (and then increases over the baseline period) and is zero again in PostQ1 (and then increases over the intervention period).

ITT = intent-to-treat.

6.2.2. Comparison group

To estimate the impact of CPC+, we compare patient outcomes over time for CPC+ practices relative to those of similar matched comparison practices. We drew the comparison group from practices that provide primary care in regions not selected for CPC+—that is, those that are outside the CPC+ regions. We selected comparison groups separately for Track 1 and Track 2, because CMS views each track as a different intervention that should be analyzed separately.[60] We also matched practices separately within track by SSP status, because we and CMS deemed participation in SSP to be the most important practice characteristic that could affect outcomes, given that SSP practices face different payment incentives. The result was six comparison groups supporting analyses for six groups: (1) Track 1 overall, (2) Track 2 overall, (3) Track 1 SSP, (4) Track 1 non-SSP, (5) Track 2 SSP, and (6) Track 2 non-SSP. In this section, we focus on comparison group selection for 2017 Starters (our main analysis sample). Appendix 6.C contains more details on the comparison groups for the 2017 Starters and the combined 2017 and 2018 Starters.

We matched CPC+ practices to other primary care practices that had similar practice characteristics (such as the number of practitioners and urban/rural status) and that served a similar population of Medicare FFS beneficiaries (for example, in terms of average age and expenditures during the year before CPC+ began, as shown in Table 6.3). We identified these characteristics from Medicare claims and enrollment data as well as other secondary data sources such as SK&A, CMS data on participation in Center for Medicare and Medicaid Innovation models other than CPC+, and the Area Health Resource File.

The resulting comparison groups had baseline characteristics comparable to the CPC+ practices that started in 2017. The absolute value of the standardized differences for all variables in Table 6.3 based on the means and their standard deviations, met our target of 0.10 or less in all cases, except for a standardized difference of 0.14 between CPC+ practices in Track 2 and their matched comparison practices in whether a practice participated in prior primary care transformation initiatives. In other words, differences between the CPC+ and comparison groups were negligible for almost all characteristics. (Appendix 6.C, Tables 6.C.5 to 6.C.10 show post-matching similarity of the CPC+ and selected comparison practices [referred to as balance], including standardized differences, between the 2017 Starter CPC+ and their matched comparison practices, by track, and by SSP status for the full set of characteristics that were used for matching; Tables 6.C.11 to 6.C.16 report the same for the combined sample of 2017 and 2018 Starters and their matched comparison practices.)

[60] On average, the CPC+ practices in Track 2 had more advanced care delivery approaches in place at baseline than Track 1 practices, reflecting CMS' different eligibility criteria for the two tracks and different average baseline characteristics. However, though the two groups differed on average, their care delivery approaches and practice characteristics overlapped substantially at baseline.

Table 6.3. Similarity of the CPC+ and comparison practices (practice values weighted by number of Medicare FFS beneficiaries) for 2017 Starters, by track

Practice characteristics at baseline	Data source for characteristic	Track 1		Track 2	
		Mean among CPC+ practices (N = 1,373)	Weighted mean among comparison practices (N = 5,243)	Mean among CPC+ practices (N = 1,515)	Weighted mean among comparison practices (N = 3,783)
Participant in SSP ACO as of January 1, 2017 (%)	MDM January 1, 2017	51.4	52.3	44.2	44.2
Hospital ownership or health system management or ownership (%)	SK&A 2016	54.8	55.3	58.2	59.8
Participation in prior primary care transformation activities[a] (%)	Data from CMS and from organizations that offer medical home recognition	53.5	52.6	80.9	75.4
Urbanicity of practice's county					
Rural (%)	Area Health Resource File 2016	10.3	9.8	7.7	7.7
Suburban (%)	Area Health Resource File 2016	18.0	18.4	16.0	16.8
Urban (%)	Area Health Resource File 2016	71.7	71.8	76.3	75.5
Mean PBPM Medicare expenditures in 2016	EDB and claims data	$881.0	$885.0	$877.0	$879.0
Acute care hospitalizations (short-stay acute care and CAHs) in 2016 per 1,000 beneficiaries, annualized	EDB and claims data	285.4	284.0	287.4	283.5
Outpatient ED visits, including observation stays, in 2016 per 1,000 beneficiaries, annualized	EDB and claims data	493.8	498.2	492.6	492.5
Mean 2016 HCC score among beneficiaries assigned in 2016	EDB and claims data	1.1	1.1	1.1	1.1
Number of primary care practitioners:					
1–2 primary care practitioners (%)	SK&A 2016	21.3	21.5	12.9	13.5
3–4 primary care practitioners (%)	SK&A 2016	23.2	24.0	22.4	22.1
5–7 primary care practitioners (%)	SK&A 2016	25.8	25.5	26.0	26.3
8+ primary care practitioners (%)	SK&A 2016	29.8	29.0	38.7	38.1
Practice is multispecialty[b] (%)	SK&A 2016	19.6	20.1	26.2	26.2
Hospital Referral Region price index	CMS' Medicare Geographic Variation data, 2015	1.1	1.1	1.0	1.1

Table 6.3. ***(continued)***

Practice characteristics at baseline	Data source for characteristic	Track 1		Track 2	
		Mean among CPC+ practices (N = 1,373)	Weighted mean among comparison practices (N = 5,243)	Mean among CPC+ practices (N = 1,515)	Weighted mean among comparison practices (N = 3,783)
Meaningful EHR use[c] (%)					
Never attested (%)	CMS' Medicare EHR Incentive Program data	8.0	8.5	3.5	3.7
Attested since 2011 or 2012 (%)	CMS' Medicare EHR Incentive Program data	78.9	78.5	88.2	87.9
Attested since 2013 or later (%)	CMS' Medicare EHR Incentive Program data	13.1	13.0	8.3	8.4
Number of Medicare FFS beneficiaries assigned in 2016 per PCP	Mathematica attribution based on SK&A roster	231.0	226.0	197.0	202.0

Source: Mathematica's analysis of baseline practice characteristic data of CPC+ and matched comparison practices for 2017 Starters.

Note: Because CPC+ is a practice-level intervention, and to aid computation, we matched using practice-level data rather than beneficiary-level data. However, we analyzed Medicare claims-based outcomes using beneficiary-level data rather than practice-level data, so we show balance statistics to approximate beneficiary-level balance. This approach best reflects the baseline balance in the analytic sample that we used in regression analyses. Specifically, the means in this table represent practice-level means, weighted by the number of Medicare FFS beneficiaries assigned to each practice in 2016.

[a] We define prior transformation experience as CPC Classic or MAPCP participation, or whether the practice is recognized as a medical home by NCQA, TJC, AAAHC, URAC, or a state medical-home recognition program.

[b] We define multispecialty as having at least one practitioner, according to SK&A, with a specialty other than general practice, internal medicine, family medicine, or geriatrics.

[c] We define meaningful EHR use as having at least one practitioner within the practice who attested to meaningful use under the CMS Medicare EHR Incentive Program.

AAAHC = Accreditation Association for Ambulatory Health Care; ACO = accountable care organization; CAH = critical access hospital; CMS = Centers for Medicare and Medicaid Services; ED = emergency department; EDB = Medicare enrollment database; EHR = electronic health record; FFS = fee-for-service; HCC = hierarchical condition category; MAPCP = Multi-payer Advanced Primary Care Practice Demonstration; MDM = CMS master data management system; NCQA = National Committee for Quality Assurance; PBPM = per beneficiary per month; PCP = primary care practitioner; SSP = Medicare Shared Savings Program; TJC = The Joint Commission; URAC = Utilization Review Accreditation Commission.

6.2.3. Outcomes

We analyzed Medicare expenditures for FFS beneficiaries: (1) without CMS' enhanced payments made to CPC+ practices on top of usual payments for services, and (2) with CMS' enhanced payments.

1. **Expenditure analysis *without* CMS' enhanced payments.** This is the primary outcome of the CPC+ evaluation. In this analysis, we included all payments made for services that are usually covered by Medicare Part A and B. This includes all Medicare Part A and B expenditures, as well as CMS' alternative payments for Track 2 practices (Table 6.4). For Track 2 practices, CMS pays for a portion of selected evaluation and management (E&M) services prospectively, and correspondingly reduces the FFS payment level for those services. CMS intends that the prospective CPCPs—plus E&M services billed at a lower FFS rate—will roughly equal what the practice would have been paid under regular FFS. We included CPCPs in our calculation because not doing so would give the impression that CPC+ reduced expenditures even if it had no effect on the volume or types of E&M services provided.
2. **Expenditure analysis *with* CMS' enhanced payments.** CMS provided Track 1 and Track 2 practices enhanced payments *on top of usual payments for services.* As described in Chapter 3, enhanced payments included payments to CPC+ practices for participating in CPC+ as well as payments to reward their performance on cost, utilization, and/or quality metrics (Table 6.4). As a secondary outcome measure, we estimated the impact of CPC+ on CMS expenditures including these enhanced payments, as well as all payments made for services. (As we estimated impacts on Medicare expenditures for FFS beneficiaries, we did not include enhanced payments from other payers in our calculations.)

Table 6.4 Summary of CMS' payments included in our analysis of expenditures for Medicare FFS beneficiaries

Payment type	Practices that receive payment type				Included in expenditures analysis	
	Track 1 Non-SSP	Track 1 SSP	Track 2 Non-SSP	Track 2 SSP	Without CMS' enhanced payments	With CMS' enhanced payments
Payments for services						
Traditional FFS payments for Medicare Parts A and B	✓	✓	✓	✓	✓	✓
Alternative to FFS payments – Comprehensive Primary Care Payment			✓	✓	✓	✓
Enhanced payments in addition to payments for services						
Payments for participating in CPC+						
Care management fees	✓	✓	✓	✓		✓
Comprehensiveness supplement			✓	✓		✓
Payments for performance on cost, utilization, and/or quality metrics						
Performance-based Incentive Payments	✓		✓			✓
SSP payments (share of SSP ACO's payments that we allocated to the practice)		✓		✓		✓

ACO = Accountable Care Organization; FFS = fee-for-service; SSP = Medicare Shared Savings Program.

We also evaluated impacts on a range of other expenditures and service use outcomes for Medicare FFS beneficiaries, so that CMS might consider the patterns of effects across these domains along with any observed impacts on Medicare expenditures without and with CMS' enhanced payments. These include Medicare expenditures by service category and selected measures of Medicare service use. (Figure 6.4 shows the share of each service category in Medicare expenditures at baseline among beneficiaries in Track 1. The shares were comparable for beneficiaries in Track 2.) The selected measures of Medicare service use that we examined include—number of hospitalizations, ED visits, and ambulatory visits with primary care practitioners and with specialists.

As the evaluation design report (Peikes et al. 2018b) describes, based on the literature and the logic model of CPC+, we developed hypotheses for the expected direction of effects on each outcome of interest in the CPC+ evaluation. In Appendix 6.D, Table 6.D.1, we describe the expected direction of effects for the claims-based outcomes in this chapter. For instance, we hypothesized that CPC+ would lead to a reduction in expenditures for acute and post-acute care services through expanded access to care, greater coordination and comprehensiveness of care, as well as episodic and longitudinal care management. However, we expected hospice expenditures to increase due to better patient and caregiver engagement in care planning, including end-of-life care. For example, CMS' PY 2 requirement that Track 2 practices provide advance care planning could, on average, lead to greater use of hospice. We did not have directional hypotheses for expenditures on billable primary care or specialty care ambulatory visits. CPC+ could increase the total number of billable primary care visits as primary care

practices offer more comprehensive services and, potentially, extend their office hours. Conversely, CPC+ could decrease in-person office visits by using other non-visit approaches for contacting patients (such as eVisits or secure messaging) or using non-billing care team members to deliver care. Similarly, ambulatory specialist visits could increase or decrease, depending on whether more effective care management and follow-up after hospitalization or ED visits by CPC+ practices reduce the need for specialist visits or result in more referrals to specialists. For instance, by improving coordination among providers (including developing collaborative care agreements between CPC+ practices and the specialists to whom they frequently refer their patients), CPC+ could reduce duplicative testing and the use of specialty care. However, this coordination could increase or decrease the number of visits patients have with specialists, depending on whether (1) more collaboration decreases the number of ambulatory visits with specialists and associated expenditures, or (2) more screening and treatment of conditions found in screening increase such visits and expenditures.

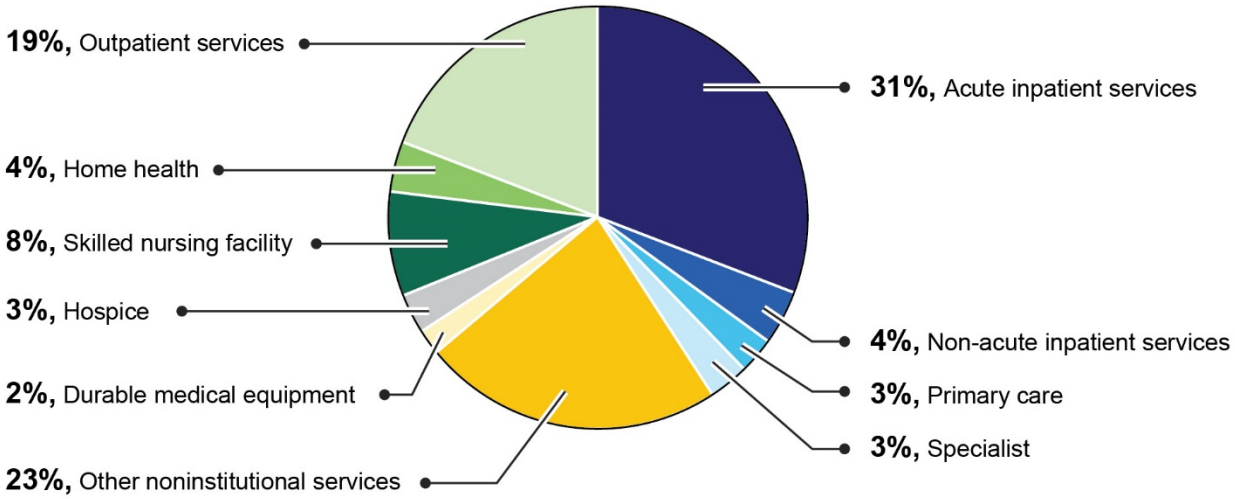
We also examined impacts on selected claims-based quality-of-care outcomes. These outcomes include measures for (1) planned care and population health (recommended breast cancer screening among females ages 52 through 74 and services among patients with diabetes), (2) patient and caregiver engagement[61] (any use of hospice), and (3) care coordination (unplanned 30-day readmissions). These claims-based quality measures roughly approximate the electronic clinical quality measures (eCQMs) that practices are required to report, but they do not correspond exactly to the eCQMs. Also, they cover a narrower range of quality concepts than the eCQMs.[62] However, unlike the eCQMs, they can be measured comparably for CPC+ and comparison practices. For a list of all claims-based outcome measures, including details on how we constructed each measure, see Appendix 6.D.

[61] In the first annual report, we also examined effects of CPC+ on the percentage of beneficiaries who receive advance care planning. However, we decided to drop this outcome from all subsequent reports because of concerns that the billing codes for these services were not being regularly reported in Medicare claims data.

[62] The eCQMs cover a wider range of quality concepts than we can measure in claims—for example, not just receipt of recommended services but also clinical outcomes (such as control of high blood pressure) and advanced care processes (such as receipt of specialist reports following referrals). The eCQMs also cover a wider population than claims-based measures. The eCQMs cover all patients regardless of payer, rather than Medicare FFS beneficiaries only.

Figure 6.4. Medicare expenditures at baseline, in dollars PBPM, by service category, for Track 1 2017 Starters

Among Medicare expenditures categories that we examine, acute inpatient expenditures account for the largest share—nearly a third of Medicare expenditures.



Source: Mathematica's analysis of Medicare claims data from January 2014 through December 2016.

Note: This figure breaks expenditures on inpatient services into those for acute and non-acute services. It also breaks noninstitutional expenditures on physician and non-physician services into three categories: (1) expenditures on billable ambulatory primary care visits (labeled primary care), (2) expenditures on ambulatory specialist visits (labeled specialist), and (3) expenditures on other noninstitutional services (such as non-ambulatory visits with primary care practitioners or specialists, and services provided by ambulance providers, independent clinical laboratories, and free-standing ambulatory surgical centers).

PBPM = per beneficiary per month.

6.2.4. Regression methods

We estimated the impact of CPC+ on Medicare FFS beneficiaries by using difference-in-differences regressions. Specifically, we compared the changes in mean outcomes over time between beneficiaries assigned to CPC+ and comparison practices during (1) the baseline year before CPC+ (2016 for 2017 Starters) and (2) each intervention year of CPC+ (PYs 1 and 2 for 2017 Starters), while controlling for beneficiary characteristics and practice fixed effects. The beneficiary-level control variables include demographics (age categories, race categories, and gender), chronic conditions, original reason for Medicare entitlement, dual eligibility status, and hierarchical condition category (HCC) score (a measure of risk for subsequent expenditures)[63] (see Appendix 6.E, Table 6.E.3 for a detailed list). The beneficiary-level controls and the practice fixed effects help to (1) adjust for beneficiary risk, (2) improve the precision of the

[63] HCC scores are a measure of risk for subsequent expenditures. CMS calculates them such that the average for the Medicare FFS population nationally is 1.0. A patient with a risk score of 1.30 is predicted to have expenditures that would be approximately 30 percent above the average, whereas a patient with a risk score of 0.70 is expected to have expenditures that would be approximately 30 percent below the average.

model, and (3) account for any remaining imbalance in beneficiary and practice characteristics, including unmeasured and time-invariant practice characteristics at baseline.

For all outcomes, we used a linear regression model and accounted for non-independence across observations within the same practice using standard error estimates clustered at the practice level. We applied weights to the observations in the regressions so that (1) beneficiaries who were observed in Medicare FFS data for more of the period received relatively higher weight than those observed for less of the period,[64] and (2) the CPC+ and comparison groups were comparable (using the weights resulting from the comparison selection).

We calculated all impact estimates at the *beneficiary level* (except for 30-day unplanned readmissions, which is at the *discharge level*), but we sometimes describe them as differential changes experienced by CPC+ versus comparison *practices* in our discussion of results, because the intervention took place at the practice level.

In reporting the impact estimates from difference-in-differences regressions in Section 6.3 below, we also show CPC+ and comparison group means. Specifically, we show the actual, unadjusted CPC+ means at baseline and in each intervention year. For the comparison group, we show the actual, unadjusted mean at baseline and the adjusted mean in each intervention year. We obtained this adjusted mean by subtracting the regression-adjusted difference between the CPC+ and comparison groups in each year (obtained from the difference-in-differences model) from the unadjusted CPC+ mean in that same year. We also calculated percentage impacts relative to what the CPC+ mean would have been in an intervention year in the absence of the intervention—that is, the unadjusted CPC+ mean minus the impact estimate.

We used two-tailed tests with $p < 0.10$ as the threshold of statistical significance. Although we did not apply any formal multiple comparison corrections (many of which are known to be overly conservative), our approach to interpreting impact estimates aimed to avoid "false positives" (Peterson et al. 2018). Specifically, we combined evidence from *p*-values with evidence from subgroup analyses, related outcomes, sensitivity tests, and the implementation analysis to interpret observed results. See Appendix 6.E for additional details on the regression methods.

A. Sensitivity tests

We conducted sensitivity tests to assess the robustness of the findings on Medicare expenditures without CMS' enhanced payments to:

- Model specification (for example, using a generalized linear model with log link for analysis of expenditures)
- Definition of the beneficiary sample included in the analysis (for example, using a sample of beneficiaries attributed during CPC+ and controlling for their baseline characteristics and

[64] For each beneficiary in each year, we calculated fractional enrollment weights that capture the share of months observed during that year. For this analysis, a beneficiary is observed during each month that he or she is alive and enrolled in Medicare FFS (enrolled in both Part A and Part B, and not in a Medicare health maintenance organization [HMO]) and has Medicare as the primary payer.

outcomes instead of using a baseline sample, or restricting the analysis to beneficiaries attributed in the first quarter of the baseline and intervention period)

- Definition of the baseline period (for example, using two baseline years instead of one)
- Definition of the outcome variables (for example, defining the readmission outcome at the beneficiary-level instead of at the discharge level and trimming expenditures at the 98th percentile)[65]

We describe each of these sensitivity tests, along with its motivation, in Appendix 6.E, Table 6.E.8.

We examined the consistency of results from the sensitivity tests and results from our main analysis and incorporated that information into our discussion and interpretation of findings.

B. Subgroup analyses

The impacts of CPC+ could differ for different types of beneficiaries and practices, based on their baseline characteristics. Therefore, for our primary outcome of Medicare expenditures without enhanced payments, we estimated the effects of the initiative on *subsets of beneficiaries* for whom theory suggests that CPC+ is likely to have especially large or differential effects, such as patients who are chronically ill and other patients with complex needs (Brown et al. 2012; Rich et al. 2012). Specifically, we examined variation in impacts for five subgroups based on baseline beneficiary characteristics, including beneficiaries who (1) were in the highest quartile of the distribution of HCC scores in the analytic sample,[66] (2) were in the highest decile of the distribution of HCC scores or had dementia, (3) had at least 2 of 12 most commonly occurring chronic conditions and a hospitalization in the prior year,[67] (4) had behavioral health conditions (schizophrenia or major depressive disorder, bipolar and paranoid disorders, drug/alcohol psychosis, or drug/alcohol dependence), or (5) were dually eligible for Medicaid.

[65] If CPC+ practices are more effective in keeping beneficiaries out of the hospital, the relative severity of index stays could rise for the CPC+ group compared with the comparison group over time and might include stays that are more likely to result in a readmission. This change in the relative severity of index stays could lead to higher readmission rates in the CPC+ group.

[66] CMS' approach to identifying high-risk beneficiaries differs from the approach we used in the impact analysis. Specifically, CMS includes the entire Medicare FFS population in each CPC+ region and uses the region-specific distribution of HCC scores to identify the 75th and 90th percentiles of the distribution. In contrast, we identified the high-risk HCC score cutoffs by looking at the distribution of 2016 HCC scores among attributed Medicare FFS beneficiaries in our baseline sample for the impact analysis. We calculated the 2016 HCC score using CMS' HCC score software and algorithm, based on information from Medicare FFS claims and enrollment data. We deviated from the approach CMS uses to calculate HCC score in a few ways. For instance, to avoid endogeneity concerns (that CPC+ could have altered these variables), in order to calculate the HCC score for a particular year, we used information on dual status, long-term institutionalization, and end-stage renal disease status from the prior year. The details of the methodology for calculating HCC scores are in Appendix 6.D, Section 6.D.3.

[67] The 12 frequently occurring chronic conditions we used in this definition are congestive heart failure, chronic obstructive pulmonary disease, acute myocardial infarction, ischemic heart disease, diabetes, metastatic cancer and acute leukemia, stroke, depression, dementia, atrial fibrillation, rheumatoid arthritis or osteoarthritis, and chronic kidney disease. These conditions are defined using HCCs.

We also examined effects for different *types of practices* for which CPC+ might have differential effects, defined using baseline characteristics, including practices that (1) participated in prior primary care transformation initiatives (CPC Classic or Multi-payer Advanced Primary Care Practice [MAPCP] demonstration or were recognized as a medical home); (2) were owned by either a hospital or a health system at baseline;[68] (3) were small (one or two primary care practitioners), medium (three to five practitioners), or large (six or more practitioners); (4) were multispecialty; or (5) were located in rural or suburban versus urban counties. To account for correlation in practice characteristics, we estimated a single regression that included all practice subgroup interactions, instead of estimating a separate regression for each subgroup based on a particular practice characteristic, such as practice size.

The following steps describe the process we used to check for differences in impact estimates by subgroup:

1. To test for significant differences across all subgroups defined by practice characteristics, we conducted a joint test of significance across all subgroups to determine whether there was any evidence of variation in impacts across practice subgroups in general. This approach helped minimize the number of tests checking for statistically significant differences across subgroups and reduced the likelihood of erroneously concluding that a chance difference across subgroups was meaningful. If we were unable to reject the null hypothesis in this test of no difference across the range of subgroups defined by all practice characteristics, we considered any evidence of differences across subgroups defined by a *single* characteristic to be weak.

2. For subgroups defined by any particular practice characteristic, we tested whether the impact estimates for the subgroups defined by the same characteristic were significantly different from one another:[69]

   a. If this test did not show a statistically significant difference, we concluded that there was no meaningful difference in impact estimates for subgroups defined by that particular practice characteristic.

   b. Only if this test showed a statistically significant difference ($p < 0.10$) did we test for whether the impact estimate *within* the subgroup was significantly different from zero.

[68] We constructed the variable for hospital or health system ownership at baseline using SK&A data. We checked this variable against what all responding practices reported in the 2017 practice survey. More than 86 percent of practices that were not hospital or system-owned according to the SK&A data reported themselves to be independent, physician-owned, and less than 7 percent of those classified as owned by a system or hospital in SK&A data reported themselves as independent, physician-owned in the survey.

[69] We conducted the test for statistically significant difference across subgroups defined by a single characteristic, even if the null hypothesis in the joint significance test was not rejected—that is, even if the evidence for variation in impact estimates across subgroups was weak from the joint test of significance across all subgroups. If the joint test across all subgroups is not statistically significant, we would more cautiously interpret any statistically significant difference between subgroups defined by a single characteristic.

For example, for the subgroup defined by prior experience with primary care transformation, we first tested whether the impact estimates for practices that participated in prior transformation activities and those that did not were significantly different from one another. If the *p*-value from this test did not lead us to reject the hypothesis that the impacts were similar, we concluded that impacts on Medicare expenditures (excluding enhanced payments) did not vary meaningfully across subgroups defined by prior experience with primary care transformation. On the other hand, if this test showed a statistically significant difference ($p < 0.10$), we then tested whether the impact estimate within each subgroup—practices that participated in prior transformation activities and those that did not—was significantly different from zero.

See Appendix 6.E for details of the models used for subgroup analyses.

C. Power to detect effects

The impact analysis is well-powered to detect even small impacts on the primary outcome—Medicare expenditures without CMS' enhanced payments. Based on the standard errors from the analyses of the practices that began CPC+ in 2017, the power to detect a non-zero effect if the true impact is equal to the CMFs[70] ($15 PBPM in Track 1 and $28 PBPM in Track 2) is more than 99 percent for each track. Also, the smallest true effects that the study can detect with at least 80 percent power are $8 and $9 (approximately 1 percent) in Track 1 and Track 2, respectively. Power remains high when we analyze the SSP and non-SSP subgroups separately. (The power to detect non-zero impacts is at least 94 percent in Track 1 and 99 percent in Track 2 for each of the two subgroups, assuming true impacts equal to the size of the CMF.) Power for any other subgroup analysis that includes roughly half of the practices is similar to that of the SSP or non-SSP subgroups. To have 80 percent power for our strictest test of cost-neutrality (that is, to reject the null hypothesis that savings are less than the average CMF), there would need to be a true impact of at least $22 in Track 1 and $35 in Track 2. That is, if the true impact is roughly $7 greater than the CMF (of $15 in Track 1 and $28 in Track 2), we should have good power to detect savings greater than those fees.

6.2.5. Bayesian analysis

For the primary outcome of Medicare expenditures without CMS' enhanced payments, we supplemented the main impact analysis with Bayesian analysis. As with the main analysis, we used a difference-in-differences regression model to estimate the impacts during the first two program years using data on practices that began CPC+ in 2017. We estimated the overall impact estimates within each track as a weighted average of subgroup-specific impacts, with weights equal to the relative sizes of the subgroups in the track.

The Bayesian paradigm offers two primary advantages over the main analysis described previously. First, it enables researchers to answer the fundamental question: *What is the*

[70] Our calculations are conservative in that they assess the power to detect an effect of the size of the CMF; we would have even better power to detect an effect of the size of all of CMS' enhanced payments combined (including the CPC+ CMFs, the comprehensiveness supplement [for Track 2 practices only], PBIPs, and the payments made to practices' ACOs for SSP shared savings).

probability that CPC+ is effective? through intuitive statements such as, *There is an X percent chance that CPC+ reduced Medicare expenditures in Track 2*. Second, when estimating CPC+ impacts in subgroups of practices, it "borrows strength"—meaning it incorporates information from other subgroups. This method increases statistical power and provides a built-in correction for multiple comparisons; that is, it addresses the concern that, as we conduct more statistical tests, we are likely to observe some results that are statistically significant purely by chance, even if the initiative had no impacts. Because any individual subgroup estimate is determined partly by the whole set of subgroup estimates, anomalous results are effectively shrunk toward a value that is more consistent with other subgroup findings. In this report, we present the results of the Bayesian analysis using the probabilities of achieving enough savings to offset the payments that CMS made to CPC+ practices for participating in CPC+ (CMFs and the comprehensiveness supplement [Track 2 practices only]). The probabilities of saving enough to offset these payments for participation as well as payments made to reward practices' performance on cost, utilization, or quality measures (PBIPs CMS paid for CPC+ and shared savings payments for the ACOs of CPC+ practices that participate in SSP), would be even lower. See Appendix 6.F for model details, including specification of the Bayesian prior distributions.

Sensitivity tests of the Bayesian model tested four sets of assumptions about CPC+ effectiveness. In the main analysis, based on evidence from CPC Classic and related studies, we assumed that impacts were unlikely (31.7 percent chance) to exceed 5 percent of the baseline comparison group mean in absolute value. We tested three other assumptions, ranging from more optimistic to more pessimistic. In the optimistic case, we assumed that impacts were unlikely (31.7 percent chance) to exceed 10 percent of the baseline comparison group mean in absolute value; in the pessimistic case, we assumed that impacts were unlikely (31.7 percent chance) to exceed 1 percent of the baseline comparison group mean in absolute value. In a final sensitivity analysis, we also considered a "flat" prior, which places equal weight on all possible values of the overall CPC+ impact. In a Bayesian model, the prior distribution bears more weight when little data is available, and vice versa. Because the CPC+ evaluation is data-rich, we would expect these variations in the prior distribution to have a negligible effect on the impact estimates.

6.3. Results over the first two program years for 2017 starters

For both Track 1 and Track 2 practices that started in 2017, CPC+ had a few, small effects on Medicare FFS beneficiaries' outcomes during the first two program years. The findings were generally similar for SSP and non-SSP practices, and for both years. Specifically, comparing the change in outcomes between CPC+ and comparison practices from baseline to the end of PY 2:

- In both tracks, total ED visits and outpatient ED visits decreased by slightly more than 1 percent.
- The number of ambulatory primary care visits billed to Medicare decreased by about 1 percent in both tracks. The net decrease in these visits was larger in PY 1 than in PY 2 (1.3 versus 0.3 percent in Track 1 [$p < 0.01$], and 1.5 versus 0.7 percent in Track 2 [$p = 0.02$]) and the PY 1 and PY 2 estimates were statistically different from each other.
- For beneficiaries of Track 1 practices only, there was a net increase of 0.5 percent in ambulatory care visits to specialists. *This small relative increase was larger in PY 2 than in*

PY 1 (0.7 versus 0.3 percent; p = 0.06) and the PY 1 and PY 2 estimates were significantly different from each other.

- We did not find any appreciable differences in the number of acute hospitalizations in either track.
- There was no discernible difference in Medicare expenditures *without CMS' enhanced payments* in Track 1 or Track 2.[71] This finding was robust to various sensitivity tests and did not meaningfully vary by patient- or practice-level subgroup.
  - Consistent with this finding, Bayesian estimates show that there was a very small (less than 0.1 percent) probability that any difference in expenditures without enhanced payments was enough to offset the average CMFs received by practices ($13 PBPM in Track 1 and $25 PBPM in Track 2).[72] The probability would be even smaller if the other enhanced payments were considered (the payments for rewarding performance [PBIPs and payments made to practices' SSP ACOs for shared savings], and the comprehensiveness supplement in Track 2).
- There were 2 and 3 percent increases in Medicare expenditures (including all of CMS' enhanced payments) for Track 1 and Track 2 practices, respectively, which were slightly higher than the average amount of CMFs paid to Track 1 and Track 2 practices.[73]
- Home health expenditures decreased by 2 percent and hospice expenditures increased by 6 percent in both tracks.
- Expenditures on ambulatory specialist visits increased by 0.6 percent.
- There were small (about one percentage point or less) improvements in the planned care and population health measures for recommended services among beneficiaries with diabetes and for breast cancer screening in both tracks.
- Consistent with the expectation that CPC+ practices would better engage patients and caregivers in planning and making decisions about health care use, including end-of-life care,

[71] As described in Section 6.1, CMS makes enhanced payments on top of payments for services. These payments include CMFs, the comprehensiveness supplement (Track 2 practices only), PBIPs, and the payments made to practices' ACOs for SSP shared savings. Because base CPCPs are prospective payments made for primary care services, we add them to the ambulatory primary care expenditures and to the estimate for noninstitutional expenditures (which include primary care expenditures), thereby also adding them to the expenditures without CMS' enhanced payments.

[72] CMS paid practices in Track 1 and Track 2 average care management fees of $15 and $28, respectively, per month per attributed CPC+ beneficiary in Medicare FFS. These fees paid were higher than the average fees per month received of $13 and $25 PBPM for Track 1 and Track 2 practices respectively, in our analysis sample, because (1) our ITT sample follows beneficiaries even after they are no longer attributed to a CPC+ practice and therefore the practice is no longer receiving CMFs for the Medicare FFS beneficiary, and (2) the list of practitioners and the attribution approach we use for the evaluation is slightly different from those used by CMS for payment. This slight discrepancy between average CMS payments and average payments in our ITT sample applies to PBIPs and, to Track 2 CPCPs, as well. Therefore, all our calculated PBPM payment amounts (for CMFs and PBIPs in both tracks, and CPCPs in Track 2) for the analysis sample are lower than the CMS-reported numbers for the intervention sample.

[73] We calculated percentage impacts relative to what the CPC+ mean would have been in a program year in the absence of the initiative—that is, the unadjusted CPC+ mean minus the impact estimate for that year.

the percentage of beneficiaries receiving hospice services increased by 0.1 percentage points in both tracks. The increase in the percentage of beneficiaries receiving hospice services is small but nontrivial, because only around 3 percent of attributed sample members received hospice services before CPC+ began.

- There were no discernible effects of CPC+ on either 30-day unplanned readmissions or mortality in either track.

Differential participation in other initiatives between CPC+ and comparison practices is unlikely to have influenced these estimates, because we found that the change in the participation rate in other initiatives was similar for CPC+ practices and comparison practices. SSP is the only initiative for which participation changes between the two research groups were large. Although the participation in SSP declined for CPC+ practices from baseline to the end of PY2,[74] it increased for comparison practices—leading to relative declines of 6.2 and 10.1 percentage points in the percentage of beneficiaries in SSP in the CPC+ group in Track 1 and Track 2, respectively. Because SSP is a nationwide model, the comparison practices' relatively higher participation likely represents the correct counterfactual—that is, the scenario that would occur if CPC+ did not exist (see Appendix 6.G of the separate volume with appendices [Ghosh et al. 2020]).

The remainder of this section presents these findings in detail—first for Track 1, and then for Track 2. Within each track, we begin by presenting findings for Medicare expenditures, including results from sensitivity tests and subgroup analyses, and then describe findings for Medicare service use and the limited set of claims-based quality-of-care measures the evaluation could track. Results for the SSP and non-SSP practices were generally similar, as were results for each year, unless noted otherwise.

6.3.1. Results for Track 1 practices

A. Expenditures for Medicare FFS beneficiaries

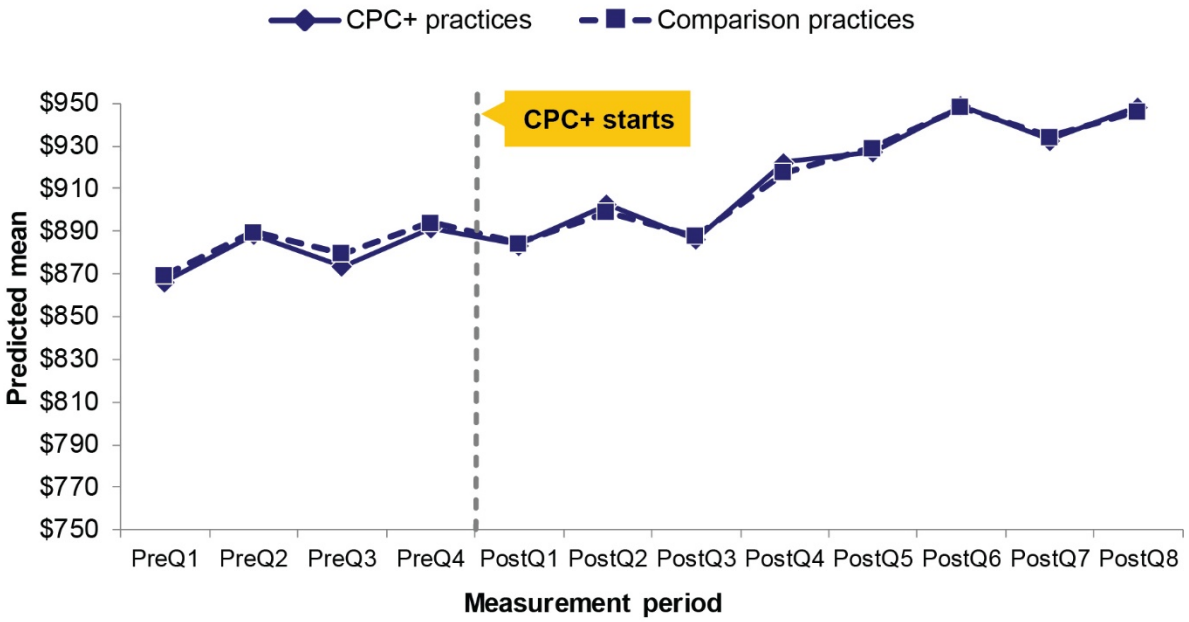
A.1. Medicare expenditures without CMS' enhanced payments

During the first two program years, for Track 1 2017 Starters, CPC+ had no discernible effect on Medicare expenditures for FFS beneficiaries when excluding CMS' enhanced payments. Relative to expenditures among comparison practices, expenditures among the CPC+ practices in Track 1 increased by $4 PBPM more (or by 0.4 percent more than what the CPC+ mean would have been in the absence of the initiative) and were not statistically significant (p = 0.25; Table 6.5). Findings were similar in PY 1 and PY 2, and when we assessed SSP and non-SSP practices separately. In line with these results, Track 1 and comparison practices had similar quarterly trends in Medicare expenditures without CMS' enhanced payments before and after CPC+ began (Figure 6.5). Bayesian estimates show that there was a probability of less than

[74] The baseline participation in SSP is based on participation as of January 1, 2017, and participation at the end of PY1 and PY 2 is based on participation as of January 1, 2018, and January 1, 2019, respectively. Although there was an increase in SSP participation from baseline to the end of PY 1 for CPC+ practices (consistent with the finding of increased participation of CPC+ practices in SSP in Chapter 3), there was a larger decline in SSP participation from PY 1 to the end of PY 2, leading to a net decline in SSP participation between baseline and the end of PY2.

0.1 percent that reductions in Medicare expenditures without enhanced payments could offset the average CMFs of $13 PBPM.

Figure 6.5. Quarterly trends in average Medicare Part A and Part B expenditures PBPM, excluding CMS' enhanced payments, for Track 1 2017 Starters



Source: Analyses of Medicare claims data from January 2013 through December 2018.

Notes: For beneficiaries attributed to CPC+ practices, the figure shows actual, unadjusted average expenditures. For beneficiaries attributed to comparison practices, the figure shows actual, unadjusted average expenditures in the baseline quarters and adjusted estimates of average expenditures in the intervention quarters. We obtain this adjusted mean by subtracting the regression-adjusted difference between the CPC+ and comparison means in each quarter (taken from the quarterly difference-in-differences model) from the CPC+ mean in that same quarter. "PreQ1" to "PreQ4" represent the four baseline quarters. "PostQ1" to "PostQ8" represent the eight program year quarters.

PBPM = per beneficiary per month.

A.2. Medicare expenditures by service category

There were few changes in expenditures on individual services during the first two program years.

Expenditures on hospice services increased more for Track 1 than for comparison practices. Hospice expenditures increased for both Track 1 and comparison practices but increased by $1 PBPM ($p < 0.01$; Table 6.5) more among Track 1 practices, which translates to a 6 percent increase. The relative increases in hospice expenditures were $2 PBPM (8 percent, $p < 0.01$) among practices in SSP, and $1 PBPM or 3 percent among those not in SSP (not statistically significant at the 10 percent level of significance [$p = 0.18$]).

The relative increase in hospice expenditures was driven by an increase in both the number of beneficiaries receiving hospice services and the average number of days spent in hospice.

- CPC+ was associated with a slightly greater likelihood of using hospice services, as we discuss in Subsection C3. below.
- The average number of days in hospice (among hospice users) increased by 3.4 days more for CPC+ versus comparison beneficiaries over the two years of CPC+.

Track 1 was also associated with a small increase in Medicare expenditures for ambulatory specialist visits and small relative decrease in home health expenditures, relative to comparison practices. Although we did not have a clear hypothesis for the direction of change in specialist or home health expenditures, there was a very small relative increase in expenditures on ambulatory specialist visits of around one-half of a percent and a small relative decrease in home health expenditures of less than $1 PBPM (2 percent, $p < 0.01$).

There were no discernible effects on Medicare expenditures for any of the other service categories. The lack of effects on Medicare expenditures overall (excluding CMS' enhanced payments) in Track 1 is likely driven by the absence of any meaningful effects on the biggest expenditure categories—inpatient expenditures (31 percent of Medicare expenditures among Track 1 practices at baseline), expenditures on Part B noninstitutional services (29 percent), and outpatient expenditures (19 percent) (see Figure 6.4). For example, the estimate for inpatient expenditures implied a small increase of $2 PBPM (less than 1 percent, $p = 0.47$) more for Track 1 practices relative to the comparison practices. The only statistically significant ($p < 0.10$) estimates that we observed were in the smaller expenditure categories. These effects were small in magnitude and exerted opposing influence on Medicare expenditures: expenditures on hospice and ambulatory specialist visits increased while expenditures on home health declined for Track 1 practices relative to the comparison practices.

A.3. Medicare expenditures including CMS' enhanced payments (CMFs, PBIPs, and SSP payments)

After adding all of CMS' enhanced payments, Medicare expenditures increased by $18 PBPM ($p < 0.01$) more for Track 1 practices than for the comparison practices over the first two program years. CMS' enhanced payments included payments for participation in CPC+ and for performance (Table 6.4). We arrived at this estimate by completing the following steps to account for the various payments:

- We first included payments for practices' participation in CPC+—that is, CMFs for practices in Track 1. We found that Medicare expenditures increased by $17 PBPM ($p < 0.01$) more for Track 1 practices than for the comparison practices over the first two program years, which translates to an increase of 1.8 percent. Both SSP and non-SSP practices in Track 1 experienced fairly similar increases of 2 percent—$14 PBPM among SSP and $20 PBPM among non-SSP ($p < 0.01$ in each case)–in Medicare expenditures including payments for participation, relative to the comparison group.

- We next included in our analysis payments for participation *and* for performance. Payments for performance include: (1) PBIPs, which only CPC+ non-SSP practices receive during the intervention years; and (2) SSP ACO shared savings payments, which are received by the ACOs to which CPC+ and comparison SSP practices belong in both baseline and intervention years (because SSP existed in 2016, as well).[75]
  - *Non-SSP practices.* After adding PBIPs (in addition to CMFs) received by non-SSP CPC+ practices in the two intervention years, the estimate for the non-SSP group increased from $20 PBPM (2.2 percent) to $21 PBPM (2.4 percent).
  - *SSP practices.* After we added the share of ACO SSP payments that we assigned to beneficiaries in CPC+ and comparison SSP practices in addition to CMFs, the estimate for the SSP group increased slightly from $14 PBPM (1.5 percent) to $15 PBPM (1.5 percent). The reason for this small relative increase is that, although the share of the average PBPM shared savings payments we assigned to CPC+ SSP beneficiaries increased slightly from $5 PBPM in the baseline period to an average of $6 PBPM over the two-year intervention period, it stayed almost the same for comparison SSP beneficiaries ($4 PBPM) over time.

[75] The impact analysis defines SSP status as of January 1, 2017. However, CPC+ practices can join and leave SSP over time. As a result, there will be some PBIP payments to practices that were in SSP at baseline, and some SSP payments to practices that were not in SSP at baseline. By the end of PY 2, the changes in estimates for the SSP group after adding PBIP payments and in estimates for the non-SSP group after adding ACO payments were small (less than 10 cents). We will show estimates with these payments included for the SSP and non-SSP groups in the future if they increase over time.

Table 6.5. Regression-adjusted means and estimated impact of CPC+ on selected Medicare expenditure outcomes for attributed Medicare FFS beneficiaries over the first two program years: Track 1 2017 Starters

	Track 1—Overall						Track 1—SSP						Track 1—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value
Medicare expenditures (per beneficiary per month)																		
Medicare Part A and B expenditures without enhanced payments for CPC+ and SSP																		
Baseline	$880	$883	NA	NA	NA	NA	$905	$904	NA	NA	NA	NA	$854	$861	NA	NA	NA	NA
PY 1	$899	$898	$4.4 ($3.4)	0.5%	(-$1.1, $10.0)	0.187	$924	$921	$1.4 ($4.6)	0.2%	(-$6.1, $8.9)	0.755	$873	$872	$7.6 ($5.0)	0.9%	(-$0.6, $15.9)	0.129
PY 2	$940	$940	$2.9 ($3.5)	0.3%	(-$2.9, $8.8)	0.406	$964	$963	$0.1 ($4.9)	0.0%	(-$7.9, $8.1)	0.989	$913	$914	$6.0 ($5.2)	0.7%	(-$2.6, $14.5)	0.252
PY 1 and 2	$921	$920	$3.6 ($3.1)	0.4%	(-$1.5, $8.7)	0.245	$945	$944	$0.6 ($4.2)	0.1%	(-$6.3, $7.6)	0.882	$894	$894	$6.7 ($4.6)	0.8%	(-$0.9, $14.3)	0.145
Medicare Part A and B expenditures including care management fees																		
Baseline	$880	$883	NA	NA	NA	NA	$905	$904	NA	NA	NA	NA	$854	$861	NA	NA	NA	NA
PY 1	$913	$898	$18.3*** ($3.4)	2.0%	($12.7, $23.8)	0.000	$938	$921	$15.4*** ($4.6)	1.7%	($7.9, $22.9)	0.001	$887	$872	$21.3*** ($5.0)	2.5%	($13.0, $29.5)	0.000
PY 2	$952	$940	$15.5*** ($3.5)	1.7%	($9.7, $21.4)	0.000	$977	$963	$12.7*** ($4.9)	1.3%	($4.7, $20.7)	0.009	$926	$914	$18.5*** ($5.2)	2.0%	($9.9, $27.1)	0.000
PY 1 and 2	$934	$920	$16.8*** ($3.1)	1.8%	($11.7, $21.9)	0.000	$958	$944	$13.9*** ($4.2)	1.5%	($6.9, $20.8)	0.001	$907	$894	$19.8*** ($4.6)	2.2%	($12.2, $27.4)	0.000
Medicare Part A and B expenditures including care management fees, and Performance-based Incentive Payments																		
Baseline	$881	$883	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	$854	$861	NA	NA	NA	NA
PY 1	$914	$898	$18.9*** ($3.4)	2.1%	($13.3, $24.4)	0.000	NA	NA	NA	NA	NA	NA	$888	$872	$22.6*** ($5.0)	2.6%	($14.4, $30.9)	0.000
PY 2	$953	$940	$16.2*** ($3.5)	1.7%	($10.4, $22.1)	0.000	NA	NA	NA	NA	NA	NA	$927	$914	$19.9*** ($5.2)	2.2%	($11.3, $28.4)	0.000
PY 1 and 2	$934	$920	$17.4*** ($3.1)	1.9%	($12.3, $22.6)	0.000	NA	NA	NA	NA	NA	NA	$909	$894	$21.1*** ($4.6)	2.4%	($13.5, $28.7)	0.000
Medicare Part A and B expenditures including care management fees, Performance-based Incentive Payments, and shared savings payments to SSP ACOs																		
Baseline	$883	$886	NA	NA	NA	NA	$910	$908	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PY 1	$916	$900	$19.1*** ($3.4)	2.1%	($13.5, $24.6)	0.000	$943	$925	$15.6*** ($4.6)	1.7%	($8.1, $23.1)	0.001	NA	NA	NA	NA	NA	NA
PY 2	$957	$943	$16.7*** ($3.5)	1.8%	($10.9, $22.5)	0.000	$984	$968	$13.7*** ($4.8)	1.4%	($5.8, $21.7)	0.004	NA	NA	NA	NA	NA	NA
PY 1 and 2	$938	$923	$17.8*** ($3.1)	1.9%	($12.7, $22.9)	0.000	$964	$948	$14.5*** ($4.2)	1.5%	($7.6, $21.4)	0.001	NA	NA	NA	NA	NA	NA

Table 6.5. ***(continued)***

	Track 1—Overall						Track 1—SSP						Track 1—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	p-Value
Medicare expenditures by service category (per beneficiary per month)																		
Inpatient expenditures																		
Baseline	$311	$318	NA	NA	NA	NA	$318	$322	NA	NA	NA	NA	$303	$314	NA	NA	NA	NA
PY 1	$315	$320	$2.6 ($2.3)	0.8%	(-$1.2, $6.3)	0.262	$323	$326	$0.5 ($3.0)	0.1%	(-$4.5, $5.4)	0.878	$308	$314	$4.8 ($3.5)	1.6%	(-$0.9, $10.6)	0.167
PY 2	$319	$325	$0.5 ($2.3)	0.2%	(-$3.2, $4.2)	0.829	$328	$332	-$0.2 ($3.1)	0.0%	(-$5.2, $4.9)	0.958	$309	$318	$1.2 ($3.3)	0.4%	(-$4.2, $6.7)	0.712
PY 1 and 2	$317	$323	$1.5 ($2.0)	0.5%	(-$1.9, $4.8)	0.474	$325	$329	$0.1 ($2.7)	0.0%	(-$4.3, $4.5)	0.971	$308	$316	$2.9 ($3.1)	1.0%	(-$2.1, $8.0)	0.340
Expenditures on acute inpatient care[d]																		
Baseline	$275	$282	NA	NA	NA	NA	$282	$285	NA	NA	NA	NA	$268	$278	NA	NA	NA	NA
PY 1	$279	$285	$1.0 ($2.0)	0.4%	(-$2.3, $4.3)	0.623	$285	$290	-$1.6 ($2.6)	-0.5%	(-$5.9, $2.7)	0.550	$273	$279	$3.7 ($3.1)	1.4%	(-$1.4, $8.9)	0.227
PY 2	$282	$290	-$1.7 ($2.0)	-0.6%	(-$4.9, $1.6)	0.404	$290	$296	-$2.3 ($2.7)	-0.8%	(-$6.7, $2.2)	0.403	$274	$284	-$1.0 ($2.9)	-0.4%	(-$5.8, $3.8)	0.739
PY 1 and 2	$281	$288	-$0.4 ($1.8)	-0.1%	(-$3.4, $2.5)	0.815	$288	$293	-$2.0 ($2.3)	-0.7%	(-$5.8, $1.9)	0.405	$273	$282	$1.3 ($2.7)	0.5%	(-$3.2, $5.7)	0.646
Outpatient expenditures																		
Baseline	$165	$169	NA	NA	NA	NA	$164	$168	NA	NA	NA	NA	$167	$171	NA	NA	NA	NA
PY 1	$177	$180	$0.7 ($0.8)	0.4%	(-$0.7, $2.1)	0.416	$176	$179	$0.8 ($1.1)	0.5%	(-$1.0, $2.7)	0.464	$177	$181	$0.5 ($1.3)	0.3%	(-$1.5, $2.6)	0.666
PY 2	$197	$200	$1.5 ($1.1)	0.8%	(-$0.3, $3.3)	0.177	$195	$198	$0.9 ($1.4)	0.5%	(-$1.4, $3.2)	0.522	$199	$202	$2.1 ($1.7)	1.1%	(-$0.7, $5.0)	0.220
PY 1 and 2	$187	$190	$1.1 ($0.9)	0.6%	(-$0.3, $2.5)	0.208	$186	$189	$0.8 ($1.1)	0.5%	(-$1.0, $2.7)	0.449	$189	$192	$1.4 ($1.4)	0.7%	(-$0.9, $3.6)	0.312
Expenditures on physician and nonphysician Part B noninstitutional services in any setting																		
Baseline	$254	$242	NA	NA	NA	NA	$268	$254	NA	NA	NA	NA	$238	$229	NA	NA	NA	NA
PY 1	$258	$247	-$0.1 ($0.8)	0.0%	(-$1.4, $1.2)	0.931	$272	$259	-$1.3 ($1.1)	-0.5%	(-$3.1, $0.5)	0.239	$244	$234	$1.2 ($1.1)	0.5%	(-$0.7, $3.1)	0.300
PY 2	$272	$259	$1.1 ($1.0)	0.4%	(-$0.6, $2.7)	0.287	$286	$272	$0.1 ($1.3)	0.0%	(-$2.1, $2.2)	0.966	$257	$245	$2.2 ($1.5)	0.8%	(-$0.4, $4.7)	0.163
PY 1 and 2	$265	$253	$0.5 ($0.8)	0.2%	(-$0.8, $1.9)	0.526	$279	$266	-$0.6 ($1.1)	-0.2%	(-$2.4, $1.2)	0.592	$251	$240	$1.7 ($1.2)	0.7%	(-$0.3, $3.7)	0.170

Table 6.5. ***(continued)***

	Track 1—Overall						Track 1—SSP						Track 1—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	p-Value
Expenditures on ambulatory visits with primary care practitioners																		
Baseline	$23	$24	NA	NA	NA	NA	$23	$24	NA	NA	NA	NA	$23	$23	NA	NA	NA	NA
PY 1	$24	$25	-$0.2** ($0.1)	-0.9%	(-$0.4, -$0.1)	0.023	$24	$25	-$0.2 ($0.1)	-0.9%	(-$0.4, $0.0)	0.105	$24	$24	-$0.2 ($0.1)	-1.0%	(-$0.5, $0.0)	0.115
PY 2	$25	$25	-$0.1 ($0.1)	-0.2%	(-$0.3, $0.2)	0.664	$25	$26	-$0.2 ($0.2)	-0.8%	(-$0.5, $0.1)	0.233	$25	$25	$0.1 ($0.2)	0.4%	(-$0.2, $0.4)	0.632
PY 1 and 2	$25	$25	-$0.1 ($0.1)	-0.6%	(-$0.3, $0.0)	0.209	$25	$26	-$0.2 ($0.1)	-0.8%	(-$0.4, $0.0)	0.143	$25	$24	-$0.1 ($0.2)	-0.2%	(-$0.3, $0.2)	0.723
Expenditures on ambulatory visits with specialists																		
Baseline	$24	$23	NA	NA	NA	NA	$26	$24	NA	NA	NA	NA	$21	$21	NA	NA	NA	NA
PY 1	$24	$23	$0.1** ($0.1)	0.5%	($0.0, $0.2)	0.049	$26	$24	$0.0 ($0.1)	0.0%	(-$0.1, $0.1)	0.965	$21	$21	$0.2*** ($0.1)	1.1%	($0.1, $0.4)	0.004
PY 2	$24	$23	$0.2** ($0.1)	0.7%	($0.1, $0.3)	0.016	$26	$24	$0.1 ($0.1)	0.5%	($0.0, $0.3)	0.176	$21	$21	$0.2** ($0.1)	1.1%	($0.1, $0.4)	0.030
PY 1 and 2	$24	$23	$0.1** ($0.1)	0.6%	($0.0, $0.2)	0.016	$26	$24	$0.1 ($0.1)	0.3%	(-$0.1, $0.2)	0.409	$21	$21	$0.2*** ($0.1)	1.1%	($0.1, $0.4)	0.008
Skilled nursing home expenditures																		
Baseline	$67	$68	NA	NA	NA	NA	$71	$72	NA	NA	NA	NA	$63	$64	NA	NA	NA	NA
PY 1	$65	$66	$0.4 ($0.7)	0.6%	(-$0.7, $1.6)	0.556	$69	$70	$0.2 ($1.0)	0.3%	(-$1.3, $1.8)	0.814	$61	$61	$0.6 ($1.0)	0.9%	(-$1.1, $2.2)	0.583
PY 2	$64	$65	-$0.1 ($0.7)	-0.1%	(-$1.3, $1.1)	0.928	$68	$69	-$0.4 ($1.0)	-0.6%	(-$2.1, $1.3)	0.702	$60	$61	$0.2 ($1.0)	0.4%	(-$1.5, $1.9)	0.824
PY 1 and 2	$64	$66	$0.2 ($0.6)	0.2%	(-$0.9, $1.2)	0.804	$68	$70	-$0.1 ($0.9)	-0.2%	(-$1.6, $1.3)	0.901	$60	$61	$0.4 ($0.9)	0.6%	(-$1.0, $1.8)	0.657
Home health expenditures																		
Baseline	$39	$41	NA	NA	NA	NA	$40	$44	NA	NA	NA	NA	$39	$38	NA	NA	NA	NA
PY 1	$39	$41	-$0.3 ($0.3)	-0.8%	(-$0.8, $0.2)	0.267	$40	$44	-$0.1 ($0.4)	-0.3%	(-$0.8, $0.5)	0.744	$39	$38	-$0.5 ($0.4)	-1.4%	(-$1.2, $0.2)	0.201
PY 2	$39	$42	-$1.3*** ($0.3)	-3.2%	(-$1.8, -$0.8)	0.000	$39	$44	-$1.7*** ($0.4)	-4.2%	(-$2.4, -$1.0)	0.000	$39	$39	-$0.9* ($0.5)	-2.2%	(-$1.7, -$0.1)	0.070
PY 1 and 2	$39	$41	-$0.8*** ($0.3)	-2.1%	(-$1.3, -$0.4)	0.002	$39	$44	-$1.0*** ($0.4)	-2.4%	(-$1.5, -$0.4)	0.008	$39	$39	-$0.7* ($0.4)	-1.8%	(-$1.4, $0.0)	0.084

Table 6.5. ***(continued)***

	Track 1—Overall						Track 1—SSP						Track 1—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value
Hospice expenditures																		
Baseline	$23	$24	NA	NA	NA	NA	$22	$25	NA	NA	NA	NA	$23	$23	NA	NA	NA	NA
PY 1	$24	$24	$1.2*** ($0.4)	5.1%	($0.5, $1.8)	0.004	$24	$25	$1.6*** ($0.5)	6.9%	($0.7, $2.5)	0.004	$24	$24	$0.7 ($0.6)	3.1%	(-$0.3, $1.7)	0.223
PY 2	$27	$27	$1.6*** ($0.5)	6.2%	($0.8, $2.3)	0.001	$27	$27	$2.2*** ($0.6)	8.9%	($1.1, $3.2)	0.001	$27	$26	$0.9 ($0.7)	3.4%	(-$0.3, $2.0)	0.228
PY 1 and 2	$25	$25	$1.4*** ($0.4)	5.7%	($0.7, $2.0)	0.001	$25	$26	$1.9*** ($0.5)	8.0%	($1.0, $2.8)	0.000	$25	$25	$0.8 ($0.6)	3.2%	(-$0.2, $1.8)	0.180
Durable medical equipment expenditures																		
Baseline	$22	$21	NA	NA	NA	NA	$22	$20	NA	NA	NA	NA	$22	$21	NA	NA	NA	NA
PY 1	$21	$19	$0.0 ($0.3)	0.1%	(-$0.4, $0.4)	0.949	$20	$19	-$0.2 ($0.3)	-1.2%	(-$0.8, $0.3)	0.468	$21	$20	$0.3 ($0.4)	1.4%	(-$0.3, $0.9)	0.443
PY 2	$23	$22	-$0.3 ($0.3)	-1.4%	(-$0.8, $0.2)	0.269	$22	$21	-$0.8** ($0.4)	-3.5%	(-$1.4, -$0.2)	0.029	$23	$22	$0.2 ($0.4)	0.9%	(-$0.5, $0.9)	0.613
PY 1 and 2	$22	$21	-$0.2 ($0.2)	-0.7%	(-$0.6, $0.3)	0.524	$21	$20	-$0.5* ($0.3)	-2.5%	(-$1.1, $0.0)	0.092	$22	$21	$0.3 ($0.4)	1.2%	(-$0.4, $0.9)	0.506
Unweighted sample sizes[e]																		
Number of practices	1,373	5,243					738	2,979					635	2,264				
Number of beneficiaries	1,189,438	3,974,531					613,664	2,318,241					577,930	1,668,572				
Number of beneficiary-years	2,764,820	9,155,686					1,420,172	5,332,803					1,344,648	3,822,883				

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: Expenditures on Part B noninstitutional services include expenditures on (1) billable ambulatory primary care visits, (2) ambulatory specialist visits, and (3) non-ambulatory physician visits as well as services provided by other noninstitutional providers (we only show the first two categories separately in the table).

Although this table indicates which estimates are statistically significant, when we interpret evidence, we combine evidence from the magnitude of the effect, the *p*-values, findings on related outcomes, subgroups, sensitivity tests, and other data sources about model implementation.

[a] We report the actual, unadjusted CPC+ mean for each time period shown in the table. For comparison group practices, we report the actual, unadjusted mean during the baseline period but the adjusted mean during each intervention period. We obtain the adjusted mean by subtracting the regression adjusted difference between the CPC+ and comparison means in each time period from the CPC+ mean in that same time period.

[b] Impact estimates are regression-adjusted for pre-CPC+ beneficiary characteristics and practice fixed effects. Each impact estimate is based on a difference-in-differences analysis and reflects the difference in the regression-adjusted average outcome for Medicare FFS beneficiaries attributed to CPC+ practices in the first two years of CPC+ compared with baseline relative to the same difference over time for Medicare FFS beneficiaries attributed to comparison practices.

[c] We calculated percentage impacts relative to what the CPC+ mean would have been in Program Years 1 and 2 (separately and combined) in the absence of the intervention—that is, the unadjusted CPC+ mean minus the impact estimate.

Table 6.5. ***(continued)***

[d] Acute inpatient care includes short-stay acute hospital admissions and admissions to critical access hospitals. Expenditures on non-acute hospital admissions, such as inpatient rehabilitation and psychiatric hospital admissions, are included in inpatient expenditures but not shown separately.

[e] After accounting for weights that adjust for matching and time observed in Medicare FFS, the effective sample sizes fall but are still substantial. For the comparison group, the effective sample size is 43 to 50 percent of the size of the actual comparison group. The effective sample size for the CPC+ group is about 96 percent of the actual sample size because it is affected only by time observed (and not by the matching weights).

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

NA = not applicable, either because the difference-in-differences impact estimate cannot be calculated at baseline, or because only CPC+ practices that participate in SSP are eligible to receive shared savings payments, and only non-SSP practices are eligible to receive Performance-based Incentive Payments. However, for the impact analysis, we determine SSP ACO participation status based on participation at the beginning of PY 1 (January 1, 2017 for 2017 Starters). Over time, CPC+ practices may join or leave SSP, resulting in a small subset of SSP practices receiving the Performance-based Incentive Payments and a small subset of non-SSP practices receiving the shared savings payments. Therefore, the impact estimates for the SSP practices may change slightly after including the Performance-based Incentive Payments and similarly, the impact estimates for non-SSP practices may change slightly after including the shared savings payments.

ACO = Accountable Care Organization; C = comparison; FFS = fee-for-service; PY = Program Year; SE = standard error; SSP = Medicare Shared Savings Program.

A.4. Results of sensitivity tests for impact estimates on Medicare expenditures without CMS' enhanced payments, overall for Track 1 2017 Starters

Results from sensitivity tests were mostly similar to those from our main model for Track 1 practices. We tested the sensitivity of the impact estimate for our primary outcome—Medicare expenditures without CMS' enhanced payments—to varying the modeling assumptions. The impact estimate for the first two years of CPC+ was generally similar across different modeling approaches. For example, we obtained fairly similar estimates representing a less than one percent change in expenditures when we varied (1) the length of the baseline period, (2) the composition of the analysis sample, and (3) the model specification. Table 6.6 shows the results from these tests together with the motivation behind each of them. For all of the sensitivity tests that we conducted, impact estimates were small (ranging from 0.1 to 0.9 percent) and generally not statistically significant, as in the main analysis (where the impact estimate was 0.4 percent, $p = 0.25$). In the sensitivity tests in which we altered the sample to include only beneficiaries who were attributed during the first quarter of the baseline and intervention periods, the impact estimate—$7 PBPM (0.8 percent, $p = 0.03$)—was statistically significant but still small, as in the main analysis. The similarity in the direction and magnitude of our impact estimates across all of our sensitivity tests suggests that our main findings are robust to changing the length of the baseline period, the composition of the analysis sample, and the modeling approach.

Table 6.6. Estimates of the two-year impact of CPC+ on Medicare expenditures without CMS' enhanced payments for Track 1 2017 Starters, from main analysis and sensitivity tests

Test	Motivation	Impact estimate	Percentage impact	*p*-Value	90% CI lower bound	90% CI upper bound
Main analysis	**Estimate impact of CPC+ using a difference-in-differences analysis with an ITT beneficiary sample and a one-year baseline period, controlling for baseline beneficiary characteristics and practice fixed effects**	**$3.6**	**0.4%**	**0.25**	**-$1.5**	**$8.7**
Altering length of baseline period						
Use two-year baseline period (instead of one year)	Controls for outcome levels over longer pre-CPC+ period	$4.9	0.5%	0.08*	$0.3	$9.5
Altering the composition of the beneficiary sample						
Use sample of beneficiaries attributed during the intervention period (who are also attributed during the baseline period) as the baseline sample	Helps to adjust for changes in sample composition between baseline and follow-up that may differ for the intervention and matched comparison groups	$1.4	0.2%	0.67	-$4.0	$6.8
Examine the impacts for the subset of beneficiaries attributed in the first quarter of the baseline period and the intervention period	Removes any effects that may be due to changes in sample composition over time, for both baseline and intervention years	$7.1	0.8%	0.03**	$1.7	$12.5

Table 6.6. *(continued)*

Test	Motivation	Impact estimate	Percentage impact	*p*-Value	90% CI lower bound	90% CI upper bound
Instead of following an ITT approach to defining the beneficiary sample (once attributed, beneficiaries stay in the sample for all subsequent years), allow beneficiaries to drop out of the sample if they no longer meet attribution requirements	Assesses whether ITT tends to attenuate true effects by retaining beneficiaries in the intervention group who are no longer seen by CPC+ practices	$2.9	0.3%	0.35	-$2.3	$8.1
Altering the modeling assumptions						
Use generalized linear model with log link	Handles skewed expenditure distribution	$4.2	0.5%	0.44	-$4.8	$13.2
Trim costs at 98th percentile	Reduces influence of beneficiaries with high outlier expenditures	$2.1	0.2%	0.38	-$1.8	$6.0
Use log costs	Reduces influence of beneficiaries with high outlier expenditures	-[a]	0.1%	0.70	-0.4%	0.7%

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

[a] We obtained only a percentage impact, not a dollar impact, from the model specification with log of expenditures as the outcome. The dollar magnitude of the impact in this model depends on the starting value—for example, a 0.1 percent impact for someone with expenditures equal to the CPC+ mean during the intervention period would be about $0.90.

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

CI = confidence interval; FFS = fee-for-service; ITT = intent-to-treat.

Similarly, the finding from the Bayesian analysis, of a negligible chance that Track 1 reduced expenditures enough to offset the care management fees, was not sensitive to varying the underlying assumptions. As Table 6.7 shows, the results of the Bayesian analysis using four sets of assumptions confirm our expectations that varying the assumptions would not vary the estimates much. The point estimate of the overall CPC+ impact varies by no more than $1 across models, and the probability of reducing Medicare expenditures varies by no more than 1.2 percentage points. All models concur in deeming negligible the probability that Track 1 reduced Medicare expenditures enough to offset CMFs.

Table 6.7. Bayesian estimates of the two-year impact of CPC+ on Medicare expenditures without CMS' enhanced payments for Track 1 2017 Starters, from main analysis and sensitivity tests

Model	Prior	Impact estimate (90 percent CI)	Probability of any reductions	Probability of reducing expenditures enough to offset CMFs
Bayesian 1 (Main)	Neutral[a]	$5.4 (-$0.3, $11.0)	5.90%	<0.1%
Bayesian 2	Flat[b]	$5.5 (-$0.1, $11.1)	5.50%	<0.1%
Bayesian 3	Narrow[c]	$5.0 (-$0.1, $10.2)	5.60%	<0.1%
Bayesian 4	Wide[d]	$5.7 ($0.1, $11.1)	4.70%	<0.1%

[a] The neutral prior assumes that overall CPC+ impacts greater in absolute value than 5 percent of the baseline mean in the comparison group are unlikely. This prior derives from the literature on similar interventions, evaluated using strong designs, in which impacts larger than 5 percent are rare.

[b] The flat prior assigns equal probability to every value of the impact, implying that huge reductions, huge cost increases, and no effect at all are equally likely impacts.

Table 6.7. ***(continued)***

[c] The narrow prior assumes that overall CPC+ impacts greater in absolute value than 1 percent of the baseline mean are unlikely.
[d] The wide prior assumes that overall CPC+ impacts greater in absolute value than 10 percent of the baseline mean are unlikely.
CI = confidence interval.

A.5. Results for subgroups of practices and beneficiaries for impact estimates on Medicare expenditures without CMS' enhanced payments

A.5.1. Findings from practice subgroup analysis

For Track 1 2017 starters, the estimated effect on Medicare expenditures did not generally vary across most practice subgroups, although we found some weak evidence for unfavorable effects among practices owned by a hospital or health system (Table 6.8). The evidence for significant variation in impact estimates on Medicare expenditures by practice characteristics was weak. From a joint test of significance across all subgroups, we were unable to reject the hypothesis that the estimated impact of CPC+ was the same across all practice subgroups ($p = 0.16$). In other words, we did not find strong evidence of variation in impact estimates across subgroups.

The findings from the Bayesian analysis also suggest that CPC+ did not lead to meaningful differences by practice subgroup. Across all practice subgroups, the impact of CPC+ was fairly stable, ranging from $2 to $10 PBPM increases in the first two years of CPC+. Although the impact estimates vary somewhat, the probability that Track 1 reduced Medicare expenditures by $13 PBPM, the average CMF received by practices, or more, was negligible in all subgroups (Figure 6.6).

Although we do not have strong evidence from the joint significance test that impacts vary across the set of subgroups examined, impact estimates do differ meaningfully between the subgroup defined by whether the practice is independent or owned by a hospital or health system. The impact estimate of $10 PBPM for hospital- or system-owned practices and that of -$4 PBPM for independent practices were significantly different from each other. This finding is shown by the p-value in the last column of Table 6.8 from testing for significant differences between these two subgroups ($p = 0.04$). The impact estimate on hospital- or system-owned practices was unfavorable, suggesting a $10 PBPM or 1 percent increase for CPC+ versus comparison practices (statistically significant at the 5 percent level [$p = 0.02$] as denoted by two asterisks in the table) over the first two program years. In contrast, the impact estimate for independent practices was favorable (-$4 PBPM, $p = 0.40$), although not statistically significant. The estimates for these subgroups were similar in each year. The Bayesian analysis also found a somewhat higher probability of reduction in Medicare expenditures in the independent practices subgroup than in any other practice subgroup, though the probability (38 percent) is not large enough to consider this evidence as a strong indicator of a favorable effect (Figure 6.6). Similarly, the frequentist estimates do not indicate a sizable or statistically significant favorable effect even for the independent practices.

The single statistically significant finding for subgroups may have occurred by chance. At the same time, hospital/system-owned practices may have more difficulty reducing Medicare expenditures than other practices. Practices that are owned by a hospital or health system may have weaker incentives to reduce hospitalizations. Consistent with this explanation, we also found that CPC+ effects on acute hospitalizations (per 1,000 beneficiaries) were significantly more favorable (albeit

small) for independent practices than for practices owned by hospitals or health systems.[76] We will continue to monitor impacts in the subgroup of hospital- or system-owned practices in future reports to see whether the differential findings for this subgroup continue over time.

It will be important to continue examining the other subgroups as well to see whether effects or clear patterns emerge for certain subsets of practices that are able to transform effectively and affect health care utilization and costs more strongly or more quickly than others. Interestingly, the impact estimate for multispecialty practices was large and unfavorable, although not statistically significant, nor significantly different from primary care-only practices. This finding is consistent with the expectation that multispecialty practices would have fewer incentives to lower health care utilization, and therefore, find it harder to change behavior, similar to hospital- or system-owned practices.

Table 6.8. Estimates of two-year impact of CPC+ on Medicare expenditures without CMS' enhanced payments, by baseline practice characteristics among Track 1 2017 Starters

Practice subgroup definition, based on baseline characteristics	Number (percentage) of CPC+ beneficiaries in subgroup at baseline	Impact estimate (standard error)	Percentage impact	*p*-Value for difference in impact estimates between subgroups
Main analysis (all practices)	**-**	**$3.6 ($3.1)**	**0.4%**	**-**
Whether practice participated in prior primary care transformation initiatives (recognized as a medical home or participated in MAPCP or CPC Classic)				
Yes	468,750 (53.6%)	$6.0 ($4.4)	0.7%	
No	405,640 (46.4%)	$0.6 ($4.3)	0.1%	0.54
Large and medium, versus small practice based on number of primary care practitioners				
Large (6+ primary care practitioners)	404,669 (46.3%)	-$1.1 ($4.6)	-0.1%	
Medium (3–5 primary care practitioners)	282,555 (32.3%)	$11.1 ($5.2)	1.2%	
Small (1–2 primary care practitioners)	187,166 (21.4%)	$1.8 ($6.9)	0.2%	0.11
Whether hospital- or system-owned				
Yes	474,839 (54.3%)	$9.6** ($4.2)	1.1%	
No	399,551 (45.7%)	-$3.8 ($4.6)	-0.4%	0.04
Whether the practice is multispecialty versus primary care only				
Yes	170,809 (19.5%)	$11.1 ($7.9)	1.2%	
No	703,581 (80.5%)	$1.6 ($3.3)	0.2%	0.12
Urbanicity of practice's county: rural or suburban location versus urban location				
Rural	89,896 (10.3%)	$5.8 ($10.3)	0.7%	
Suburban	156,867 (17.9%)	$1.9 ($7.0)	0.2%	
Urban	627,627 (71.8%)	$3.5 ($3.7)	0.4%	0.97

[76] The *p*-value for test of significant differences between the impact estimates for hospital-or system-owned practices versus the independent practices was 0.06. The cumulative impact estimate on independent practices was favorable suggesting a relative decline of five hospitalizations per 1,000 beneficiaries (less than 2 percent) for CPC+ versus comparison practices ($p = 0.01$), while the impact estimate for hospital/system-owned practices showed a small net increase of 1 hospitalization per 1,000 beneficiaries, which was not statistically significant ($p = 0.59$).

Table 6.8. ***(continued)***

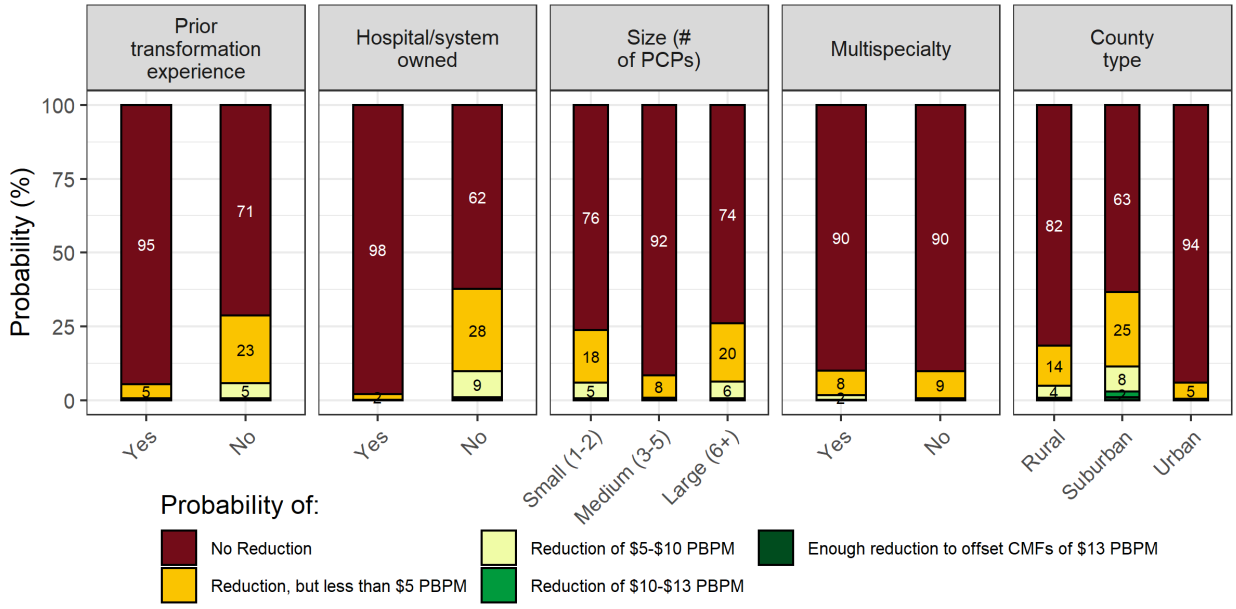
Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Note: The estimates (and standard errors) in the impact estimate column show subgroup-specific impacts over the first two years of CPC+, separately for each practice characteristic listed in the table. The asterisks in that column denote whether a subgroup-specific impact estimate was statistically significant. Additionally, the p-values in the last column represent results from testing for statistically significant differences in impact estimates between the subgroups, based on the same baseline practice characteristic. The p-values are from a t-test for subgroups with two categories and from an F-test for subgroups with more than two categories. If this test did not indicate a statistically significant difference between subgroups defined by the same characteristic, we did not further test whether estimates within each subgroup were statistically significant (denoted by asterisks next to subgroup-specific impact estimates, only when we tested and found significant differences).

*/**/***Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

CPC = Comprehensive Primary Care; MAPCP = Multi-payer Advanced Primary Care Practice Demonstration.

Figure 6.6. Bayesian probabilities of Track 1 impacts on expenditures without enhanced payments, by practice subgroup among 2017 Starters



Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: A practice is considered to have prior transformation experience—that is, considered to have participated in prior primary care transformation initiatives—if it was (1) recognized as a medical home, or (2) participated in the Multi-payer Advanced Primary Care Practice Demonstration or CPC Classic.

CMF = care management fee; PCP = primary care provider.

A.5.2. Findings from beneficiary subgroup analysis

Track 1 impact estimates for Medicare expenditures without CMS' enhanced payments did not differ by beneficiaries' baseline characteristics. There were no statistically significant differences between high-risk and non-high-risk beneficiary subgroups, where high-risk beneficiaries were defined as (1) being in the top quartile of the HCC score distribution, (2) being in the top decile of the HCC score distribution or having dementia (which is how CMS defined risk tier 5 for Track 2 CPC+ practices), (3) having behavioral health conditions,[77] (4) having two or more of 12 high-risk chronic conditions and a hospitalization in the prior year,[78] or (5) being dually eligible (Table 6.9). Similar to the practice subgroups, for subgroups defined by any particular beneficiary characteristic, we first tested whether the impact estimates for the subgroups defined by the same characteristic were significantly different from one another. The last column of Table 6.9 shows the *p*-values from this test. If we found significant differences across subgroups defined by a particular characteristic, we then tested whether the impact estimate within a subgroup was significantly different from zero. None of the subgroup-specific impact estimates in Table 6.9 were statistically significant.

Table 6.9. Estimates of two-year impacts of CPC+ on Medicare expenditures without CMS' enhanced payments, by baseline beneficiary characteristics among Track 1 2017 Starters

Beneficiary subgroup definition, based on baseline characteristics	Number (percentage) of CPC+ beneficiaries in subgroup at baseline	Impact estimate (standard error)	Percentage impact	*p*-Value for difference in impact estimates between subgroups
Main analysis (all beneficiaries)	**-**	**$3.6 ($3.1)**	**0.4%**	**-**
Patients in the highest quartile of the HCC score distribution				
Yes	213,238 (26.6%)	-$0.03 ($9.3)	0.0%	
No	589,265 (73.4%)	$5.6 ($2.8)	0.9%	0.56
Patients who either are in the highest decile of the HCC score distribution or have dementia				
Yes	132,290 (16.5%)	-$0.7 ($12.9)	0.0%	
No	670,213 (83.5%)	$4.9 ($2.9)	0.7%	0.67
Patients with selected behavioral health conditions (schizophrenia, depression and bipolar disorders, or drug/alcohol psychosis or dependence)				
Yes	71,312 (8.9%)	-$6.1 ($12.8)	-0.4%	
No	731,191 (91.1%)	$5.3 ($3.3)	0.6%	0.39

[77] We identified beneficiaries with behavioral health conditions at baseline using HCCs for schizophrenia or major depressive disorder, bipolar and paranoid disorders, drug/alcohol psychosis, or drug/alcohol dependence.

[78] The 12 frequently occurring chronic conditions we used in this definition are congestive heart failure, chronic obstructive pulmonary disease, acute myocardial infarction, ischemic heart disease, diabetes, metastatic cancer and acute leukemia, stroke, depression, dementia, atrial fibrillation, rheumatoid arthritis or osteoarthritis, and chronic kidney disease.

Table 6.9. ***(continued)***

Beneficiary subgroup definition, based on baseline characteristics	Number (percentage) of CPC+ beneficiaries in subgroup at baseline	Impact estimate (standard error)	Percentage impact	*p*-Value for difference in impact estimates between subgroups
Patients who have multiple chronic conditions (at least 2 of 12 frequently occurring chronic conditions[a]) and also had one or more hospitalizations[b]				
Yes	73,503 (9.2%)	$6.2 ($19.2)	0.2%	
No	729,000 (90.8%)	$3.8 ($2.9)	0.5%	0.90
Patients who are dually eligible for Medicare and Medicaid				
Yes	111,879 (12.8%)	-$7.3 ($10.5)	-0.6%	
No	762,511 (87.2%)	$4.8 ($3.2)	0.5%	0.26

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Note: Beneficiary characteristics to determine subgroup membership are measured at the start of the yearlong baseline period for baseline observations and at the start of Program Year 1 for observations in the intervention period (Program Years 1 and 2). The estimates (and standard errors) in the impact estimate column show subgroup-specific impacts, separately for each beneficiary characteristic listed in the table. The asterisks in that column denote whether a subgroup-specific impact estimate was statistically significant. Additionally, the *p*-value in the last column reflects results from testing for statistically significant differences in impact estimates between the subgroups, based on the same baseline beneficiary characteristic. The *p*-values are from a t-test for all beneficiary subgroups with two categories. If this test did not indicate a statistically significant difference *between* subgroups defined by the same characteristic, we did not further test whether estimates *within* each subgroup were statistically significant (denoted by asterisks next to subgroup-specific impact estimates, only when we tested and found significant differences). Because we could not observe diagnoses (which are used to determine HCCs and calculate HCC scores) at baseline for beneficiaries who were new to Medicare during the program years, we excluded new Medicare beneficiaries from all subgroup analyses (except the analysis based on dual status). This process resulted in the exclusion of close to 10 percent of observations from the regressions for these subgroups. Therefore, the main impact estimate of $3.6 PBPM for Track 1 overall may not lie between the impact estimates for the subgroups based on HCC score and chronic conditions—that is,for all subgroups except the ones based on dual status.

[a] The 12 frequently occurring chronic conditions are congestive heart failure, chronic obstructive pulmonary disease, history of acute myocardial infarction, ischemic heart disease, diabetes, metastatic cancer and acute leukemia, history of stroke, depression, dementia, atrial fibrillation, rheumatoid arthritis or osteoarthritis, and chronic kidney disease.

[b] For observations in the baseline year, hospitalizations are measured in the year before the start of the baseline year (calendar year 2015 for 2017 Starters). For observations in the intervention period, hospitalizations are measured in the year before the start of Program Year 1 (calendar year 2016 for 2017 Starters).

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

HCC = hierarchical condition category.

B. Medicare FFS service use

Over the first two program years, CPC+ was associated with a small reduction in ED visits for Track 1 2017 Starters, relative to comparison practices. ED visits declined among both CPC+ and comparison practices, with reductions being larger for CPC+ practices. Annualized total ED visits and annualized outpatient ED visits were reduced by approximately nine and seven visits per 1,000 beneficiaries, respectively (1.3 percent, $p < 0.01$ in each case; Table 6.10) for Track 1 practices relative to comparison practices. The small, favorable estimated effects for these measures persisted over time, with 1 percent reductions in PY 1 and 1.5 percent reductions in PY 2.

CPC+ was associated with a slightly lower rate of growth in ambulatory primary care visits for Track 1 practices, relative to comparison practices. During the first two program years, annualized ambulatory primary care visits billed to Medicare increased less for Track 1 practices relative to the comparison practices by 35 visits per 1,000 beneficiaries (0.8 percent, $p = 0.03$). This small relative reduction was statistically significant only in PY 1 (1.3 percent, $p < 0.01$ in PY 1 versus 0.3 percent, $p = 0.44$ in PY 2; Table 6.9).

Track 1 practices experienced slightly lower rates of reduction in ambulatory specialty care visits, relative to comparison practices. This finding resulted in a small net increase in ambulatory visits with specialists for beneficiaries of Track 1 practices, during the first two years, relative to the comparison group of about 20 specialist visits per 1,000 beneficiaries (0.5 percent; $p < 0.05$*). This relative increase was significantly larger in PY 2 than in PY 1 (0.7 versus 0.3 percent;* $p = 0.06$).

CPC+ did not have discernible effects on the rate of acute hospitalizations for Track 1 practices during the first two program years, with only one-half percent difference between the CPC+ and comparison groups, which was not statistically significant (Table 6.9).

Table 6.10. Regression-adjusted means and estimated impact of CPC+ on selected Medicare service use outcomes for attributed Medicare FFS beneficiaries over the first two program years: Track 1 2017 Starters

	Track 1—Overall						Track 1—SSP						Track 1—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90% confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90% confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90% confidence interval	p-Value
Service use (per 1,000 beneficiaries per year)																		
Acute hospitalizations (short-stay acute care and critical access hospitals)																		
Baseline	290	289	NA	NA	NA	NA	290	289	NA	NA	NA	NA	289	288	NA	NA	NA	NA
PY 1	289	288	-0.7 (1.5)	-0.3%	(-3.2, 1.7)	0.624	289	290	-2.7 (1.9)	-0.9%	(-5.9, 0.4)	0.154	289	286	1.5 (2.4)	0.5%	(-2.4, 5.3)	0.536
PY 2	283	284	-2.2 (1.6)	-0.8%	(-4.9, 0.5)	0.177	285	286	-2.3 (2.1)	-0.8%	(-5.9, 1.2)	0.273	281	282	-2.0 (2.5)	-0.7%	(-6.2, 2.1)	0.419
PY 1 and 2	286	286	-1.5 (1.4)	-0.5%	(-3.9, 0.8)	0.281	287	288	-2.6 (1.8)	-0.9%	(-5.6, 0.5)	0.162	285	284	-0.4 (2.2)	-0.1%	(-4.0, 3.2)	0.860
Total ED visits, including observation stays																		
Baseline	708	706	NA	NA	NA	NA	695	692	NA	NA	NA	NA	721	721	NA	NA	NA	NA
PY 1	705	710	-7.1** (2.8)	-1.0%	(-11.7, -2.4)	0.012	692	697	-8.1** (3.7)	-1.2%	(-14.3, -2.0)	0.030	718	723	-5.8 (4.2)	-0.8%	(-12.7, 1.2)	0.173
PY 2	693	702	-11.1*** (3.2)	-1.6%	(-16.3, -5.9)	0.000	681	689	-10.9** (4.2)	-1.6%	(-17.9, -3.9)	0.010	706	717	-11.2** (4.7)	-1.6%	(-18.9, -3.5)	0.017
PY 1 and 2	699	706	-9.2*** (2.7)	-1.3%	(-13.7, -4.8)	0.001	686	693	-9.6*** (3.6)	-1.4%	(-15.6, -3.7)	0.008	712	720	-8.6** (4.0)	-1.2%	(-15.3, -2.0)	0.033
Outpatient ED visits, including observation stays																		
Baseline	493	498	NA	NA	NA	NA	476	480	NA	NA	NA	NA	510	518	NA	NA	NA	NA
PY 1	490	501	-5.6** (2.3)	-1.1%	(-9.4, -1.9)	0.013	475	484	-5.6* (3.0)	-1.2%	(-10.5, -0.7)	0.058	506	520	-5.5 (3.5)	-1.1%	(-11.1, 0.2)	0.115
PY 2	481	493	-7.2*** (2.6)	-1.5%	(-11.5, -2.9)	0.006	464	475	-7.8** (3.5)	-1.7%	(-13.5, -2.1)	0.025	499	513	-6.4 (4.0)	-1.3%	(-13.0, 0.1)	0.104
PY 1 and 2	485	497	-6.5*** (2.2)	-1.3%	(-10.1, -2.8)	0.004	469	479	-6.8** (3.0)	-1.4%	(-11.7, -1.9)	0.022	502	516	-6.0* (3.4)	-1.2%	(-11.5, -0.4)	0.076
Ambulatory primary care visits (including to FQHCs, RHCs, and CAHs)																		
Baseline	4,242	4,359	NA	NA	NA	NA	4,190	4,327	NA	NA	NA	NA	4,296	4,394	NA	NA	NA	NA
PY 1	4,282	4,456	-56.7*** (14.9)	-1.3%	(-81.3, -32.1)	0.000	4,244	4,430	-48.3*** (18.3)	-1.1%	(-78.4, -18.2)	0.008	4,323	4,486	-65.2*** (24.0)	-1.5%	(-104.7, -25.7)	0.007
PY 2	4,310	4,442	-14.6 (18.9)	-0.3%	(-45.6, 16.4)	0.439	4,258	4,402	-6.8 (24.5)	-0.2%	(-47.2, 33.6)	0.782	4,365	4,485	-23.0 (29.0)	-0.5%	(-70.7, 24.6)	0.427
PY 1 and 2	4,297	4,449	-34.6** (16.1)	-0.8%	(-61.0, -8.1)	0.032	4,251	4,415	-26.5 (20.2)	-0.6%	(-59.8, 6.7)	0.189	4,345	4,486	-43.0* (25.4)	-1.0%	(-84.8, -1.3)	0.090

Table 6.10. ***(continued)***

	Track 1—Overall						Track 1—SSP						Track 1—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90% confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90% confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90% confidence interval	p-Value
Ambulatory specialty care visits (including to FQHCs, RHCs, and CAHs)																		
Baseline	4,272	4,168	NA	NA	NA	NA	4,568	4,354	NA	NA	NA	NA	3,962	3,963	NA	NA	NA	NA
PY 1	4,221	4,106	10.8 (9.1)	0.3%	(-4.2, 25.8)	0.237	4,500	4,289	-3.5 (12.0)	-0.1%	(-23.3, 16.2)	0.768	3,926	3,902	25.9* (13.9)	0.7%	(3.1, 48.7)	0.062
PY 2	4,220	4,087	27.6** (11.9)	0.7%	(8.0, 47.2)	0.020	4,523	4,281	27.7* (16.0)	0.6%	(1.3, 54.0)	0.084	3,899	3,872	29.3* (17.6)	0.8%	(0.4, 58.1)	0.096
PY 1 and 2	4,220	4,096	19.6** (9.8)	0.5%	(3.5, 35.6)	0.045	4,512	4,285	12.7 (13.0)	0.3%	(-8.7, 34.1)	0.329	3,912	3,886	27.6* (14.6)	0.7%	(3.6, 51.6)	0.059
Unweighted sample sizes[d]																		
Number of practices	1,373	5,243					738	2,979					635	2,264				
Number of beneficiaries	1,189,438	3,974,531					613,664	2,318,241					577,930	1,668,572				
Number of beneficiary-years	2,764,820	9,155,686					1,420,172	5,332,803					1,344,648	3,822,883				

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: For Medicare service use measures, measures of outpatient ED visits and total ED visits include observation stays. Billable ambulatory visits with primary care practitioners and specialists include office-based visits, visits at home, and visits in other settings, such as FQHCs, RHCs, and CAHs.

This table indicates which estimates are statistically significant; when we interpret evidence, we combine evidence from the magnitude of the effect, the *p*-values, findings on related outcomes, subgroups, sensitivity tests, and other data sources about model implementation.

[a] We report the actual, unadjusted CPC+ mean for each time period shown in the table. For comparison group practices, we report the actual, unadjusted mean during the baseline period but the adjusted mean during each intervention period. We obtain the adjusted mean by subtracting the regression adjusted difference between the CPC+ and comparison means in each time period from the CPC+ mean in that same time period.

[b] Impact estimates are regression-adjusted for pre-CPC+ beneficiary characteristics and practice fixed effects. Each impact estimate is based on a difference-in-differences analysis and reflects the difference in the regression-adjusted average outcome for Medicare FFS beneficiaries attributed to CPC+ practices in the first two years of CPC+, compared with baseline relative to the same difference over time for Medicare FFS beneficiaries attributed to comparison practices.

[c] We calculated percentage impacts relative to what the CPC+ mean would have been in Program Years 1 and 2 (separately and combined) in the absence of the intervention—that is, the unadjusted CPC+ mean minus the impact estimate.

[d] After accounting for weights that adjust for matching and time observed in Medicare FFS, the effective sample sizes fall but are still substantial. For the comparison group, the effective sample size is 43 to 50 percent of the size of the actual comparison group. The effective sample size for the CPC+ group is about 96 percent of the actual sample size because it is affected only by time observed (and not by the matching weights).

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

C = comparison; CAH = critical access hospital; ED = emergency department; FFS = fee-for-service; FQHC = federally qualified health center; NA = not applicable; PY = Program Year; RHC = rural health center; SE = standard error; SSP = Medicare Shared Savings Program.

C. Claims-based quality of care

C.1. Planned care and population health measures

Track 1 2017 Starters had very small improvements relative to the comparison practices in the percentage of beneficiaries with diabetes receiving recommended services, over the first two program years. The evaluation can examine a limited set of claims-based measures of quality. The sizes of these impact estimates—one percentage point or less—do not suggest a substantive quality-of-care improvement in terms of an increased number of beneficiaries receiving recommended diabetes services. Specifically, from baseline to the end of PY 2, among patients with diabetes attributed to Track 1 practices relative to their comparison practices (Table 6.11), the likelihood of:

- Receiving an eye exam increased by one percentage point ($p < 0.01$).
- Receiving attention for nephropathy increased by 0.8 percentage points ($p < 0.01$).
- Receiving all three recommended tests (HbA1c testing, eye exam, and attention for nephropathy) increased by 1.1 percentage points ($p < 0.01$).
- Receiving none of the three tests declined by 0.2 percentage points ($p < 0.01$).

These favorable estimates were generally similar in magnitude in PY 1 and PY 2. However, these estimates point toward only small increases in the additional number of beneficiaries receiving these services. For example, based on these impact estimates and the number of beneficiaries with diabetes in Track 1 practices over the first two program years (159,222), on average, an additional 1,592 beneficiaries received an eye exam, and an additional 1,751 beneficiaries received all three tests in each program year. These numbers translate to an average of an additional 1.2 beneficiaries per practice who received an eye exam and 1.3 beneficiaries per practice who received all three tests. There was no change in the percentage of beneficiaries with diabetes receiving HbA1c testing overall or by SSP status. As this test was already performed at high rates (more than 91 percent) during the year before CPC+ began in both the Track 1 and comparison groups, it will be difficult for practices to improve substantially on this measure. In contrast, during baseline, only 64 percent of beneficiaries received eye exams, 81 percent received attention for nephropathy, and 51 percent received all three tests, leaving substantial room for improvement in each measure.

Improvements in two of the four measures occurred mainly among the non-SSP practices. Specifically, the favorable changes in the likelihood of receiving an eye exam and the composite measure of receiving all three recommended tests were close to 2 percentage points among non-SSP practices ($p < 0.01$ for both tests), and also significantly different ($p < 0.01$) from the much smaller changes for SSP practices. In contrast, favorable increases in the likelihood of receiving attention for nephropathy and the second diabetes composite measure (defined as not receiving any of the three tests) occurred for both SSP and non-SSP practices.

CPC+ Track 1 was also associated with a slight improvement in breast cancer screening. About 68 percent of female beneficiaries ages 52 through 74 attributed to Track 1 or

comparison practices received breast cancer screening during the year before CPC+ began. Over the first two program years, there was a 0.7 percentage point greater increase ($p < 0.01$) in breast cancer screening for Track 1 practices overall relative to their comparison counterparts; this change was driven by non-SSP practices, where the estimate was 1.3 percentage points ($p < 0.01$) and significantly different ($p < 0.01$) from the much smaller improvement of 0.2 percentage points among SSP practices. For Track 1 overall, the impact estimate suggests a relative increase of 1,830 beneficiaries receiving breast cancer screening per year, out of a total of 261,404 female beneficiaries ages 52 through 74.

Although the magnitudes of estimated improvements over the two program years in the planned care and population health measures for recommended diabetes services and breast cancer screening for Track 1 are small, the magnitude of the estimates were slightly greater in PY 2 than in PY 1, suggesting that CPC+ practices in Track 1 might be making some quality improvements over time within this limited set of claims-based measures. We will continue to monitor these estimates in subsequent annual reports to see whether these favorable but slight findings persist or grow.

C.2. Measure for coordination of care

There was no effect on unplanned readmissions, the one claims-based measure of coordination of care that we examined. Specifically, for Track 1 2017 Starters, there was a 0.2 percentage point increase in the rate of unplanned readmissions within 30 days of a hospital discharge relative to comparison practices, that was not statistically significant ($p = 0.24$). In a sensitivity test for which we defined the readmission outcome at the beneficiary level instead of the discharge level, we similarly found no difference between CPC+ and comparison practices in the percentage of beneficiaries who had an unplanned readmission during the year.

C.3. Measures for patient and caregiver engagement

Track 1 practices had a small relative increase in the proportion of beneficiaries using hospice services. CPC+ practices are expected to better engage patients and caregivers in planning and making decisions on health care use, and Track 2 specifically required practices to identify and engage a subpopulation of patients and caregivers in advance care planning during PY 2. This requirement could lead to increased use of end-of-life care. In line with this expectation, over the first two program years, there was a small increase of 0.1 percentage point ($p = 0.03$) in the proportion of beneficiaries with any use of hospice services during the year for Track 1 practices relative to the comparison practices. (Less than 3 percent of beneficiaries in both Track 1 and comparison practices used hospice services at baseline, so a 0.1 percentage point increase is small, but not trivial.) This favorable estimate was driven by the SSP group. Among the SSP practices, the estimate was slightly higher in magnitude in PY 2 (0.2 percentage points) compared with PY 1 (0.1 percentage points).

C.4. Mortality

CPC+ did not affect mortality. Among beneficiaries attributed in the first quarter of the intervention, there were no meaningful or statistically significant differences between CPC+ and comparison practices in the percentage of beneficiaries dying during the next 12 months (4 percent) or the next 24 months (7.9 percent) of CPC+.

Table 6.11. Regression-adjusted means and estimated impact of CPC+ on selected claims-based quality-of-care measures for attributed Medicare FFS beneficiaries over the first two program years: Track 1 2017 Starters

	Track 1—Overall					Track 1—SSP					Track 1—Non-SSP				
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value
Planned care and population health measures for beneficiaries ages 18–75 with diabetes (percentage)															
Received HbA1c test															
Baseline	90.9%	91.6%	NA	NA	NA	92.0%	92.2%	NA	NA	NA	89.8%	91.1%	NA	NA	NA
PY 1	91.2%	91.9%	0.1 (0.2)	(-0.2, 0.3)	0.729	92.2%	92.3%	0.1 (0.2)	(-0.2, 0.4)	0.706	90.1%	91.4%	0.0 (0.2)	(-0.4, 0.4)	0.888
PY 2	91.1%	91.7%	0.2 (0.2)	(-0.1, 0.5)	0.352	92.3%	92.0%	0.5** (0.2)	(0.1, 0.8)	0.038	90.0%	91.4%	-0.1 (0.3)	(-0.6, 0.3)	0.593
PY 1 and 2	91.2%	91.8%	0.1 (0.1)	(-0.1, 0.4)	0.445	92.2%	92.2%	0.3 (0.2)	(0.0, 0.6)	0.133	90.0%	91.4%	-0.1 (0.2)	(-0.4, 0.3)	0.801
Received eye exam															
Baseline	63.6%	64.5%	NA	NA	NA	64.7%	66.2%	NA	NA	NA	62.4%	62.7%	NA	NA	NA
PY 1	64.8%	65.0%	0.7*** (0.2)	(0.3, 1.1)	0.002	65.0%	66.8%	-0.3 (0.3)	(-0.8, 0.2)	0.379	64.5%	63.1%	1.7*** (0.3)	(1.2, 2.2)	0.000
PY 2	65.6%	65.2%	1.3*** (0.3)	(0.9, 1.7)	0.000	66.1%	66.9%	0.7* (0.4)	(0.1, 1.3)	0.071	65.0%	63.3%	2.0*** (0.4)	(1.4, 2.6)	0.000
PY 1 and 2	65.2%	65.1%	1.0*** (0.2)	(0.6, 1.4)	0.000	65.6%	66.9%	0.2 (0.3)	(-0.3, 0.7)	0.506	64.8%	63.2%	1.8*** (0.3)	(1.3, 2.3)	0.000
Received attention for nephropathy															
Baseline	80.9%	80.9%	NA	NA	NA	82.4%	81.8%	NA	NA	NA	79.3%	80.0%	NA	NA	NA
PY 1	81.9%	81.3%	0.6** (0.2)	(0.2, 1.0)	0.010	83.2%	82.1%	0.4 (0.3)	(-0.1, 0.9)	0.189	80.5%	80.4%	0.8** (0.4)	(0.2, 1.4)	0.023
PY 2	82.3%	81.3%	1.0*** (0.3)	(0.5, 1.5)	0.000	83.6%	82.1%	0.8** (0.4)	(0.2, 1.4)	0.020	80.9%	80.4%	1.2*** (0.5)	(0.5, 2.0)	0.007
PY 1 and 2	82.1%	81.3%	0.8*** (0.2)	(0.4, 1.2)	0.001	83.4%	82.1%	0.6** (0.3)	(0.1, 1.1)	0.037	80.7%	80.4%	1.0*** (0.4)	(0.4, 1.6)	0.006
Diabetes Composite Measure 1 (received all three tests above: HbA1c test, eye exam, attention for nephropathy)															
Baseline	51.1%	52.0%	NA	NA	NA	53.3%	54.0%	NA	NA	NA	48.8%	49.8%	NA	NA	NA
PY 1	52.5%	52.8%	0.5** (0.3)	(0.1, 1.0)	0.046	53.8%	54.9%	-0.4 (0.4)	(-1.0, 0.2)	0.283	51.1%	50.6%	1.5*** (0.4)	(0.9, 2.1)	0.000
PY 2	53.5%	52.8%	1.6*** (0.3)	(1.1, 2.1)	0.000	55.2%	54.8%	1.2*** (0.4)	(0.5, 1.9)	0.007	51.8%	50.8%	2.0*** (0.5)	(1.3, 2.8)	0.000
PY 1 and 2	53.0%	52.8%	1.1*** (0.3)	(0.6, 1.5)	0.000	54.5%	54.8%	0.4 (0.4)	(-0.2, 1.0)	0.253	51.5%	50.7%	1.8*** (0.4)	(1.2, 2.4)	0.000

Table 6.11. ***(continued)***

	Track 1—Overall					Track 1—SSP					Track 1—Non-SSP				
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value
Diabetes Composite Measure 2 (received none of the three tests above)															
Baseline	2.5%	2.3%	NA	NA	NA	2.2%	2.1%	NA	NA	NA	2.7%	2.5%	NA	NA	NA
PY 1	2.3%	2.2%	-0.2** (0.1)	(-0.3, -0.1)	0.018	2.0%	2.1%	-0.2** (0.1)	(-0.4, 0.0)	0.039	2.5%	2.4%	-0.2 (0.1)	(-0.4, 0.0)	0.177
PY 2	2.3%	2.3%	-0.2*** (0.1)	(-0.4, -0.1)	0.005	2.2%	2.2%	-0.2 (0.1)	(-0.3, 0.0)	0.146	2.4%	2.5%	-0.3** (0.1)	(-0.5, -0.1)	0.015
PY 1 and 2	2.3%	2.3%	-0.2*** (0.1)	(-0.3, -0.1)	0.003	2.1%	2.1%	-0.2** (0.1)	(-0.3, 0.0)	0.050	2.5%	2.4%	-0.2** (0.1)	(-0.4, -0.1)	0.026
Unweighted sample sizes for the diabetes measures[c]															
Number of beneficiaries	187,337	627,193				95,625	358,944				91,984	269,742			
Number of beneficiary-years	382,356	1,269,004				194,425	725,365				187,931	543,639			
Planned care and population health measures for female beneficiaries ages 52–74 (percentage)															
Received breast cancer screening															
Baseline	68.2%	68.7%	NA	NA	NA	69.4%	70.0%	NA	NA	NA	67.0%	67.4%	NA	NA	NA
PY 1	69.5%	69.6%	0.4*** (0.2)	(0.2, 0.7)	0.004	70.7%	71.2%	0.1 (0.2)	(-0.2, 0.4)	0.580	68.3%	67.9%	0.8*** (0.2)	(0.4, 1.1)	0.001
PY 2	70.5%	70.0%	1.0*** (0.2)	(0.6, 1.3)	0.000	71.4%	71.7%	0.2 (0.3)	(-0.2, 0.7)	0.439	69.6%	68.2%	1.7*** (0.3)	(1.3, 2.2)	0.000
PY 1 and 2	70.0%	69.8%	0.7*** (0.2)	(0.4, 1.0)	0.000	71.1%	71.5%	0.2 (0.2)	(-0.2, 0.5)	0.459	69.0%	68.0%	1.3*** (0.2)	(0.9, 1.7)	0.000
Unweighted sample sizes for the breast cancer screening measure[c]															
Number of beneficiaries	303,691	999,240				156,129	580,407				148,059	421,600			
Number of beneficiary-years	629,191	2,053,941				322,165	1,189,801				307,026	864,140			
Measures for coordination of care (percentage)															
Percentage of discharges that had a 30-day all-cause unplanned readmission															
Baseline	15.6%	15.8%	NA	NA	NA	15.5%	15.9%	NA	NA	NA	15.7%	15.7%	NA	NA	NA
PY 1	15.7%	15.9%	0.1 (0.1)	(-0.1, 0.4)	0.473	15.4%	15.8%	0.1 (0.2)	(-0.3, 0.4)	0.722	16.1%	16.0%	0.1 (0.2)	(-0.2, 0.5)	0.549
PY 2	15.8%	15.9%	0.2 (0.2)	(0.0, 0.5)	0.178	15.9%	16.0%	0.4* (0.2)	(0.0, 0.7)	0.077	15.8%	15.8%	0.0 (0.2)	(-0.3, 0.4)	0.878
PY 1 and 2	15.8%	15.9%	0.2 (0.1)	(-0.1, 0.4)	0.235	15.7%	15.9%	0.2 (0.2)	(-0.1, 0.5)	0.215	15.9%	15.9%	0.1 (0.2)	(-0.2, 0.4)	0.683

Table 6.11. ***(continued)***

	Track 1—Overall					Track 1—SSP					Track 1—Non-SSP				
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90% confidence interval	*p*-Value
Measures for patient and caregiver engagement (percentage)															
Received hospice services															
Baseline	2.7%	2.7%	NA	NA	NA	2.7%	2.7%	NA	NA	NA	2.8%	2.7%	NA	NA	NA
PY 1	2.8%	2.7%	0.1* (0.0)	(0.0, 0.1)	0.074	2.7%	2.7%	0.1*** (0.0)	(0.0, 0.2)	0.009	2.8%	2.6%	0.0 (0.0)	(-0.1, 0.1)	0.943
PY 2	2.9%	2.8%	0.1** (0.0)	(0.0, 0.1)	0.036	2.9%	2.8%	0.2*** (0.0)	(0.1, 0.2)	0.000	2.9%	2.8%	0.0 (0.1)	(-0.1, 0.1)	0.589
PY 1 and 2	2.8%	2.7%	0.1** (0.0)	(0.0, 0.1)	0.028	2.8%	2.7%	0.1*** (0.0)	(0.1, 0.2)	0.000	2.8%	2.7%	0.0 (0.0)	(-0.1, 0.1)	0.764
Unweighted sample sizes for unplanned readmission and receiving hospice services[c]															
Number of index discharges for readmissions	682,825	2,228,176				351,362	1,294,119				331,463	934,057			
Number of beneficiaries	1,189,438	3,974,531				613,664	2,318,241				577,930	1,668,572			
Number of beneficiary-years	2,764,820	9,155,686				1,420,172	5,332,803				1,344,648	3,822,883			

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: For the binary quality-of-care outcomes, we present the absolute impact estimate only in percentage points. We do so because percentage impacts for some of the outcomes are likely to be misleadingly large, given the low means for the outcome measures.

This table indicates which estimates are statistically significant; when we interpret evidence, we combine evidence from the magnitude of the effect, the *p*-values, findings on related outcomes, subgroups, sensitivity tests, and other data sources on model implementation.

We grouped the claims-based quality-of-care measures into four domains according to the Comprehensive Primary Care Functions under which they appear in the 2018 CPC+ Implementation Guide (CMMI 2018).

[a] We report the actual, unadjusted CPC+ mean for each time period shown in the table. For comparison group practices, we report the actual, unadjusted mean during the baseline period but the adjusted mean during each intervention period. We obtain the adjusted mean by subtracting the regression adjusted difference between the CPC+ and comparison means in each time period from the CPC+ mean in that same time period.

[b] Impact estimates are regression-adjusted for baseline beneficiary characteristics and practice fixed effects. All outcomes are reported as beneficiary-level percentages, except for the 30-day unplanned readmission measure, which is at the discharge level. Each impact estimate is based on a difference-in-differences analysis and reflects the difference in the regression-adjusted average outcome for Medicare FFS beneficiaries attributed to CPC+ practices in the first two years of CPC+ compared with the average outcome in the baseline year, relative to the same difference over time for Medicare FFS beneficiaries attributed to comparison practices. For the readmissions outcome, which is estimated at the discharge level, we also controlled for discharge-level risk factors.

[c] The numbers of Track 1 CPC+ and comparison practices are the same as in Tables 6.4 and 6.9, and hence, are not reported separately in this table. After accounting for weights that adjust for matching and time observed in Medicare FFS, the effective sample sizes fall but are still substantial. For the comparison group, the effective sample size is 43 to 52 percent of the size of the actual comparison group. The effective sample size for the CPC+ group is about 96 to 99 percent of the actual sample size because it is affected only by time observed (and not by the matching weights). For the analysis of unplanned 30-day readmissions, we only use matching weights—therefore, the effective sample size for the number of index discharges shown in the table is about 44 to 52 percent of the actual sample size for the comparison group only.

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

C = comparison; FFS = fee-for-service; NA = not applicable; PY = Program Year; SE = standard error; SSP = Medicare Shared Savings Program.

D. Aggregate impact estimates for key outcomes

The impact estimates presented above provide evidence on the direction and the magnitude of the likely impact of CPC+ during the first two program years on individual Medicare FFS beneficiaries, on average. For ease of interpretation, it can be useful to translate those beneficiary-level impact estimates to aggregate estimates—for example, the estimated total dollar amount of reduction in Medicare expenditures or the total number of ED visits avoided among the Medicare FFS beneficiaries receiving the intervention. Therefore, we present aggregate impact estimates over the first two program years combined across all Medicare FFS beneficiaries assigned to Track 1 practices that started in 2017, for five outcome measures: (1) Medicare expenditures without CMS' enhanced payments (2) Medicare expenditures including CMS' enhanced payments, (3) number of hospitalizations, (4) number of outpatient ED visits, and (5) 30-day unplanned readmissions. For the first four outcomes, we used the beneficiary-level estimates from the difference-in-differences regressions, together with the total FFS eligible months for beneficiaries assigned to Track 1 practices in PY 1 and PY 2, to obtain the aggregate impact estimates as well as the 90 percent confidence intervals for these estimates. For readmissions, we used the discharge-level estimates and the total discharges for all assigned beneficiaries in Track 1 practices to estimate the aggregate impacts. The only statistically significant estimates were – (1) an increase in Medicare expenditures including CMS' enhanced payments of over $375 million, and (2) a relative reduction of 11,378 outpatient ED visits during the first two program years (Table 6.12). Because ED visits account for a small proportion of Medicare expenditures compared, for example, with acute hospitalizations, any reduction in expenditures stemming from this reduction in ED visits is unlikely to be detectable and could be offset by small increases in primary care and hospice expenditures, as we describe above.

Table 6.12. Aggregate impact estimates for key outcomes over the first two years of CPC+: Track 1 2017 Starters

Outcome	Estimate	90 percent CI lower bound	90 percent CI upper bound
Medicare expenditures without CMS' enhanced payments	$76,180,957	-$31,697,945	$184,059,861
Medicare expenditures including CMS' enhanced payments	$375,691,239	$268,247,414	$483,135,064
Hospitalizations	-2,689	-6,792	1,415
Outpatient ED visits	***-11,378***	-17,851	-4,904
30-day readmissions[a]	748	-288	1,784

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Note: This table calculates the estimated effects over all attributed Medicare FFS beneficiaries who were in the intent-to-treat analysis sample during the first two years of CPC+ for 2017 Starters in Track 1. The total number of beneficiaries attributed to Track 1 practices in the annual analysis sample was 1,189,438. These beneficiaries had 21,116,606 eligible beneficiary months, and 469,142 eligible index discharges (for readmissions) over the course of the first two years of CPC+. Impact estimates are from difference-in-differences regressions using practice fixed effects and patient-level control variables from the pre-CPC+ period shown in Tables 6.5, 6.10, and 6.11. See Section 6.2 for a full list of measures and definitions, as well as a discussion of methods. **Yellow shading** ***with bold, italicized text*** signifies that estimate was statistically significant at the $p < 0.10$ level.

[a] In the impact analysis, this outcome represents the percentage of discharges that had an unplanned readmission within 30 days of the discharge. For this table, we translate the impact estimate to the total number of discharges for which readmissions were affected by the initiative.

CI = confidence interval; ED = emergency department; FFS = fee-for-service.

6.3.2. Results for Track 2 Practices

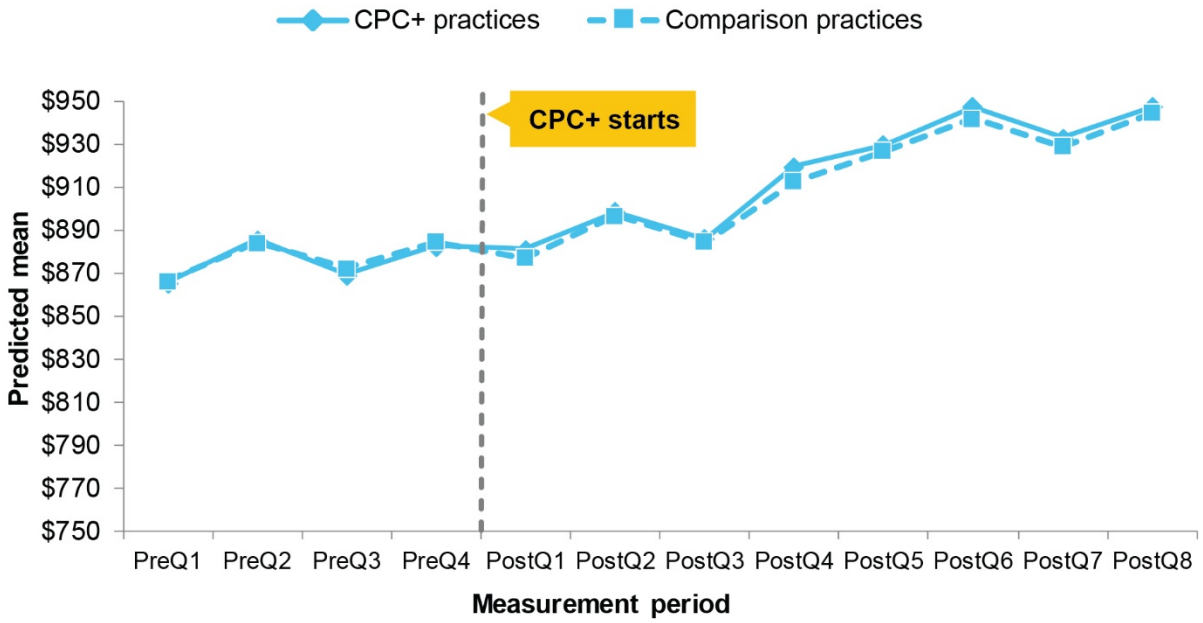
A. Expenditures for Medicare FFS beneficiaries

A.1. Medicare expenditures without CMS' enhanced payments

During the first two program years, for Track 2 2017 Starters, CPC+ had no discernible effects on Medicare expenditures for FFS beneficiaries including the base CPCPs but without CMS' enhanced payments. Relative to expenditures among comparison practices, Medicare expenditures without CMS' enhanced payments increased slightly more among the CPC+ practices in Track 2—by $5 PBPM (0.5 percent, $p = 0.15$), a difference that was not statistically significant (Table 6.13). In line with these results, Track 2 and comparison practices had similar quarterly trends in Medicare expenditures without CMS' enhanced payments (Figure 6.7). Estimated impacts were similar by year and did not vary by SSP status. Although non-SSP practices had an unfavorable and statistically significant increase of $9 PBPM (0.9 percent, $p = 0.056$), and the estimated impact for SSP practices was close to zero ($p = 0.96$), there was no statistically significant difference ($p = 0.23$) in estimated impacts by SSP status.

Our estimates from the Bayesian analyses show that there was a probability of less than 0.1 percent that savings in Medicare expenditures without CMS' enhanced payments were large enough to offset the average CMFs of $25 PBPM in Track 2 overall, or for the SSP and non-SSP practices separately.

Figure 6.7. Quarterly trends in average Medicare Part A and Part B expenditures PBPM, excluding CMS' enhanced payments, Track 2 2017 Starters



Source: Analyses of Medicare claims data from January 2013 through December 2018.

Notes: For beneficiaries attributed to CPC+ practices, the figure shows actual, unadjusted average expenditures. For beneficiaries attributed to comparison practices, the figure shows actual, unadjusted average expenditures in the baseline quarters and adjusted estimates of average expenditures in the intervention quarters. We obtain this adjusted mean by subtracting the regression-adjusted difference between the

Figure 6.7. ***(continued)***

CPC+ and comparison means in each quarter (taken from the quarterly difference-in-differences model) from the CPC+ mean in that same quarter. Medicare expenditures without CMS' enhanced payments include the base Comprehensive Primary Care Payments for Track 2 practices. "PreQ1" to "PreQ4" represent the four baseline quarters. "PostQ1" to "PostQ8" represent the eight program year quarters.

FFS = fee-for-service; PBPM = per beneficiary per month.

A.2. Medicare expenditures by service category

There were only a few small changes in expenditures on individual services during the first two program years for Track 2 practices.

- **Hospice expenditures increased by $2 PBPM ($p < 0.01$) more among Track 2 than among comparison practices, which translates to a relative increase of 6 percent.** Consistent with this finding, we found that CPC+ was associated with a slightly greater likelihood of using hospice services, as we discuss in Section B.3 below. We also found a relative increase of 2.1 days in the average number of days in hospice (among hospice users) for CPC+ versus comparison beneficiaries during the two years of CPC+. These findings are in line with expectations that CMS' PY 2 requirement that Track 2 practices provide advance care planning could lead to greater use of hospice.
- **Between baseline and PY 2, home health expenditures decreased for Track 2 practices but stayed the same among comparison practices, leading to a relative reduction of $1 PBPM (1.6 percent, $p = 0.04$).**
- **Track 2 was also associated with a small increase in expenditures on ambulatory visits with primary care practitioners billed to Medicare, relative to comparison practices.** These expenditures increased from baseline to PY 2 for both the Track 2 and comparison groups but increased by $1 PBPM ($p < 0.01$) more among Track 2 practices, for an estimated net increase of 2.3 percent (Table 6.13)**.**
- **Among Track 2 2017 Starters, there was no change for Track 2 practices overall but there was a small net reduction in Medicare expenditures on physician and non-physician services (that is, Part B noninstitutional services) among SSP practices, and a small net increase for non-SSP practices.** Specifically, these expenditures increased from baseline to PY 2 by $3 PBPM ($p = 0.05$) *less* among Track 2 SSP practices than among their comparison counterparts, for an estimated net reduction of 1 percent. In contrast, these expenditures increased by $2 PBPM ($p = 0.05$) *more* among Track 2 non-SSP practices than among comparison practices in the non-SSP groups, for an estimated net increase of 0.9 percent (Table 6.13)**.** The estimates for SSP and non-SSP practices were significantly different from each other ($p < 0.01$).[79]

[79] The impact estimates for expenditures on billable ambulatory primary care visits and on ambulatory specialist visits, which are subcategories of noninstitutional services, did not differ by SSP status. Therefore, the differential effects by SSP status on noninstitutional expenditures seem to be driven by differential effects on other Part B noninstitutional services, such as non-ambulatory physician visits and services provided by other noninstitutional providers. Given that the estimated effects of -$3 and $2 PBPM for SSP and non-SSP practices for noninstitutional expenditures overall were small, we cannot be confident that these opposing estimates were driven by any meaningful difference in underlying service use for other noninstitutional services.

- **There were no discernible effects on Medicare expenditures for any of the other service categories during the first two program years.** Inpatient expenditures and outpatient expenditures changed similarly for beneficiaries attributed to Track 2 2017 Starters and for those attributed to comparison practices. These expenditure categories are the two largest, accounting for 35 percent and 19 percent, respectively, of Medicare expenditures (see Figure 6.4). Because home health services account for only a small part of all Medicare costs, the relative reductions in home health expenditures were not large enough to lead to a sizable and statistically significant decline in Medicare expenditures overall. Also, the increase in hospice expenditures offset the reduction in home health expenditures.

A.3. Medicare expenditures including CMS' enhanced payments (CMFs, PBIPs, SSP payments, and comprehensiveness supplement)

After adding all enhanced payments, we found that expenditures for Track 2 practices increased in the first two program years by $30 PBPM, relative to comparison practices. CMS enhanced payments included payments for participation in CPC+ and for performance. We arrived at this estimate by going through the following steps to account for various payments:

- We first included payments for practices' participation in CPC+, that is, CMFs for practices in Track 1 and Track 2 and comprehensiveness supplement for practices in Track 2. We found that Medicare expenditures increased by $30 PBPM ($p < 0.01$) more for Track 2 practices than for the comparison practices over the first two program years, which translates to an increase of 3.3 percent. Both SSP and non-SSP practices in Track 2 experienced increases in Medicare expenditures including payments for participation—$25 PBPM (2.7 percent) among SSP practices and $34 PBPM (3.8 percent) among non-SSP practices ($p < 0.01$ in each case), relative to their respective comparison groups; the difference between SSP and non-SSP practices was not significant at conventional levels of statistical significance ($p = 0.2$).
- We next included in our analysis payments for participation and for performance. Payments for performance include: (1) PBIPs, which only CPC+ non-SSP practices receive during the intervention years; and (2) SSP ACO shared savings payments, which are received by the ACOs to which CPC+ and comparison SSP practices belong in both baseline and intervention years (because SSP existed in 2016 as well).[80]
  - *Non-SSP practices.* After adding PBIPs (in addition to CMFs and the comprehensiveness supplement) received by non-SSP CPC+ practices in the two intervention years, the estimate for the non-SSP group increased from $34 PBPM (3.8 percent) to $36 PBPM (4 percent).

[80] The impact analysis defines SSP status as of January 1, 2017. Although PBIPs are received only by non-SSP CPC+ practices, and SSP shared savings only by SSP practices, CPC+ practices can join and leave SSP over time. As a result, there are some PBIP payments to practices that were in SSP at baseline, and some SSP payments to practices that were not in SSP at baseline. By the end of PY 2, the changes in estimates for the SSP group after adding PBIP payments and in estimates for the non-SSP group after adding SSP payments were small (less than 40 cents). We will show estimates with these payments included for the SSP and non-SSP groups in the future if they increase over time.

- *SSP practices.* After we added the share of ACO SSP payments that we assigned to beneficiaries in SSP practices (in addition to the payments for participation), the estimate for the SSP group decreased from $25 (2.7 percent) to $23 (2.4 percent).
    - The reason for this decline in the estimated increase is that, although the share of the average PBPM shared savings payments we assigned to CPC+ SSP beneficiaries decreased from $8 PBPM in the baseline period to an average of $4 PBPM over the two-year intervention period, it stayed almost the same for comparison SSP beneficiaries ($6 PBPM) over time.
    - The decline in the share of SSP payments for CPC+ beneficiaries in SSP practices is unlikely to have been caused by CPC+. Although the decline in PBPM SSP payments assigned to CPC+ SSP beneficiaries started when CPC+ began in 2017 (the average PBPM shared savings payment declined from $8 in 2016 to $3 in 2017 for CPC+ SSP beneficiaries), CPC+ SSP beneficiaries constitute a small percentage (7 percent in 2017) of the total number of beneficiaries in their SSP ACOs.

Table 6.13. Regression-adjusted means and estimated impacts of CPC+ on selected Medicare expenditures outcomes for attributed Medicare FFS beneficiaries over the first two program years: Track 2 2017 Starters

	Track 2—Overall						Track 2—SSP						Track 2—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value
Medicare expenditures (per beneficiary per month)																		
Medicare Part A and B expenditures without enhanced payments[d]																		
Baseline	$876	$877	NA	NA	NA	NA	$896	$893	NA	NA	NA	NA	$861	$865	NA	NA	NA	NA
PY 1	$897	$893	$4.8 ($3.5)	0.5%	(-$1.0, $10.5)	0.172	$917	$913	$1.2 ($5.2)	0.1%	(-$7.3, $9.6)	0.822	$881	$877	$7.5 ($4.7)	0.9%	(-$0.2, $15.3)	0.109
PY 2	$940	$936	$5.2 ($4.0)	0.6%	(-$1.4, $11.7)	0.195	$957	$955	-$0.4 ($6.2)	0.0%	(-$10.6, $9.7)	0.946	$925	$920	$9.4* ($5.2)	1.0%	($1.0, $17.9)	0.067
PY 1 and 2	$919	$916	$4.9 ($3.4)	0.5%	(-$0.7, $10.4)	0.147	$938	$936	$0.2 ($5.2)	0.0%	(-$8.3, $8.7)	0.965	$904	$900	$8.5* ($4.4)	0.9%	($1.2, $15.8)	0.056
Medicare Part A and B expenditures including care management fees and comprehensiveness supplement[e]																		
Baseline	$876	$877	NA	NA	NA	NA	$896	$893	NA	NA	NA	NA	$861	$865	NA	NA	NA	NA
PY 1	$923	$893	$30.9*** ($3.5)	3.5%	($25.1, $36.6)	0.000	$943	$913	$27.2*** ($5.2)	3.0%	($18.6, $35.7)	0.000	$907	$877	$33.7*** ($4.7)	3.9%*	($25.9, $41.4)	0.000
PY 2	$964	$936	$29.4*** ($4.0)	3.2%	($22.9, $36.0)	0.000	$981	$955	$23.3*** ($6.2)	2.4%	($13.2, $33.5)	0.000	$950	$920	$34.1*** ($5.2)	3.7%	($25.6, $42.7)	0.000
PY 1 and 2	$944	$916	$30.0*** ($3.4)	3.3%	($24.5, $35.6)	0.000	$963	$936	$25.0*** ($5.2)	2.7%	($16.5, $33.6)	0.000	$929	$900	$33.9*** ($4.4)	3.8%	($26.6, $41.2)	0.000
Medicare Part A and B expenditures including care management fees, comprehensiveness supplement, and Performance-based Incentive Payments[e]																		
Baseline	$876	$877	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	$861	$865	NA	NA	NA	NA
PY 1	$924	$893	$32.2*** ($3.5)	3.6%	($26.4, $37.9)	0.000	NA	NA	NA	NA	NA	NA	$909	$877	$36.0*** ($4.7)	4.1%	($28.2, $43.7)	0.000
PY 2	$965	$936	$30.8*** ($4.0)	3.3%	($24.3, $37.4)	0.000	NA	NA	NA	NA	NA	NA	$952	$920	$36.3*** ($5.2)	4.0%	($27.8, $44.8)	0.000
PY 1 and 2	$946	$916	$31.4*** ($3.4)	3.4%	($25.8, $36.9)	0.000	NA	NA	NA	NA	NA	NA	$932	$900	$36.1*** ($4.4)	4.0%	($28.8, $43.4)	0.000
Medicare Part A and B expenditures including care management fees, comprehensiveness supplement, Performance-based Incentive Payments, and shared savings payments to SSP ACOs[e]																		
Baseline	$878	$880	NA	NA	NA	NA	$901	$899	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PY 1	$925	$896	$30.8*** ($3.5)	3.4%	($25.0, $36.5)	0.000	$945	$919	$24.4*** ($5.1)	2.6%	($15.9, $32.8)	0.000	NA	NA	NA	NA	NA	NA
PY 2	$967	$938	$29.8*** ($3.9)	3.2%	($23.3, $36.2)	0.000	$985	$961	$21.9*** ($6.0)	2.3%	($12.0, $31.9)	0.000	NA	NA	NA	NA	NA	NA
PY 1 and 2	$947	$918	$30.2*** ($3.3)	3.3%	($24.7, $35.7)	0.000	$966	$941	$23.0*** ($5.1)	2.4%	($14.6, $31.3)	0.000	NA	NA	NA	NA	NA	NA

Table 6.13. ***(continued)***

	Track 2—Overall						Track 2—SSP						Track 2—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[a,b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[a,b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[a,b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value
Medicare expenditures by service category (per beneficiary per month)																		
Inpatient expenditures																		
Baseline	$314	$317	NA	NA	NA	NA	$322	$322	NA	NA	NA	NA	$308	$312	NA	NA	NA	NA
PY 1	$321	$320	$3.5 ($2.3)	1.1%	(-$0.3, $7.2)	0.133	$329	$329	$0.5 ($3.4)	0.1%	(-$5.1, $6.1)	0.887	$314	$312	$5.8* ($3.1)	1.9%	($0.7, $10.9)	0.060
PY 2	$326	$326	$2.6 ($2.5)	0.8%	(-$1.4, $6.6)	0.290	$332	$333	-$0.8 ($3.7)	-0.2%	(-$6.9, $5.3)	0.828	$320	$319	$5.2 ($3.2)	1.7%	(-$0.1, $10.6)	0.106
PY 1 and 2	$323	$323	$3.0 ($2.1)	0.9%	(-$0.5, $6.5)	0.162	$331	$331	-$0.2 ($3.2)	-0.1%	(-$5.5, $5.0)	0.941	$317	$316	$5.5* ($2.8)	1.8%	($0.9, $10.1)	0.051
Expenditures on acute inpatient care[f]																		
Baseline	$278	$281	NA	NA	NA	NA	$286	$285	NA	NA	NA	NA	$271	$277	NA	NA	NA	NA
PY 1	$284	$285	$2.7 ($2.1)	0.9%	(-$0.7, $6.0)	0.198	$293	$292	-$0.8 ($3.1)	-0.3%	(-$5.9, $4.3)	0.804	$278	$279	$5.4** ($2.7)	2.0%	($0.9, $9.9)	0.050
PY 2	$289	$291	$1.0 ($2.2)	0.3%	(-$2.6, $4.5)	0.656	$296	$297	-$2.6 ($3.3)	-0.9%	(-$8.1, $2.9)	0.440	$284	$286	$3.7 ($2.8)	1.3%	(-$0.9, $8.4)	0.186
PY 1 and 2	$287	$288	$1.7 ($1.9)	0.6%	(-$1.4, $4.9)	0.359	$294	$295	-$1.8 ($2.9)	-0.6%	(-$6.6, $3.0)	0.547	$281	$283	$4.5* ($2.5)	1.6%	($0.4, $8.5)	0.070
Outpatient expenditures																		
Baseline	$166	$170	NA	NA	NA	NA	$175	$166	NA	NA	NA	NA	$160	$173	NA	NA	NA	NA
PY 1	$178	$181	$0.6 ($0.9)	0.3%	(-$0.8, $2.0)	0.507	$187	$177	$1.2 ($1.3)	0.7%	(-$1.0, $3.4)	0.366	$171	$184	$0.1 ($1.1)	0.0%	(-$1.8, $1.9)	0.962
PY 2	$198	$201	$0.3 ($1.2)	0.2%	(-$1.6, $2.2)	0.799	$207	$198	$0.9 ($1.9)	0.4%	(-$2.2, $4.0)	0.642	$190	$204	-$0.2 ($1.5)	-0.1%	(-$2.6, $2.2)	0.888
PY 1 and 2	$188	$192	$0.4 ($0.9)	0.2%	(-$1.1, $1.9)	0.649	$198	$188	$1.0 ($1.4)	0.5%	(-$1.4, $3.4)	0.478	$181	$195	-$0.1 ($1.2)	-0.1%	(-$2.0, $1.8)	0.935
Expenditures on physician and nonphysician Part B noninstitutional services in any setting																		
Baseline	$245	$239	NA	NA	NA	NA	$248	$250	NA	NA	NA	NA	$243	$230	NA	NA	NA	NA
PY 1	$251	$244	$0.0 ($0.8)	0.0%	(-$1.3, $1.2)	0.980	$251	$255	-$2.0* ($1.1)	-0.8%	(-$3.8, -$0.2)	0.070	$250	$235	$1.5 ($1.1)	0.6%	(-$0.2, $3.3)	0.149
PY 2	$263	$256	$0.2 ($1.1)	0.1%	(-$1.6, $2.0)	0.847	$263	$268	-$3.0* ($1.8)	-1.1%	(-$5.9, -$0.1)	0.084	$263	$247	$2.8** ($1.4)	1.1%	($0.5, $5.0)	0.042
PY 1 and 2	$257	$250	$0.1 ($0.9)	0.0%	(-$1.3, $1.5)	0.919	$257	$262	-$2.6* ($1.3)	-1.0%*	(-$4.8, -$0.4)	0.051	$257	$241	$2.2* ($1.1)	0.9%	($0.3, $4.0)	0.052

Table 6.13. ***(continued)***

	Track 2—Overall						Track 2—SSP						Track 2—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value
Expenditures on ambulatory visits with primary care practitioners																		
Baseline	$24	$24	NA	NA	NA	NA	$24	$25	NA	NA	NA	NA	$24	$24	NA	NA	NA	NA
PY 1	$25	$25	$0.1 ($0.1)	0.3%	(-$0.1, $0.2)	0.386	$25	$25	$0.2* ($0.1)	0.9%	($0.0, $0.4)	0.097	$25	$25	$0.0 ($0.1)	-0.1%	(-$0.2, $0.2)	0.845
PY 2	$26	$26	$1.0*** ($0.1)	4.1%	($0.8, $1.3)	0.000	$26	$26	$1.1*** ($0.2)	4.4%	($0.8, $1.4)	0.000	$26	$25	$1.0*** ($0.2)	3.8%	($0.7, $1.3)	0.000
PY 1 and 2	$26	$25	$0.6*** ($0.1)	2.3%	($0.4, $0.8)	0.000	$26	$26	$0.7*** ($0.1)	2.7%	($0.4, $0.9)	0.000	$26	$25	$0.5*** ($0.2)	2.0%	($0.3, $0.7)	0.001
Expenditures on ambulatory visits with specialists																		
Baseline	$23	$22	NA	NA	NA	NA	$24	$24	NA	NA	NA	NA	$22	$21	NA	NA	NA	NA
PY 1	$23	$22	$0.0 ($0.1)	-0.1%	(-$0.1, $0.1)	0.653	$24	$23	-$0.1 ($0.1)	-0.2%	(-$0.2, $0.1)	0.629	$22	$21	$0.0 ($0.1)	0.0%	(-$0.1, $0.1)	0.891
PY 2	$23	$22	-$0.1 ($0.1)	-0.5%	(-$0.2, $0.0)	0.219	$24	$24	-$0.3* ($0.1)	-1.1%	(-$0.5, $0.0)	0.060	$22	$21	$0.0 ($0.1)	0.1%	(-$0.2, $0.2)	0.869
PY 1 and 2	$23	$22	-$0.1 ($0.1)	-0.3%	(-$0.2, $0.0)	0.310	$24	$24	-$0.2 ($0.1)	-0.7%	(-$0.3, $0.0)	0.151	$22	$21	$0.0 ($0.1)	0.0%	(-$0.1, $0.1)	0.965
Skilled nursing home expenditures																		
Baseline	$65	$64	NA	NA	NA	NA	$69	$69	NA	NA	NA	NA	$62	$60	NA	NA	NA	NA
PY 1	$63	$62	$0.1 ($0.7)	0.1%	(-$1.1, $1.3)	0.919	$67	$66	$1.0 ($1.1)	1.5%	(-$0.8, $2.7)	0.360	$60	$59	-$0.7 ($1.0)	-1.1%	(-$2.3, $1.0)	0.504
PY 2	$63	$62	$0.4 ($0.8)	0.6%	(-$0.9, $1.6)	0.607	$67	$66	$1.5 ($1.1)	2.2%	(-$0.4, $3.3)	0.197	$60	$59	-$0.5 ($1.0)	-0.8%	(-$2.2, $1.2)	0.630
PY 1 and 2	$63	$62	$0.2 ($0.7)	0.4%	(-$0.8, $1.3)	0.725	$67	$66	$1.2 ($1.0)	1.8%	(-$0.4, $2.8)	0.211	$60	$59	-$0.6 ($0.9)	-1.0%	(-$2.0, $0.9)	0.506
Home health expenditures																		
Baseline	$41	$41	NA	NA	NA	NA	$41	$44	NA	NA	NA	NA	$41	$40	NA	NA	NA	NA
PY 1	$40	$41	-$0.3 ($0.3)	-0.8%	(-$0.9, $0.2)	0.314	$40	$43	-$0.1 ($0.5)	-0.2%	(-$0.8, $0.7)	0.876	$41	$40	-$0.5 ($0.4)	-1.3%	(-$1.3, $0.2)	0.240
PY 2	$40	$42	-$0.9** ($0.4)	-2.2%	(-$1.5, -$0.3)	0.011	$40	$44	-$0.9* ($0.5)	-2.2%	(-$1.7, -$0.1)	0.069	$41	$40	-$0.9* ($0.5)	-2.2%*	(-$1.7, -$0.1)	0.072
PY 1 and 2	$40	$41	-$0.6** ($0.3)	-1.6%	(-$1.1, -$0.1)	0.038	$40	$43	-$0.5 ($0.4)	-1.3%	(-$1.2, $0.2)	0.231	$41	$40	-$0.7* ($0.4)	-1.8%*	(-$1.4, $0.0)	0.091

Table 6.13. ***(continued)***

	Track 2—Overall						Track 2—SSP						Track 2—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value
Hospice expenditures																		
Baseline	$24	$25	NA	NA	NA	NA	$22	$23	NA	NA	NA	NA	$25	$27	NA	NA	NA	NA
PY 1	$24	$25	$0.7 ($0.4)	2.7%	($0.0, $1.3)	0.121	$23	$24	$0.4 ($0.6)	2.0%	(-$0.6, $1.5)	0.475	$25	$26	$0.8 ($0.6)	3.4%	(-$0.1, $1.8)	0.147
PY 2	$28	$27	$2.2*** ($0.5)	8.8%	($1.3, $3.1)	0.000	$26	$25	$1.9** ($0.8)	8.0%	($0.6, $3.3)	0.016	$29	$28	$2.5*** ($0.8)	9.4%	($1.2, $3.7)	0.001
PY 1 and 2	$26	$26	$1.5*** ($0.4)	6.0%	($0.7, $2.2)	0.001	$25	$25	$1.2* ($0.7)	5.2%	($0.1, $2.3)	0.063	$27	$27	$1.7*** ($0.6)	6.6%	($0.7, $2.7)	0.006
Durable medical equipment expenditures																		
Baseline	$21	$21	NA	NA	NA	NA	$20	$20	NA	NA	NA	NA	$21	$22	NA	NA	NA	NA
PY 1	$20	$19	$0.4 ($0.2)	1.8%	($0.0, $0.8)	0.140	$19	$19	$0.1 ($0.3)	0.7%	(-$0.4, $0.7)	0.684	$20	$20	$0.5 ($0.3)	2.7%	($0.0, $1.1)	0.114
PY 2	$22	$22	$0.4 ($0.3)	1.6%	(-$0.1, $0.8)	0.203	$22	$21	$0.1 ($0.4)	0.4%	(-$0.6, $0.8)	0.841	$23	$23	$0.6 ($0.4)	2.6%	($0.0, $1.2)	0.128
PY 1 and 2	$21	$21	$0.4 ($0.2)	1.7%	($0.0, $0.8)	0.141	$21	$20	$0.1 ($0.3)	0.5%	(-$0.5, $0.7)	0.759	$22	$21	$0.6* ($0.3)	2.6%	($0.0, $1.1)	0.094
Unweighted sample sizes[g]																		
Number of practices	1,515	3,783					636	1,817					879	1,966				
Number of beneficiaries	1,443,553	3,360,712					647,933	1,687,779					799,069	1,682,597				
Number of beneficiary-years	3,359,423	7,764,569					1,491,588	3,893,155					1,867,835	3,871,414				

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: Expenditures on Part B noninstitutional services include expenditures on (1) billable primary care ambulatory visits, (2) ambulatory visits to specialists, and (3) non-ambulatory physician visits as well as services provided by other noninstitutional providers (we only show the first two categories separately in the table).

This table indicates which estimates are statistically significant; when we interpret evidence, we combine evidence from the magnitude of the effect, the *p*-values, findings on related outcomes, subgroups, sensitivity tests, and other data sources about model implementation.

[a] We report the actual, unadjusted CPC+ mean for each time period shown in the table. For comparison group practices, we report the actual, unadjusted mean during the baseline period but the adjusted mean during each intervention period. We obtain the adjusted mean by subtracting the regression adjusted difference between the CPC+ and comparison means in each time period from the CPC+ mean in that same time period.

[b] Impact estimates are regression-adjusted for pre-CPC+ beneficiary characteristics and practice fixed effects. Each impact estimate is based on a difference-in-differences analysis and reflects the difference in the regression-adjusted average outcome for Medicare FFS beneficiaries attributed to CPC+ practices in the first two years of CPC+ compared with baseline relative to the same difference over time for Medicare FFS beneficiaries attributed to comparison practices.

[c] We calculated percentage impacts relative to what the CPC+ mean would have been in Program Years 1 and 2 (separately and combined) in the absence of the intervention—that is, the unadjusted CPC+ mean minus the impact estimate.

Table 6.13. ***(continued)***

[d] Medicare Part A and B expenditures *without* enhanced payments include the base CPCPs, but not the 10 percent comprehensiveness supplement. We include CPCPs in Part B spending, because Track 2 practices agreed to lower Part B payment for evaluation and management services in exchange for CPCPs.

[e] Medicare Part A and B expenditures *with* enhanced payments include the base CPCPs, as well as the 10 percent comprehensiveness supplement.

[f] Acute inpatient care includes short-stay acute hospital admissions and admissions to critical access hospitals. Expenditures on non-acute hospital admissions, such as inpatient rehabilitation and psychiatric hospital admissions, are included in inpatient expenditures but not shown separately.

[g] After accounting for weights that adjust for matching and time observed in Medicare FFS, the effective sample sizes fall but are still substantial. For the comparison group, the effective sample size is 38 to 43 percent of the size of the actual comparison group. The effective sample size for the CPC+ group is about 96 percent of the actual sample size because it is affected only by time observed (and not by the matching weights).

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

NA = not applicable, either because the difference-in-differences impact estimate cannot be calculated at baseline, or because only CPC+ practices that participate in SSP are eligible to receive shared savings payments, and only non-SSP practices are eligible to receive Performance-based Incentive Payments. However, for the impact analysis, we determine SSP ACO participation status based on participation at the beginning of PY 1 (January 1, 2017 for 2017 Starters). Over time, CPC+ practices may join or leave SSP, resulting in a small subset of SSP practices receiving the Performance-based Incentive Payments and a small subset of non-SSP practices receiving the shared savings payments. Therefore, the impact estimates for the SSP practices may change slightly after including the Performance-based Incentive Payments and similarly, the impact estimates for non-SSP practices may change slightly after including the shared savings payments.

ACO = Accountable Care Organization; C = comparison; CPCP = Comprehensive Primary Care Payment; FFS = fee-for-service; PY = Program Year; SE = standard error; SSP = Medicare Shared Savings Program.

A.4. Results of sensitivity tests for impact estimates on Medicare expenditures without CMS' enhanced payments, overall for Track 2 2017 Starters

As for Track 1, sensitivity tests for Track 2 led to similar results as those from our main model. We tested the sensitivity of the impact estimate for our primary outcome—Medicare expenditures without CMS' enhanced payments —to varying the modeling assumptions. The impact estimate for the first two years of CPC+ was generally similar across different modeling approaches. For example, we obtained fairly similar estimates representing a less than one percent change in expenditures when we varied (1) the length of the baseline period, (2) the composition of the analysis sample, and (3) the model specification. Table 6.14 shows the results from these tests together with the motivation behind each of them. For most of the sensitivity tests that we conducted, impact estimates were small (ranging from 0.1 to 0.8 percent) and generally not statistically significant, as in the main analysis (where the impact estimate was 0.5 percent, $p = 0.15$). In the sensitivity tests in which we altered the sample to include only beneficiaries who were attributed during the first quarter of the baseline and intervention periods and when we increased the length of the baseline period, the impact estimates—$7 PBPM (0.8 percent, $p = 0.05$) and $6 PBPM (0.6 percent, $p = 0.05$, respectively)—were statistically significant but still small, as in the main analysis. The effects of removing beneficiaries with high costs continued to be mixed, as we found for the first annual report (Anglin et al. 2019). When we trimmed costs at the 98th percentile of the cost distribution, the estimate was essentially zero (a 0.1 percent increase, $p = 0.77$). In contrast, when we used log expenditures as our dependent variable, we obtained a larger, unfavorable estimated impact of 3.8 percent increase ($p < 0.01$). These findings suggest that the comparison group for Track 2 is likely to have more high-cost outliers, which the log formulation reduces in importance. The effect of this formulation would be to lower predicted mean expenditures more for the comparison group than for the CPC+ group, leading to a larger estimated increase for CPC+ versus comparison practices. However, we do not necessarily prefer this specification to our main analysis, because if one effect of CPC+ is to reduce the number of high-cost cases, we would not want to attenuate such effects, which is what the log formulation does. Overall, the similarity in the direction and magnitude of our impact estimates across all of our sensitivity tests suggests that our main findings are robust to changing the length of the baseline period, composition of the analysis sample, and modeling approach.

Table 6.14. Estimates of two-year impact of CPC+ on Medicare expenditures without CMS' enhanced payments for Track 2 2017 Starters, from main analysis and sensitivity tests

Test	Motivation	Impact estimate	Percentage impact	*p*-Value	90% CI lower bound	90% CI upper bound
Main analysis	**Estimate impact of CPC+ using a difference-in-differences analysis with an ITT beneficiary sample and a one-year baseline period, controlling for baseline beneficiary characteristics and practice fixed effects**	**$4.9**	**0.5%**	**0.15**	**-$0.7**	**$10.4**
Altering length of baseline period						
Use two-year baseline (instead of one year)	Controls for outcome levels over longer pre-CPC+ period	$5.7*	0.6%	0.05[a]	$0.9	$10.6
Altering the composition of the beneficiary sample						
Use sample of beneficiaries attributed during the intervention, and control for their baseline characteristics and outcomes, instead of using a separate baseline sample	Helps to adjust for changes in sample composition between baseline and follow-up that may differ for the intervention and comparison groups	$5.1	0.6%	0.15	-$0.7	$11.0
Examine the impacts for the subset of beneficiaries attributed in the first quarter of the baseline period and the intervention period	Removes any effects that may be due to changes in sample composition over time, for both baseline and intervention years	$7.0**	0.8%	0.05[b]	$1.2	$12.8
Instead of following an ITT approach to defining the beneficiary sample (once attributed, beneficiaries stay in the sample for all subsequent years), allow beneficiaries to drop out of the sample if they no longer meet attribution requirements	Assesses whether ITT tends to attenuate true effects by retaining beneficiaries in the intervention group who are no longer seen by CPC+ practices	$4.6	0.5%	0.17	-$0.9	$10.0
Altering the modeling assumptions						
Use generalized linear model with log link	Handles skewed expenditure distribution	$2.7	0.3%	0.64	-$6.6	$12.0
Trim costs at 98th percentile	Reduces influence of beneficiaries with high outlier expenditures	$0.8	0.1%	0.77	-$3.5	$5.0
Use log costs	Reduces influence of beneficiaries with high outlier expenditures	-[c]	3.8%***	0.00	3.3%	4.4%

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

[a] The *p*-value in this case is 0.053.

Table 6.14. ***(continued)***

[b] The *p*-value in this case is 0.047.

[c] We obtain only a percentage impact, not a dollar impact, from the model specification with log of expenditures as the outcome. The dollar magnitude of the impact in this model depends on the starting value—for example, a 3.8 percent impact for someone with expenditures equal to the CPC+ mean during the intervention period would be about $35.

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

CI = confidence interval; FFS = fee-for-service; ITT = intent-to-treat.

Similarly, the finding from the Bayesian analysis of a negligible chance that Track 2 reduced expenditures enough to offset the care management fees was not sensitive to varying the underlying assumptions. As Table 6.15 shows, the results of the Bayesian analysis using four sets of assumptions confirm our expectations that varying the assumptions would not vary the estimates much. All models concur in deeming the probability that Track 2 reduced Medicare expenditures enough to offset CMFs to be negligible. The point estimate of the overall CPC+ impact varies by no more than $1 across models, and the probability of reducing Medicare expenditures varies by no more than 0.2 percentage points.

Table 6.15. Bayesian estimates of the two-year impact of CPC+ on Medicare expenditures without CMS' enhanced payments for Track 2 2017 Starters, from main analysis and sensitivity tests

Model	Prior	Impact estimate (90 percent CI)	Probability of any reductions	Probability of reducing expenditures enough to offset CMFs
Bayesian 1 (Main)	Neutral[a]	$10.7 ($5.1, $16.5)	0.1%	<0.1%
Bayesian 2	Flat[b]	$10.9 ($5.4, $16.6)	0.3%	<0.1%
Bayesian 3	Narrow[c]	$9.7 ($4.3, $15.3)	0.2%	<0.1%
Bayesian 4	Wide[d]	$10.6 ($4.9, $16.1)	0.1%	<0.1%

[a] The neutral prior assumes that overall CPC+ impacts greater in absolute value than 5 percent of the baseline mean in the comparison group are unlikely. This prior derives from the literature on similar interventions evaluated using strong designs, in which impacts larger than 5 percent are rare.

[b] The flat prior assigns equal probability to every value of the impact, implying that huge reductions, huge cost increases, and no effect at all are equally likely impacts.

[c] The narrow prior assumes that overall CPC+ impacts greater in absolute value than 1 percent of the baseline mean are unlikely.

[d] The wide prior assumes that overall CPC+ impacts greater in absolute value than 10 percent of the baseline mean are unlikely.

CI = confidence interval.

A.5. Results for subgroups of practices and patients for impact estimates on Medicare expenditures, without CMS' enhanced payments

A.5.1. Findings from practice subgroup analysis

Similar to Track 1, for Track 2 2017 starters, the estimated effect on Medicare expenditures was similar across most practice subgroups we tested, although we found some weak evidence for unfavorable effects among practices owned by a hospital or health system (Table 6.16). The evidence for significant variation in impact estimates on Medicare expenditures by practice characteristics was weak. From a joint test of significance across all subgroups, we were unable to reject the hypothesis that the estimated impact of CPC+ was the

same across all practice subgroups that we tested ($p = 0.18$). In other words, we did not find strong evidence of variation in impact estimates across subgroups.

The findings from the Bayesian analysis also suggest that CPC+ did not lead to meaningful differences by practice subgroup. Across all practice subgroups, the impact of CPC+ was fairly stable, ranging from estimated increases of $7 to $14 PBPM in the first two years of CPC+. Although the impact estimates vary somewhat, the probability that Track 2 induced reductions in Medicare expenditures of $25 PBPM, the average CMF received by practices, or more, was negligible in all subgroups (Figure 6.8).

Although we do not have strong evidence from the joint significance test that impacts vary across the set of subgroups examined, as in Track 1, impact estimates do differ meaningfully between subgroups defined by whether the practice is independent or owned by a hospital or health system. The impact estimate of a decrease of $4 PBPM for independent practices and an increase of $11 PBPM for hospital- or system-owned practices were significantly different from each other. This finding is shown by the p-value in the last column of Table 6.16 from testing for significant differences between these two subgroups ($p = 0.02$). The impact estimate for independent practices was favorable (-$4 PBPM, $p = 0.45$), although not statistically significant. The impact estimate on hospital- or system-owned practices was unfavorable, suggesting an $11 PBPM or 1 percent increase for CPC+ versus comparison practices among the subgroup of practices that were hospital or system-owned (statistically significant at the 1 percent level [$p < 0.01$] as denoted in the table by three asterisks) over the first two program years. The estimates for these subgroups were similar in each year. The Bayesian analysis also found a slightly higher probability of reduction in Medicare expenditures in the independent practices subgroup than in any other practice subgroup, though the probability (10 percent) is not large enough to consider this evidence as a strong indication of a favorable effect (Figure 6.8). Similarly, the frequentist estimates do not indicate a sizable or statistically significant favorable effect for the independent practices.

The unfavorable findings in the subgroup of practices that are owned by a hospital or a health system in Track 2 are similar to the Track 1 results. As in Track 1, a statistically significant finding could occur by chance, and we need to exercise caution while interpreting this result, especially as our joint test of significance across all practice subgroups did not find compelling evidence of variation in impact estimates by any of the tested practice characteristics. However, as discuss for Track 1 findings above, practices owned by a hospital or health system may have a weaker incentive to reduce hospitalizations. Consistent with this explanation, we found that CPC+ effects on acute hospitalizations (per 1,000 beneficiaries) were significantly more favorable (albeit small) for independent practices than for practices owned by hospitals or health systems.[81] We will continue to monitor impacts in the subgroup of hospital- or system-owned

[81] The *p*-value for test of significant differences between the impact estimates for hospital-or system-owned practices versus the independent practices was 0.02. The cumulative impact estimate on independent practices was favorable suggesting a relative decline of 5 hospitalizations per 1,000 beneficiaries (less than 2 percent) for CPC+ versus comparison practices ($p = 0.04$), while the impact estimate for hospital/system-owned practices showed a small net increase of about 2 hospitalizations per 1,000 beneficiaries, which was not statistically significant ($p = 0.41$).

practices in future reports to see whether the differential findings for this subgroup continue over time.

Table 6.16. Estimates of two-year impact of CPC+ on Medicare expenditures without CMS' enhanced payments, by baseline practice characteristics among Track 2 2017 Starters

Practice subgroup definition, based on baseline characteristics	Number (percentage) of CPC+ beneficiaries in subgroup at baseline	Impact estimate (standard error)	Percentage impact	*p*-Value for difference in impact estimates between subgroups
Main analysis (all practices)		**$4.9 ($3.4)**	**0.5%**	
Whether practice participated in prior primary care transformation initiatives (recognized as a medical home or participated in MAPCP or CPC Classic)				
Yes	866,365 (81.2%)	$5.0 ($3.9)	0.6%	
No	201,204 (18.8%)	$3.6 ($6.6)	0.4%	0.87
Large and medium, versus small practice based on number of primary care practitioners				
Large (6+ primary care practitioners)	589,582 (55.2%)	$1.1 ($4.5)	0.1%	
Medium (3–5 primary care practitioners)	340,661 (31.9%)	$9.7 ($6.1)	1.1%	
Small (1–2 primary care practitioners)	137,326 (12.9%)	$8.3 ($8.9)	0.9%	0.34
Whether hospital- or system-owned				
Yes	620,314 (58.1%)	$11.2*** ($4.3)	1.2%	
No	447,225 (41.9%)	-$4.1 ($5.3)	-0.4%	0.02
Whether the practice is multispecialty versus primary care only				
Yes	278,991 (26.1%)	$7.7 ($6.9)	0.8%	
No	788,578 (73.9%)	$3.7 ($3.9)	0.4%	0.34
Urbanicity of practice's county: rural or suburban location versus urban location				
Rural	82,682 (7.7%)	$15.6 ($11.3)	1.9%	
Suburban	170,436 (16.0%)	$0.5 ($8.0)	0.1%	
Urban	814,451 (76.3%)	$4.6 ($3.9)	0.5%	0.42

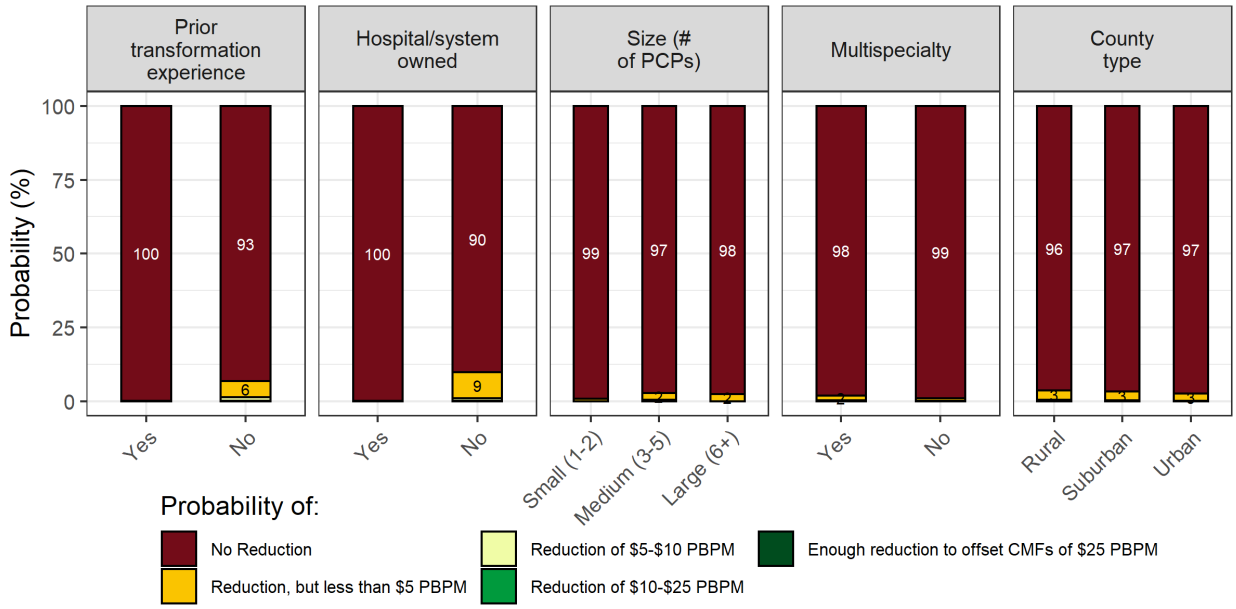
Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Note: The impact estimates (and standard errors) in the impact estimate column show subgroup-specific impacts over the first two years of CPC+, separately for each practice characteristic listed in the table. The *p*-values in the last column represent results from testing for statistically significant differences in impact estimates between the subgroups, based on the same baseline practice characteristic. The *p*-values are from a t-test for subgroups with two categories and from an F-test for subgroups with more than two categories. If this test did not indicate a statistically significant difference *between* subgroups defined by the same characteristic, we did not further test whether estimates *within* each subgroup were statistically significant (denoted by asterisks next to subgroup-specific impact estimates, only when we tested and found significant differences).

*/**/***Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

CPC = Comprehensive Primary Care; MAPCP = Multi-payer Advanced Primary Care Practice Demonstration.

Figure 6.8. Bayesian probabilities of Track 2 impacts on expenditures without enhanced payments, by practice subgroup among 2017 Starters



Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: A practice is considered to have prior transformation experience—that is, considered to have participated in prior primary care transformation initiatives—if it was (1) recognized as a medical home, or (2) participated in the Multi-payer Advanced Primary Care Practice Demonstration or CPC Classic.

CMF = care management fee; PCP = primary care provider.

A.5.2. Findings from beneficiary subgroup analysis

Track 2 impact estimates for Medicare expenditures without CMS' enhanced payments mostly did not differ by beneficiaries' baseline characteristics. There were no statistically significant differences between high-risk and non-high-risk beneficiary subgroups, where high-risk beneficiaries were defined as (1) being in the top quartile of the HCC score distribution, (2) being in the top decile of the HCC score distribution or having dementia , (3) having behavioral health conditions,[82] or (4) being dually eligible (Table 6.17). However, the impact estimate on Medicare expenditures for CPC+ beneficiaries with two or more of 12 high-risk chronic conditions and a hospitalization in the prior year differed significantly from those without such conditions or hospitalizations in the prior year as shown by the *p*-value in the last column of the table for those two subgroups ($p = 0.06$).[83] Specifically, among the 9 percent of beneficiaries with 2 or more of 12 high-risk chronic conditions and a hospitalization in the prior year, the impact estimate showed a $43 PBPM increase (1.7 percent) relative to the comparison

[82] We used Hierarchical Condition Categories (HCCs) for schizophrenia or major depressive disorder, bipolar and paranoid disorders, drug/alcohol psychosis, or drug/alcohol dependence to identify beneficiaries with behavioral health conditions at baseline.

[83] The 12 frequently occurring chronic conditions we used in this definition are congestive heart failure, chronic obstructive pulmonary disease, acute myocardial infarction, ischemic heart disease, diabetes, metastatic cancer and acute leukemia, stroke, depression, dementia, atrial fibrillation, rheumatoid arthritis or osteoarthritis, and chronic kidney disease. These conditions are defined using the HCCs.

group (p = 0.04). In contrast, the impact estimate was $4 PBPM for beneficiaries who did not have two or more chronic conditions and a hospitalization in the prior year. Finding one statistically significant difference across the five subgroups tested could occur due to chance—therefore, the unfavorable findings for this high-risk subgroup need to be interpreted with caution. However, CPC+ may contribute to an increase in expenditures for high-risk beneficiaries in the short to medium term through more effective care management that results in identification of additional health problems, more referrals to specialists, and use of additional health care services.

Table 6.17. Estimates of two-year impacts of CPC+ on Medicare expenditures without CMS' enhanced payments, by baseline beneficiary characteristics among Track 2 2017 Starters

Beneficiary subgroup definition, based on baseline characteristics	Number (percentage) of CPC+ beneficiaries in subgroup at baseline	Impact estimate (standard error)	Percentage impact	*p*-Value for difference in impact estimates between subgroups
Main analysis (all beneficiaries)		**$4.9 ($3.4)**	**0.5%**	
Patients in the highest quartile of the distribution of HCC score distribution				
Yes	259,810 (26.8%)	$15.4 ($9.6)	0.8%	
No	710,613 (73.2%)	$4.5 ($3.0)	0.7%	0.27
Patients who either are in the highest decile of the distribution of HCC score or have dementia				
Yes	161,320 (16.6%)	$15.8 ($13.3)	0.7%	
No	809,103 (83.4%)	$5.7 ($3.1)	0.8%	0.46
Patients with selected behavioral health conditions (schizophrenia, depression and bipolar disorders, or drug/alcohol psychosis or dependence)				
Yes	92,696 (9.6%)	$24.6 ($12.7)	1.8%	
No	877,727 (90.5%)	$5.6 ($3.4)	0.6%	0.13
Patients who have multiple chronic conditions (at least 2 of 12 frequently occurring chronic conditions[a]) and also had one or more hospitalizations[b]				
Yes	90,304 (9.3%)	$43.0 ($20.5)**	1.7%	
No	880,119 (90.7%)	$4.2 ($3.2)	0.5%	0.06
Patients who are dually eligible for Medicare and Medicaid				
Yes	135,851 (12.7%)	$9.1 ($10.4)	0.7%	
No	931,718 (87.3%)	$3.7 ($3.4)	0.4%	0.61

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Note: Beneficiary characteristics to determine subgroup membership are measured at the start of the yearlong baseline period for baseline observations and at the start of Program Year 1 for observations in the intervention period (Program Years 1 and 2). The estimates (and standard errors) in the impact estimate column show subgroup-specific impacts, separately for each beneficiary characteristic listed in the table. The *p*-value in the last column reflects results from testing for statistically significant differences in impact estimates between the subgroups, based on the same baseline beneficiary characteristic. The *p*-values are from a t-test for subgroups with two categories. If this test did not indicate a statistically significant difference *between* subgroups defined by the same characteristic, we did not further test whether estimates *within* each subgroup were statistically significant (denoted by asterisks next to subgroup-specific impact estimates, only when we tested and found significant differences). Because we could not observe diagnoses (which are used to

Table 6.17. ***(continued)***

determine HCCs and calculate HCC scores) at baseline for beneficiaries who were new to Medicare during the program years, we excluded new Medicare beneficiaries from all subgroup analyses (except the analysis based on dual status). This process resulted in the exclusion of close to 10 percent of observations from the regressions for these subgroups. Therefore, the main impact estimate of $4.9 PBPM for Track 2 overall may not lie between the impact estimates for the subgroups based on HCC score and chronic conditions— that is, for all subgroups except the ones based on dual status.

[a] The 12 frequently occurring chronic conditions are congestive heart failure, chronic obstructive pulmonary disease, history of acute myocardial infarction, ischemic heart disease, diabetes, metastatic cancer and acute leukemia, history of stroke, depression, dementia, atrial fibrillation, rheumatoid arthritis or osteoarthritis, and chronic kidney disease.

[b] For observations in the baseline year, hospitalizations are measured in the year before the start of the baseline year (calendar year 2015 for 2017 Starters). For observations in the intervention period, hospitalizations are measured in the year before the start of Program Year 1 (calendar year 2016 for 2017 Starters).

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

HCC = hierarchical condition category.

B. Medicare FFS service use

Over the first two years, CPC+ was associated with a small reduction in ED visits for Track 2 practices relative to comparison practices. ED visits declined among both Track 2 and comparison practices, but with larger reductions in annualized total ED visits and annualized outpatient ED visits by 8 visits per 1,000 and 6 visits per 1,000, respectively ($p < 0.01$ in each case, Table 6.18) for CPC+ practices than for comparison practices. This finding translated into a reduction of 1.1 percent in annualized total ED visits and 1.3 percent in annualized outpatient ED visits. The small favorable relative declines observed in PY 1 persisted into PY 2.

CPC+ Track 2 was also associated with slightly lower rates of growth in ambulatory primary care visits, relative to comparison practices. Annualized ambulatory primary care visits billed to Medicare increased by less for Track 2 practices relative to the comparison group by a statistically significant 49 visits per 1,000 beneficiaries, which translates to a reduction of 1.1 percent ($p < 0.01$). We did not observe a corresponding decrease in *expenditures* for billable ambulatory primary care visits over the first two years; instead, there was a small increase of $1 PBPM (2 percent) in expenditures on billable ambulatory primary care visits for Track 2 versus comparison practices. The fixed capitated payments, or CPCPs for physician visits that were paid to Track 2 practices, could have been slightly high, and could have offset any reduction in expenditures due to a decrease in the number of visits, or the CPC+ practices could have been billing for visits about slightly more complicated health issues.[84] As we note above, we included the base CPCPs (but not the comprehensive supplement) in calculating ambulatory primary care expenditures as well as Medicare expenditures without CMS' enhanced payments for Track 2 practices during the intervention period.

CPC+ was not associated with any relative change in the number of short-stay, acute care hospitalizations, or ambulatory visits with specialists; the differences between Track 2 and the comparison practices for each were less than one-half of a percent and not statistically significant.

[84] Without accounting for the CPCPs, the impact estimate for expenditures on billable ambulatory primary care visits showed a $3 PBPM relative reduction for Track 2 versus comparison practices.

Table 6.18. Regression-adjusted means and estimated impact of CPC+ on selected Medicare service use outcomes for attributed Medicare FFS beneficiaries over the first two program years: Track 2 2017 Starters

	Track 2— Overall						Track 2—SSP						Track 2—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value
Service use (per 1,000 beneficiaries per year)																		
Acute hospitalizations (short-stay acute care and critical access hospitals)																		
Baseline	292	288	NA	NA	NA	NA	300	291	NA	NA	NA	NA	287	286	NA	NA	NA	NA
PY 1	292	288	-0.5 (1.6)	-0.2%	(-3.1, 2.1)	0.756	301	293	-0.4 (2.4)	-0.1%	(-4.3, 3.5)	0.861	285	285	-0.5 (2.2)	-0.2%	(-4.1, 3.0)	0.800
PY 2	288	285	-1.3 (1.7)	-0.5%	(-4.2, 1.5)	0.432	296	287	0.6 (2.5)	0.2%	(-3.6, 4.7)	0.829	281	283	-2.9 (2.3)	-1.0%	(-6.7, 0.9)	0.210
PY 1 and 2	290	287	-1.0 (1.5)	-0.3%	(-3.4, 1.5)	0.518	298	290	0.1 (2.3)	0.0%	(-3.7, 3.8)	0.979	283	284	-1.8 (2.0)	-0.6%	(-5.1, 1.5)	0.367
Total ED visits, including observation stays																		
Baseline	707	702	NA	NA	NA	NA	701	689	NA	NA	NA	NA	712	711	NA	NA	NA	NA
PY 1	702	704	-7.3** (3.0)	-1.0%	(-12.2, -2.5)	0.013	697	692	-7.3* (4.3)	-1.0%	(-14.3, -0.3)	0.086	707	714	-7.3* (4.1)	-1.0%	(-14.0, -0.5)	0.075
PY 2	695	698	-8.6*** (3.3)	-1.2%	(-14.0, -3.1)	0.010	689	684	-6.4 (4.7)	-0.9%	(-14.1, 1.3)	0.173	700	710	-10.3** (4.6)	-1.5%	(-18.0, -2.7)	0.026
PY 1 and 2	699	701	-8.0*** (2.8)	-1.1%	(-12.7, -3.3)	0.005	693	688	-6.9* (4.1)	-1.0%*	(-13.6, -0.1)	0.094	703	712	-8.9** (3.9)	-1.3%	(-15.4, -2.5)	0.023
Outpatient ED visits, including observation stays																		
Baseline	492	492	NA	NA	NA	NA	479	475	NA	NA	NA	NA	503	507	NA	NA	NA	NA
PY 1	486	494	-7.2*** (2.3)	-1.5%	(-11.0, -3.3)	0.002	471	476	-8.8*** (3.4)	-1.8%	(-14.4, -3.2)	0.010	498	508	-5.8* (3.2)	-1.2%	(-11.1, -0.6)	0.067
PY 2	481	486	-5.4** (2.7)	-1.1%	(-9.8, -1.0)	0.044	466	468	-6.7* (3.8)	-1.4%	(-13.0, -0.5)	0.075	493	501	-4.4 (3.8)	-0.9%	(-10.5, 1.8)	0.246
PY 1 and 2	483	490	-6.3*** (2.3)	-1.3%	(-10.0, -2.5)	0.006	468	472	-7.8** (3.3)	-1.6%	(-13.2, -2.3)	0.019	495	504	-5.1 (3.1)	-1.0%	(-10.3, 0.1)	0.106
Ambulatory primary care visits (including to FQHCs, RHCs, and CAHs)																		
Baseline	4,345	4,422	NA	NA	NA	NA	4,197	4,338	NA	NA	NA	NA	4,462	4,489	NA	NA	NA	NA
PY 1	4,349	4,495	-68.4*** (16.2)	-1.5%	(-95.1, -41.8)	0.000	4,220	4,407	-45.5** (20.9)	-1.1%	(-79.8, -11.1)	0.030	4,452	4,566	-86.8*** (23.8)	-1.9%	(-126.0, -47.6)	0.000
PY 2	4,362	4,470	-30.8 (22.3)	-0.7%	(-67.5, 5.9)	0.168	4,235	4,395	-18.6 (28.5)	-0.4%	(-65.4, 28.3)	0.514	4,464	4,532	-40.6 (33.0)	-0.9%	(-94.8, 13.7)	0.219
PY 1 and 2	4,356	4,482	-48.7*** (18.0)	-1.1%	(-78.3, -19.1)	0.007	4,228	4,401	-31.4 (23.3)	-0.7%	(-69.8, 7.0)	0.178	4,458	4,548	-62.6** (26.4)	-1.4%	(-106.0, -19.2)	0.018

Table 6.18. ***(continued)***

	Track 2— Overall						Track 2—SSP						Track 2—Non-SSP					
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	Percentage impact[c]	90 percent confidence interval	*p*-Value
Ambulatory specialty care visits (including to FQHCs, RHCs, and CAHs)																		
Baseline	4,169	4,098	NA	NA	NA	NA	4,375	4,275	NA	NA	NA	NA	4,008	3,957	NA	NA	NA	NA
PY 1	4,123	4,051	0.0 (9.9)	0.0%	(-16.3, 16.3)	0.997	4,304	4,214	-9.3 (16.9)	-0.2%	(-37.2, 18.6)	0.583	3,979	3,920	7.5 (11.5)	0.2%	(-11.5, 26.5)	0.519
PY 2	4,086	4,023	-8.6 (13.8)	-0.2%	(-31.3, 14.1)	0.534	4,259	4,196	-36.5 (22.7)	-0.8%	(-73.8, 0.9)	0.108	3,948	3,883	13.8 (16.7)	0.4%	(-13.7, 41.2)	0.409
PY 1 and 2	4,104	4,037	-4.7 (10.6)	-0.1%	(-22.1, 12.8)	0.659	4,280	4,204	-23.9 (17.2)	-0.6%	(-52.1, 4.4)	0.165	3,962	3,901	10.7 (13.1)	0.3%	(-10.9, 32.2)	0.416
Unweighted sample sizes[d]																		
Number of practices	1,515	3,783					636	1,817					879	1,966				
Number of beneficiaries	1,443,553	3,360,712					647,933	1,687,779					799,069	1,682,597				
Number of beneficiary-years	3,359,423	7,764,569					1,491,588	3,893,155					1,867,835	3,871,414				

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: For Medicare service use measures, measures of outpatient ED visits and total ED visits include observation stays. Billable ambulatory visits with primary care practitioners and specialists include office-based visits, visits at home, and visits in other settings, such as FQHCs, RHCs, and CAHs.

This table indicates which estimates are statistically significant; when we interpret evidence, we combine evidence from the magnitude of the effect, the p-values, findings on related outcomes, subgroups, sensitivity tests, and other data sources about model implementation.

[a] We report the actual, unadjusted CPC+ mean for each time period shown in the table. For comparison group practices, we report the actual, unadjusted mean during the baseline period but the adjusted mean during each intervention period. We obtain the adjusted mean by subtracting the regression adjusted difference between the CPC+ and comparison means in each time period from the CPC+ mean in that same time period.

[b] Impact estimates are regression-adjusted for pre-CPC+ beneficiary characteristics and practice fixed effects. Each impact estimate is based on a difference-in-differences analysis and reflects the difference in the regression-adjusted average outcome for Medicare FFS beneficiaries attributed to CPC+ practices in the first two years of CPC+ compared with baseline relative to the same difference over time for Medicare FFS beneficiaries attributed to comparison practices.

[c] We calculated percentage impacts relative to what the CPC+ mean would have been in Program Years 1 and 2 (separately and combined) in the absence of the intervention—that is, the unadjusted CPC+ mean minus the impact estimate.

[d] After accounting for weights that adjust for matching and time observed in Medicare FFS, the effective sample sizes fall but are still substantial. For the comparison group, the effective sample size is 38 to 43 percent of the size of the actual comparison group. The effective sample size for the CPC+ group is about 95 percent of the actual sample size because it is affected only by time observed (and not by the matching weights).

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

C = comparison; CAH = critical access hospital; ED = emergency department; FFS = fee-for-service; FQHC = federally qualified health center; NA = not applicable; PY = Program Year; RHC = rural health center; SE = standard error; SSP = Medicare Shared Savings Program.

C. Claims-based quality of care

C.1. Planned care and population health measures

Similar to findings for Track 1, 2017 Starters in Track 2 had slightly greater improvements in recommended services for beneficiaries with diabetes than comparison practices. Claims-based measures of quality in the planned care and population health domain are limited to only a few screening measures for beneficiaries with diabetes and a measure for breast cancer screening for females aged 52 through 74. CPC+ practices in Track 2 had greater improvements in all three measures of beneficiaries with diabetes receiving recommended tests, and in both composite diabetes quality-of-care measures, relative to comparison practices. Although the impact estimates were small in magnitude—less than one percentage point—the favorable estimates were concentrated in PY 2, pointing toward possible improvements over time (Table 6.19). Although the estimates were somewhat more favorable for the non-SSP practices, the impact estimates for SSP versus non-SSP practices were significantly different from each other for only one diabetes composite measure—not receiving any of the three recommended tests, as described below.

Specifically, from baseline to the end of PY 2, among patients with diabetes attributed to Track 2 practices relative to their comparison counterparts:

- The likelihood of receiving HbA1c testing increased by 0.3 percentage points ($p = 0.08$).
- The likelihood of receiving an eye exam increased by 0.6 percentage points ($p = 0.02$).
- The likelihood of receiving attention for nephropathy increased by 0.6 percentage points ($p = 0.02$).
- The likelihood of receiving all three recommended tests increased by 0.9 percentage points ($p < 0.01$).
- The likelihood of receiving none of the three recommended tests decreased by 0.1 percentage points ($p = 0.05$).

Similar to Track 1 findings, all these estimates point toward small increases in the number of beneficiaries receiving these services. For example, based on these impact estimates and the 192,057 beneficiaries with diabetes among Track 2 practices over the first two program years, an additional 1,152 beneficiaries received an eye exam, and an additional 1,729 beneficiaries received all three tests. These numbers translate to an average of 0.8 additional beneficiaries per practice who received an eye exam and 1.1 additional beneficiaries per practice who received all three tests. Most of these favorable changes were concentrated among the non-SSP practices, although we found a statistically significant difference between impact estimates for SSP versus non-SSP practices for only one of the measures. Specifically, the decline of 0.3 percentage points among non-SSP practices ($p < 0.01$) in the likelihood of not receiving any of the three recommended tests was significantly different ($p = 0.07$) from the estimated zero impact on this measure for SSP practices. Among Track 2 practices at baseline, more than 92 percent of beneficiaries with diabetes received an HbA1c test, 65 percent received eye exams, more than 82 percent received attention for nephropathy, and 54 percent received all three tests, leaving more

room for improvement in some measures than others. Also, the rates of these tests in the baseline period were slightly smaller (generally, by 1 to 4 percentage points) among the non-SSP practices relative to the SSP practices, so there may have been slightly more room for improvement among non-SSP practices for these measures during the intervention.

CPC+ Track 2 was associated with a slight improvement in breast cancer screening among female beneficiaries ages 52 through 74. Seventy percent of attributed female beneficiaries ages 52 through 74 received breast cancer screening during the year before CPC+ began, and this rate increased by 0.7 percentage points ($p < 0.01$) more for Track 2 than for their comparison counterparts over the first two program years. The overall Track 2 effect was driven by the 1 percentage point impact estimate ($p < 0.01$) for non-SSP Track 2 practices, which was significantly different ($p = 0.04$) from the small 0.3 percentage point estimate among SSP practices. The overall Track 2 impact estimate suggests an increase of 2,200 out of a possible 314,215 female beneficiaries ages 52 through 74 who received breast cancer screening.

Although the small improvements in diabetes quality of care measures and in breast cancer screening do not constitute strong evidence of a substantive quality improvement driven by CPC+, they have persisted over the first two program years. We will continue to monitor these estimates in subsequent annual reports to see how results evolve.

C.2. Measure for coordination of care

Estimated effects on the claims-based measure for coordination of care, unplanned readmissions, were neither sizable nor statistically significant. Specifically, for Track 2, the difference-in-differences estimate for unplanned readmission within 30 days of a hospital discharge was essentially zero. In a sensitivity test for which we defined the readmission outcome at the beneficiary level instead of the discharge level, we similarly found no difference between CPC+ and comparison practices in the percentage of beneficiaries who had an unplanned readmission during the year.

C.3. Measures for patient and caregiver engagement

Similar to Track 1, CPC+ practices in Track 2 experienced a small increase in the use of hospice services relative to comparison practices. The cumulative two-year annual impact estimate suggested that there was a small increase of 0.1 percentage points in the proportion of beneficiaries with any use of hospice services relative to the comparison practices ($p < 0.01$). (Because less than 3 percent of attributed sample members received hospice services during the baseline year, the impact estimate of 0.1 percentage points is small, but not trivial.)

C.4. Mortality

CPC+ did not affect mortality. As for Track 1, among beneficiaries attributed in the first quarter of the intervention, there were no meaningful or statistically significant differences between CPC+ and comparison practices in the percentage of beneficiaries dying during the next 12 months (4 percent) or the next 24 months (8 percent) of the intervention.

Table 6.19. Regression-adjusted means and estimated impact of CPC+ on selected claims-based quality-of-care measures for attributed Medicare FFS beneficiaries over the first two program years: Track 2 2017 Starters

	Track 2—Overall					Track 2—SSP					Track 2—Non-SSP				
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	p-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	p-Value
Planned care and population health measures for beneficiaries ages 18–75 with diabetes (percentage)															
Received HbA1c test															
Baseline	92.5%	92.2%	NA	NA	NA	92.9%	92.1%	NA	NA	NA	92.2%	92.3%	NA	NA	NA
PY 1	92.9%	92.3%	0.3* (0.2)	(0.0, 0.6)	0.075	93.4%	92.4%	0.2 (0.2)	(-0.2, 0.5)	0.416	92.6%	92.2%	0.4 (0.3)	(0.0, 0.8)	0.111
PY 2	92.6%	92.0%	0.3 (0.2)	(0.0, 0.6)	0.134	92.9%	91.9%	0.1 (0.3)	(-0.3, 0.6)	0.630	92.4%	92.1%	0.4 (0.3)	(0.0, 0.8)	0.132
PY 1 and 2	92.8%	92.1%	0.3* (0.2)	(0.0, 0.6)	0.076	93.1%	92.1%	0.2 (0.2)	(-0.2, 0.5)	0.490	92.5%	92.2%	0.4* (0.2)	(0.0, 0.8)	0.094
Received eye exam															
Baseline	65.4%	65.6%	NA	NA	NA	66.9%	66.9%	NA	NA	NA	64.2%	64.5%	NA	NA	NA
PY 1	66.1%	66.3%	0.0 (0.2)	(-0.4, 0.4)	0.860	66.9%	67.5%	-0.6 (0.4)	(-1.3, 0.1)	0.136	65.4%	65.3%	0.4 (0.3)	(-0.1, 0.9)	0.166
PY 2	67.2%	66.2%	1.1*** (0.3)	(0.6, 1.6)	0.000	68.9%	67.6%	1.3*** (0.5)	(0.5, 2.1)	0.009	65.9%	65.1%	1.0*** (0.4)	(0.4, 1.6)	0.006
PY 1 and 2	66.6%	66.3%	0.6** (0.2)	(0.2, 1.0)	0.022	67.9%	67.6%	0.4 (0.4)	(-0.3, 1.1)	0.365	65.6%	65.2%	0.7** (0.3)	(0.2, 1.2)	0.016
Received attention for nephropathy															
Baseline	82.7%	82.2%	NA	NA	NA	84.7%	82.8%	NA	NA	NA	81.2%	81.6%	NA	NA	NA
PY 1	83.4%	82.6%	0.3 (0.2)	(-0.1, 0.7)	0.243	85.2%	83.4%	0.0 (0.3)	(-0.5, 0.6)	0.955	82.0%	82.0%	0.5 (0.3)	(-0.1, 1.0)	0.148
PY 2	83.9%	82.6%	0.8*** (0.3)	(0.4, 1.3)	0.003	85.6%	83.4%	0.3 (0.4)	(-0.4, 1.0)	0.452	82.6%	81.9%	1.3*** (0.4)	(0.6, 1.9)	0.002
PY 1 and 2	83.7%	82.6%	0.6** (0.2)	(0.2, 1.0)	0.017	85.4%	83.4%	0.2 (0.3)	(-0.4, 0.7)	0.616	82.3%	81.9%	0.9*** (0.3)	(0.3, 1.4)	0.008
Diabetes Composite Measure 1 (received all three tests above: HbA1c test, eye exam, attention for nephropathy)															
Baseline	54.0%	53.7%	NA	NA	NA	56.4%	55.2%	NA	NA	NA	52.2%	52.5%	NA	NA	NA
PY 1	55.1%	54.6%	0.2 (0.3)	(-0.3, 0.6)	0.565	57.0%	56.2%	-0.4 (0.5)	(-1.1, 0.4)	0.386	53.6%	53.4%	0.6* (0.4)	(0.0, 1.2)	0.095
PY 2	56.3%	54.4%	1.6*** (0.3)	(1.0, 2.2)	0.000	59.0%	55.9%	1.8*** (0.6)	(0.9, 2.7)	0.001	54.3%	53.2%	1.4*** (0.4)	(0.7, 2.1)	0.001
PY 1 and 2	55.7%	54.5%	0.9*** (0.3)	(0.4, 1.4)	0.002	58.0%	56.1%	0.7 (0.5)	(0.0, 1.5)	0.105	54.0%	53.3%	1.0*** (0.4)	(0.4, 1.6)	0.006

Table 6.19. ***(continued)***

	Track 2—Overall					Track 2—SSP					Track 2—Non-SSP				
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	*p*-Value
Diabetes Composite Measure 2 (received none of the three tests above)															
Baseline	2.1%	2.1%	NA	NA	NA	2.0%	2.1%	NA	NA	NA	2.2%	2.1%	NA	NA	NA
PY 1	1.9%	2.0%	-0.1 (0.1)	(-0.2, 0.0)	0.235	1.9%	2.0%	0.0 (0.1)	(-0.2, 0.2)	0.789	2.0%	2.1%	-0.2* (0.1)	(-0.4, 0.0)	0.084
PY 2	2.0%	2.2%	-0.2** (0.1)	(-0.3, -0.1)	0.020	1.9%	2.1%	0.0 (0.1)	(-0.2, 0.2)	0.858	2.0%	2.2%	-0.3*** (0.1)	(-0.5, -0.1)	0.004
PY 1 and 2	2.0%	2.1%	-0.1** (0.1)	(-0.3, 0.0)	0.047	1.9%	2.0%	0.0 (0.1)	(-0.2, 0.2)	0.976	2.0%	2.2%	-0.3*** (0.1)	(-0.4, -0.1)	0.009
Unweighted sample sizes for the diabetes measures[c]															
Number of beneficiaries	225,999	520,091				99,607	257,543				126,801	263,631			
Number of beneficiary-years	461,810	1,054,625				201,625	521,232				260,185	533,393			
Planned care and population health measures for female beneficiaries ages 52–74 (percentage)															
Received breast cancer screening															
Baseline	70.1%	70.1%	NA	NA	NA	71.9%	71.2%	NA	NA	NA	68.8%	69.2%	NA	NA	NA
PY 1	71.7%	71.1%	0.5*** (0.1)	(0.2, 0.7)	0.002	73.3%	72.4%	0.2 (0.2)	(-0.1, 0.6)	0.272	70.4%	70.2%	0.6*** (0.2)	(0.3, 1.0)	0.002
PY 2	72.7%	71.8%	0.9*** (0.2)	(0.5, 1.2)	0.000	74.2%	73.2%	0.4 (0.3)	(-0.1, 0.8)	0.228	71.5%	70.7%	1.2*** (0.3)	(0.8, 1.7)	0.000
PY 1 and 2	72.2%	71.5%	0.7*** (0.2)	(0.4, 0.9)	0.000	73.8%	72.8%	0.3 (0.2)	(-0.1, 0.7)	0.206	71.0%	70.5%	1.0*** (0.2)	(0.6, 1.3)	0.000
Unweighted sample sizes for the breast cancer screening measure[c]															
Number of beneficiaries	365,260	837,506				163,592	418,490				202,410	421,158			
Number of beneficiary-years	754,970	1,726,017				334,023	859,362				420,947	866,655			
Measures for coordination of care (percentage)															
Percentage of discharges that had a 30-day all-cause unplanned readmission															
Baseline	15.7%	15.9%	NA	NA	NA	15.9%	16.0%	NA	NA	NA	15.5%	15.8%	NA	NA	NA
PY 1	15.7%	16.0%	-0.1 (0.2)	(-0.3, 0.2)	0.606	16.1%	16.2%	0.0 (0.2)	(-0.4, 0.3)	0.860	15.4%	15.7%	-0.1 (0.2)	(-0.5, 0.2)	0.585
PY 2	15.9%	16.0%	0.0 (0.2)	(-0.2, 0.3)	0.766	16.3%	16.0%	0.4 (0.2)	(0.0, 0.7)	0.106	15.5%	16.0%	-0.2 (0.2)	(-0.6, 0.2)	0.337
PY 1 and 2	15.8%	16.0%	0.0 (0.1)	(-0.2, 0.2)	0.921	16.2%	16.1%	0.2 (0.2)	(-0.1, 0.5)	0.378	15.4%	15.9%	-0.2 (0.2)	(-0.5, 0.2)	0.395

Table 6.19. ***(continued)***

	Track 2—Overall					Track 2—SSP					Track 2—Non-SSP				
	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	*p*-Value	CPC+ mean[a]	C mean[a]	Impact estimate[b] (SE)	90 percent confidence interval	*p*-Value
Measures for patient and caregiver engagement (percentage)															
Received hospice services															
Baseline	2.8%	2.7%	NA	NA	NA	2.7%	2.6%	NA	NA	NA	2.8%	2.8%	NA	NA	NA
PY 1	2.8%	2.7%	0.0 (0.0)	(0.0, 0.1)	0.147	2.7%	2.6%	0.0 (0.0)	(-0.1, 0.1)	0.685	2.8%	2.8%	0.1 (0.0)	(0.0, 0.1)	0.117
PY 2	2.9%	2.8%	0.1*** (0.0)	(0.1, 0.2)	0.000	2.9%	2.7%	0.1 (0.0)	(0.0, 0.1)	0.168	3.0%	2.9%	0.2*** (0.0)	(0.1, 0.2)	0.001
PY 1 and 2	2.9%	2.8%	0.1*** (0.0)	(0.0, 0.1)	0.004	2.8%	2.7%	0.0 (0.0)	(0.0, 0.1)	0.306	2.9%	2.8%	0.1*** (0.0)	(0.1, 0.2)	0.004
Unweighted sample sizes for unplanned readmission and receiving hospice services[c]															
Number of index discharges for readmissions	837,953	1,896,158				383,084	955,777				454,869	940,381			
Number of beneficiaries	1,443,553	3,360,712				647,933	1,687,779				799,069	1,682,597			
Number of beneficiary-years	3,359,423	7,764,569				1,491,588	3,893,155				1,867,835	3,871,414			

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Notes: For the binary quality-of-care outcomes, we present the absolute impact estimate only in percentage points. We do so because percentage impacts for some of the outcomes are likely to be misleadingly large, given the low means for the outcome measures.

This table indicates which estimates are statistically significant; when we interpret evidence, we combine evidence from the magnitude of the effect, the *p*-values, findings on related outcomes, subgroups, sensitivity tests, and other data sources about model implementation.

We grouped the claims-based quality-of-care measures into four domains according to the Comprehensive Primary Care Functions under which they appear in the 2018 CPC+ Implementation Guide (CMMI 2018).

[a] We report the actual, unadjusted CPC+ mean for each time period shown in the table. For comparison group practices, we report the actual, unadjusted mean during the baseline period but the adjusted mean during each intervention period. We obtain the adjusted mean by subtracting the regression adjusted difference between the CPC+ and comparison means in each time period from the CPC+ mean in that same time period.

[b] Impact estimates are regression-adjusted for baseline beneficiary characteristics and practice fixed effects. All outcomes are reported as beneficiary-level percentages, except for the 30-day unplanned readmission measure, which is at the discharge level. Each impact estimate is based on a difference-in-differences analysis and reflects the difference in the regression-adjusted average outcome for Medicare FFS beneficiaries attributed to CPC+ practices in the first two years of CPC+ compared with the average outcome in the baseline year, relative to the same difference over time for Medicare FFS beneficiaries attributed to comparison practices. For the readmissions outcome, which is estimated at the discharge level, we also controlled for discharge-level risk factors.

[c] The numbers of Track 2 CPC+ and comparison practices are same as in Tables 6.12 and 6.17, and hence, are not reported separately in this table. After accounting for weights that adjust for matching and time observed in Medicare FFS, the effective sample sizes fall but are still substantial. For the comparison group, the effective sample size is 38 to 44 percent of the size of the actual comparison group. The effective sample size for the CPC+ group is about 95 to 99 percent of the actual sample size because it is affected only by time observed (and not by the matching weights). For the analysis of unplanned 30-day readmissions, we only use matching weights—therefore, the effective sample size for the number of index discharges shown in the table is about 39 to 44 percent of the actual sample size for the comparison group only.

*/**/*** Significantly different from zero at the 0.10/0.05/0.01 level, two-tailed test.

C = comparison; FFS = fee-for-service; NA = not applicable; PY = Program Year; SE = standard error; SSP = Medicare Shared Savings Program.

D. Aggregate impact estimates for key outcomes

As for Track 1, we translated beneficiary-level impact estimates to aggregate estimates—for example, the estimated total dollar amount of reduction in Medicare expenditures or the total number of ED visits avoided among the Medicare FFS beneficiaries receiving the intervention. Similar to Track 1, we present aggregate impact estimates over the first two program years combined for all Medicare FFS beneficiaries assigned to Track 2 practices that began in 2017, for five outcome measures: (1) Medicare expenditures without CMS' enhanced payments, (2) Medicare expenditures including CMS' enhanced payments, (3) number of hospitalizations, (4) number of outpatient ED visits, and (5) 30-day unplanned readmissions. The only statistically significant estimates were – (1) an increase of over $770 million in Medicare expenditures including enhanced payments, and (2) a relative reduction of 13,339 outpatient ED visits (Table 6.20).

Table 6.20. Aggregate impact estimates for key outcomes over the first two years of CPC+: Track 2 2017 Starters

Outcome	Estimate	90 percent CI lower bound	90 percent CI upper bound
Medicare expenditures including Comprehensive Primary Care Payments but excluding CMS' enhanced payments [a]	$124,872,489	-$16,706,526	$266,451,515
Medicare expenditures including Comprehensive Primary Care Payments and CMS' enhanced payments[a]	$770,163,775	$629,775,184	$910,552,622
Hospitalizations	-2,060	-7,305	3,184
Outpatient ED visits	***-13,339***	-21,348	-5,329
30-day readmissions[b]	-79	-1,385	1,227

Source: Mathematica's analysis of Medicare claims data from January 2013 through December 2018.

Note: This table calculates the estimated effects over all attributed Medicare FFS beneficiaries who were in the intent-to-treat analysis sample during the first two years of CPC+ for 2017 Starters in Track 2. The total number of beneficiaries attributed to Track 2 practices in the annual analysis sample was 1,443,553. These beneficiaries had 25,538,339 eligible beneficiary months, and 575,319 eligible index discharges (for readmissions) over the course of the first two years of CPC+. Impact estimates are from difference-in-differences regressions using practice fixed effects and patient-level control variables from the pre-CPC+ period shown in Tables 6.13, 6.18, and 6.19. See Section 6.2 for a full list of measures and definitions, as well as a discussion of methods. **Yellow shading** with ***bold, italicized text*** signifies that estimate was statistically significant at the $p < 0.10$ level.

[a] Medicare Part A and B expenditures without CMS' enhanced payments also include the base CPCPs for Track 2 practices, but not the 10 percent comprehensiveness supplement. We include CPCPs in Part B spending, because Track 2 practices agreed to lower Part B payments for evaluation and management services in exchange for CPCPs.

[b] In the impact analysis, this outcome represents the percentage of discharges that had an unplanned readmission within 30-days of the discharge. For this table, we translated the impact estimate to the total number of discharges for which readmissions were affected by the initiative.

CI = confidence interval; CPCP = Comprehensive Primary Care Payment; ED = emergency department; FFS = fee-for-service.

6.4. Discussion

Primary care practice transformation—as supported by payment reform, optimal use of health IT, continuous improvement driven by data, and a robust learning system—is a complex process that takes time to implement. Further, changes in care delivery take time to manifest themselves in

outcomes of interest, such as improving patients' health and reducing health care utilization and costs. Therefore, we did not expect to see favorable effects of CPC+ implementation on Medicare expenditures without CMS' enhanced payments for CPC+ and SSP after only two years of the five-year intervention. We expected that—if the model were successful—at this stage we would see improvements in quality-of-care indicators and utilization measures that can be affected by primary care in the short to medium term (for example, ED visits or process-of-care measures for patients with diabetes).

Although there were no large effects on Medicare FFS beneficiaries' outcomes in the first two years, CPC+ did have small favorable estimated effects on selected outcomes. These small effects are unlikely to reflect a major shift in clinical care for most beneficiaries:

- Favorable effects include a 1.3 percent reduction in ED visits, improvements of 1 percentage point or less in a limited set of claims-based quality-of-care measures, and a 0.1 percentage point increase in the use of hospice services during the first two program years.
- CPC+ did not alter hospitalizations or Medicare expenditures excluding enhanced payments (paid to practices for participating in CPC+ or improving performance on cost, utilization, or quality measures in CPC+ or SSP).
- CPC+ was associated with slightly increased expenditures after taking the enhanced payments into account for both tracks. For each track, the estimated increase in Medicare expenditures including enhanced payments of 2 and 3 percent was slightly larger in size than the average CMFs of $13 and $25 PBPM that Track 1 and Track 2 practices, respectively, received for Medicare FFS beneficiaries.
- The number of billable ambulatory primary care visits declined in both Track 1 and Track 2, and there was a small net increase in ambulatory visits with specialists among beneficiaries of Track 1 practices only, relative to beneficiaries of comparison practices.
- Findings were generally similar for both CPC+ tracks, and within each track, by SSP status.
- The effects in the second program year were similar to effects observed in the first program year.

Although the estimated effects on Medicare expenditures without CMS' enhanced payments generally did not vary by practice or patient characteristics, we found limited evidence for more unfavorable effects in both tracks among practices owned by a hospital or health system. This result appears to be driven by differential reductions in hospitalizations, with no effects for practices owned by hospitals or health systems but a reduction for independent practices. These findings are consistent with hospital- or system-owned practices facing conflicting incentives under CPC+, because reducing hospitalizations could reduce the system's or hospital's revenue by more than the performance-based payments from CPC+ or, for practices in SSP ACOs, the shared savings payments for the ACO to which the practice belongs.[85] Faced with incentives to keep hospital occupancy rates high, system-owned practices may not expand care management to cover as many high-risk patients or pursue other strategies to lower service use as independent practices. In contrast, independent practices do not face pressure from FFS incentives to fill

[85] Among CPC+ practices that are hospital- or system-owned, the percentage in SSP is 58 percent in Track 1 and 45 percent in Track 2.

hospital beds. As noted in Chapter 4, we found that independent practices were delivering care management to more high-risk patients than system-owned practices. Nonetheless, the two-year results do not indicate a sizable or statistically significant favorable effect on Medicare expenditures even for the independent practices.

The overall findings in this chapter are broadly consistent with the logic model for the CPC+ evaluation we describe in Chapter 1. CMS theorized that CPC+ practices will use their enhanced payments and other CPC+ supports to transform their approach to primary care—for example, by hiring new staff to support more team-based care and making better use of health IT and data feedback. This approach would help the practices deliver the Comprehensive Primary Care Functions and better serve their patient populations. But practice transformation takes time, and it might take additional time for the care delivery changes to improve patient health and utilization patterns enough to affect Medicare spending. This delayed result is especially likely in some of the CPC+ areas of focus, such as care management and behavioral health integration.

To achieve budget neutrality or savings, primary care practices may need to continue to implement the model, and in some cases, implement it more fully. For example, currently, few high-risk patients receive longitudinal care management because care management fees are limited (even though they are substantial). In addition, important contextual factors in the logic model beyond a primary care practice's control will influence outcomes, even if practices fully implement the Comprehensive Care Functions. These factors include characteristics of the health care delivery system (such as, reimbursement policies, availability of other providers, incentives, approaches to care, health IT functionalities and ease of health information exchange) as well as social determinants of health. Notably, specialists and hospitals operate in a largely FFS payment system and face volume-based incentives that can make it challenging to reduce costs.

The presence of effects on ED visits, albeit small, is consistent with the implementation findings. CPC+ practices have increased the delivery of short-term, episodic care management involving timely outreach to patients after a hospital or ED discharge, and they are educating patients about appropriate ED use, particularly patients who have historically used the ED for nonurgent care. These improvements could explain the small effects on ED visits. For instance, our implementation findings from deep-dive practices show that CPC+ practices are consistently using ED discharge information to follow up with patients in a timely way. Analysis of the patient experience survey also supports this finding, showing favorable differences between CPC+ and comparison practices in reporting receipt of timely follow-up after an ED visit (for Track 1) or hospitalization (for Track 2).

The small favorable impacts on the limited claims-based quality-of-care outcomes are also consistent with implementation findings. We know from deep-dive findings that CPC+ practices were working to improve planned care and population health in PY 2. Many were using eCQMs, and some were using both eCQM and utilization data, to systematically guide quality improvement activities. CMS' PBIPs provide an incentive for this work, by rewarding practices for performing well on eCQMs and utilization measures. For their PBIP evaluation, most CPC+ practices chose to report to CMS on eCQMs that closely align with the claims-based quality measures that showed small effects (for recommended services among beneficiaries with diabetes and breast cancer screening). Finally, the small increase in the percentage of beneficiaries receiving hospice services is also consistent with findings from interviews

conducted with deep-dive practices; many practices noted that they refined or expanded their advance care planning efforts after joining CPC+.

These early findings are also consistent with the mixed and generally small effects reported in past studies of primary care transformation initiatives:

- **Expenditures.** In previous studies of practice transformation initiatives, results about effects on expenditures have been mixed. Some studies found savings (for example, Cuellar et al. 2016; Shi et al. 2017b; Song et al. 2014; OIG 2017; McWilliams et al. 2016, 2018; Justice et al. 2018), whereas others, including the evaluation of CPC Classic, did not (Peikes et al. 2018a, 2018c; Friedberg et al. 2014; Yoon et al. 2016; Orzol et al. 2018; Zulman et al. 2017; Nichols et al. 2018; Sinaiko et al. 2017; Kimmey et al. 2019; Kissam et al. 2018; Kahn et al. 2016).
- **Service use measures.** Previous findings about ED visits and use of other types of services have been mixed. Specifically, some previous studies of primary care transformation initiatives, including the evaluation of CPC Classic, found reductions in care delivered in high-cost or acute-care settings (Peikes et al. 2018a, 2018c; Schurrer et al. 2017; Shi et al. 2017b; OIG 2017; Cuellar et al. 2016; Orzol et al. 2018; Green et al. 2018; Rosenthal et al. 2016; Nichols et al. 2017; Kimmey et al. 2019; Kissam et al. 2018). However, other studies have found the opposite, linking transformation initiatives to unfavorable increases in ambulatory care-sensitive hospitalizations, ED visits, or specialist visits (Timbie et al. 2017; Yoon et al. 2018; Friedberg et al. 2014; Kahn et al. 2016).
- **Quality-of-care measures.** Some past studies found favorable effects on some planned care and population health outcomes, including recommended services for patients with diabetes and screening for various cancers (Sinaiko et al. 2017; Friedberg et al. 2014; Rosenthal et al. 2016; Timbie et al. 2017; Shi et al. 2017a, 2017b; Ashburner et al. 2017; Farley et al. 2019; Swietek et al. 2018; Kahn et al. 2016; Kissam et al. 2018). However, CPC Classic did not lead to any appreciable improvement in a limited set of claims-based quality measures (Peikes et al. 2018a, 2018c).[86] Although the quality-of-care improvements from CPC+ are statistically significant, they are small; like CPC Classic, these findings suggest that CPC+ has not yet led to meaningful improvements in clinical care.

It is still too early to know whether CPC+, which builds on lessons from prior initiatives, will achieve savings for Medicare within the five-year model test period. The initial impacts on ED visits and quality-of-care outcomes provide some optimism, but the estimated effects are small. ED visits account for only a small proportion of Medicare expenditures and few patients use hospice care. Given the limited set of claims-based quality measures, and the small magnitude of the CPC+ estimates, we cannot draw conclusions at this stage of CPC+ about its impact on quality. Unless the estimated effects grow over time, they may not be that important for policy purposes. Furthermore, improvements in quality of care could in some cases lead to increases in expenditures, to cover the costs of increased screening and treatment of any previously undiagnosed issues. For CPC+ to achieve cost-neutrality or result in cost savings, the impacts on

[86] Labonte et al. (2019) found CPC Classic practices improved eCQMs. The study used a benchmark of practices from the Physician Quality Reporting System, but because those practices were not necessarily comparable to CPC Classic practices, the study could not conclude whether the intervention caused the improvements.

intermediate outcomes—including hospitalizations, which are the largest drivers of expenditures—will need to grow over the remaining three years of the model test period. Such impacts could emerge during the course of CPC+, or afterward.[87]

Even as we try to interpret our estimated impacts, it is important to acknowledge the limitations of this analysis. The CPC+ evaluation is non-experimental—meaning that we compare outcomes of the CPC+ practices to outcomes of other practices that we identified as similar before CPC+ began—and there is always a chance that something other than CPC+ is driving the differences we observe. This factor could be pre-existing differences in unobserved characteristics (that we could not account for during comparison group selection) between the CPC+ and comparison practices that were also related to outcomes, —for example, differences in baseline practice motivation to engage in practice transformation. It could also be differential changes in the CPC+ and comparison groups over time unrelated to CPC+—for example, differential participation in other practice transformation initiatives or differential region-specific "shocks" (changes in outcomes) faced by CPC+ and comparison practices (which are drawn from external regions).

At this time, participation in other initiatives does not appear to bias our results. We are monitoring participation of CPC+ and comparison practices in other quality improvement initiatives, as reported in Appendix 6.G of the separate volume with appendices (Ghosh et al. 2020). Based on this analysis, we found sizeable participation differences (from baseline to follow-up) between CPC+ and comparison practices for only one program—SSP. Although the participation in SSP declined for CPC+ practices, it increased for comparison practices from baseline to the end of PY 2 with a relative decline of 6.2 and 10.1 percentage points in the percentage of beneficiaries in SSP in the CPC+ group in Track 1 and Track 2, respectively. However, SSP is a nationwide model that likely represents the correct counterfactual, that is, the scenario that would occur if CPC+ did not exist. In other words, greater participation over time by comparison practices in SSP should not be seen as a contamination of the comparison group. Yet, if SSP is an effective intervention, greater participation by comparison practices in SSP could negatively affect the ability of CPC+ practices to show favorable effects relative to the comparison group. Therefore, we will continue to monitor participation in SSP and other initiatives by both groups of practices, and also account for differential changes in participation in our future impact estimates.

Findings from CPC+ practices must be cautiously extrapolated to primary care practices in the same regions or nationwide. The diversity of the CPC+ practices will enable CMS to learn about barriers and facilitators to transformation and improved patient outcomes for the range of primary care practices that might participate in future models. However, care is needed to assess the implications of expanding CPC+ nationwide based on estimated impacts, because the practices that participated in CPC+ differed at the beginning of the model from all other practices in the CPC+ regions. Most notably, CPC+ practices in both the 2017 and 2018 regions were more likely to be meaningful users of health IT (90 versus 58 percent), have had experience with

[87] In a study of longer-term effects of CPC Classic (Appendix 6.H), we followed the beneficiaries assigned to CPC Classic and their matched comparison practices after the end of the four-year intervention, when 86 percent of CPC Classic practices participated in CPC+. We found greater relative declines in hospitalizations after the end of the intervention than during CPC Classic. These results suggest that the primary care transformation initiatives that CMS is currently testing may need more time and supports to have meaningful effects on total cost of care.

primary care transformation (61 versus 26 percent), be system owned (54 versus 32 percent), and have more primary care practitioners (4.4 versus 2.9 practitioners, on average). On the one hand, more advanced practices may have the foundations needed and be better prepared to take advantage of the practice transformation supports provided to successfully adopt new delivery approaches. On the other hand, these practices may also have less room for improvement in care delivery approaches and patient outcomes. For example, in a study on early performance of SSP, (McWilliams et al. 2016) found that estimated savings were greater for SSP ACOs that had baseline spending above local averages. Similarly, practices owned by a hospital or a health system that are more likely to participate in these programs may have more resources to implement the required care delivery changes but may also have weaker incentives to lower spending. Interestingly, in line with the early evidence emerging from the CPC+ practice subgroup analysis, (McWilliams et al. 2016) also found that although independent physician groups were associated with savings in SSP, hospital-integrated ACOs did not produce savings.

In future reports, we will continue to assess impacts on the outcomes included in this report throughout the rest of the five-year model test period. We will also expand the analysis in several important ways. First, we will include additional claims-based outcomes of Medicare service use and quality of care—for example, measures of comprehensiveness of care and potentially avoidable ED visits—and measures for use of appropriate medications, based on Medicare Part D prescription drug claims. We will also look for changes that reflect "rightsizing" of care, by looking at increases in preventive care and access, and reductions in care considered to be low value. Further, we will include results from our synthesis analysis, which examines specific pathways through which CPC+ is affecting outcomes. For example, we will explore the extent to which increasing access to CPC+ practices during and outside of normal business hours, care management, and other expected pathways may be reducing ED visits. We will also identify a small number of "exemplar" CPC+ practices that have achieved substantially larger reductions in their patients' hospitalization rates over time than other practices, and we will interview them to identify the care delivery changes they made to achieve these gains. In addition, we will consider examining impacts for additional practice subgroups, such as practices with high average baseline expenditures and practices with high average baseline HCC risk scores.[88] Finally, to examine the impact of CPC+ on beneficiaries covered by other public payers, we will conduct an impact analysis of Medicaid expenditures and service use in regions where we can select a valid comparison group, using Medicaid beneficiaries attributed to CPC+ and comparison practices.

[88] These practice subgroups show promising reductions in expenditures in an exploratory analysis described in Appendix 6.I. The analysis uses a novel method called "Bayesian Causal Forests," which provides a data-driven approach to identifying subgroups to examine. Although the results from the beneficiary subgroup analysis presented in Tables 6.8 and 6.16 in this chapter demonstrate that CPC+ does not differentially affect expenditures for high-risk *beneficiaries*, it may nonetheless be the case that larger-than-average benefits accrue at *practices* serving a higher proportion of high-risk beneficiaries.

REFERENCES

Agency for Healthcare Research and Quality (AHRQ). "CAHPS Clinician & Group Surveys, Supplemental Items for the Adult Surveys 2.0." Rockville, MA: AHRQ, 2012.

Agency for Healthcare Research and Quality (AHRQ). "CAHPS Clinician & Group Survey, Version 3.0." Rockville, MA: AHRQ, 2015.

Agency for Healthcare Research and Quality (AHRQ). "CAHPS Clinician & Group Survey, Supplemental Items: Patient-Centered Medical Home." Rockville, MA: AHRQ, 2016a.

Anglin, G., D. Peikes, D. Petersen, A. O'Malley, K. Geonnotti, A. Ghosh, P. Singh, et al. "Evaluation of the Comprehensive Primary Care Plus Initiative: Second Annual Report." Princeton, NJ: Mathematica, 2020.

Anglin, G., D. Peikes, M. Harrington, A. Ghosh, K. Geonnotti, A. O'Malley, S. Dale, et al. "Evaluation of the Comprehensive Primary Care Plus Initiative: First Annual Report, Supplemental Volume." Princeton, NJ: Mathematica, 2019.

Ashburner, J.M., D.M. Horn, S.M. O'Keefe, A.H. Zai, Y. Chang, N.W. Wagle, and S.J. Atlas. "Chronic Disease Outcomes from Primary Care Population Health Program Implementation." *American Journal of Managed Care,* vol. 23, no. 12, 2017, pp. 728–735.

Brown, R. S., D. Peikes, G. Peterson, J. Schore, and C.M. Razafindrakoto. "Six Features of Medicare Coordinated Care Demonstration Programs That Cut Hospital Admissions of High-Risk Patients." *Health Affairs*, vol. 31, no. 6, 2012, pp. 1156–1166.

Centers for Medicare & Medicaid Innovation (CMMI). "2018 CPC+ Implementation Guide: Guiding Principles and Reporting." Centers for Medicare & Medicaid Services, CMMI, January 30, 2018.

Cuellar, A., L.A. Helmchen, G. Gimm, J. Want, S. Burla, B.J. Kells, I. Kicinger, and L.M. Nichols. "The CareFirst Patient-Centered Medical Home Program: Cost and Utilization Effects in its First Three Years." *Journal of General Internal Medicine,* vol. 31, no. 11, 2016, pp. 1382–1388.

Dale, S.B., A. Ghosh, D.N. Peikes, T.J. Day, F.B. Yoon, E.F. Taylor, K. Swankoski, et al. "Two-Year Costs and Quality in the Comprehensive Primary Care Initiative." *New England Journal of Medicine,* vol. 374, 2016, pp. 2345–2356. doi: 10.1056/NEJMsa1414953.

Dorr, D.A., T.A. Anastas, K. Ramsey, J. Wagner, B. Sachdeva, L. Michaels, and L.J. Fagnan. "Effect of a Pragmatic, Cluster-Randomized Controlled Trial on Patient Experience with Care: The Transforming Outcomes for Patients through Medical Home Evaluation and reDesign (TOPMED) Study." *Medical Care,* vol. 54, no. 8, 2016, pp. 745–751.

Farley, J. F., A. Kumar, B.Y. Urick, and M.E. Domino. "Patient-centered Medical Homes and Preventive Service Use." *The American Journal of Managed Care,* vol. 25, no. 5, 2019, pp. e153–e159.

Friedberg, M.W., E.C. Schneider, M.B. Rosenthal, K.G. Volpp, and R.M. Werner. "Association Between Participation in a Multipayer Medical Home Intervention and Changes in Quality, Utilization, and Costs of Care." *JAMA,* vol. 311, no. 8, 2014, pp. 815–825.

Ghosh, A., S. Orzol, S. Dale, J. Laird, N. Fu, P. Singh, M.-Y. Kim, et al. "Evaluation of the Comprehensive Primary Care Plus Initiative: Second Annual Report, Appendices to the Supplemental Volume." Princeton, NJ: Mathematica, 2020.

Green, L.A., H.-C. Chang, A.R. Markovitz, and M.L. Paustian. "The Reduction in ED and Hospital Admissions in Medical Home Practices Is Specific to Primary Care–Sensitive Chronic Conditions." *Health Services Research,* vol. 53, no. 2, 2018, pp. 1163–1179.

Heyworth, L., A. Bitton, S.R. Lipsitz, T. Schilling, G.D. Schiff, D.W. Bates, and S.R. Simon. "Patient-Centered Medical Home Transformation with Payment Reform: Patient Experience Outcomes." *American Journal of Managed Care*, vol. 20, no. 1, 2014, pp. 26–33.

Jaén, C.R., R.L. Ferrer, W.L. Miller, R.F. Palmer, R. Wood, M. Davila, E.E. Stewart, et al. "Patient Outcomes at 26 Months in the Patient-Centered Medical Home National Demonstration Project." *Annals of Family Medicine,* vol. 8, suppl. 1, 2010, pp. S57–S67. doi:10.1370/afm.1121.

Justice, D., et al. "Financial Alignment Initiative Washington Health Homes MFFS Demonstration: Second Annual Evaluation Report." RTI International. November 2018. Available at: https://innovation.cms.gov/Files/reports/fai-wa-secondevalrpt.pdf.

Kahn, K.L., J.W. Timbie, M.W. Friedberg, P. Mendel, L. Hiatt, E.K. Chen, A.M. Kress, et al. "Evaluation of CMS's Federally Qualified Health Center (FQHC) Advanced Primary Care Practice (APCP) Demonstration: Final Report." Santa Monica, CA: Rand Corporation, September 2016. Available at https://downloads.cms.gov/files/cmmi/fqhc-finalevalrpt.pdf.

Kern, L.M., R.V. Dhopeshwarkar, A. Edwards, and R. Kaushal. "Patient Experience Over Time in Patient-Centered Medical Homes." *American Journal of Managed Care,* vol. 19, no. 5, 2013, pp. 403–410.

Kimmey, L., M. Anderson, V. Cheh, E. Li, C. McLaughlin, L. Barterian, J. Crosson, et al. "Evaluation of the Independence at Home Demonstration: An Examination of the First Four Years." Princeton, NJ: Mathematica, May 2019.

Kissam, S., H. Beil, L. Greenwald, R. Alterbaum, P. Amico, S. Arbes, S. Arnold, et al. "SIM Initiative Evaluation Model Test Year 5 Annual Report." Research Triangle Park, NC: RTI International, December 2018.

Koller, C., and D. Khullar. "Primary Care Spending Rate—A Lever for Encouraging Investment in Primary Care." *New England Journal of Medicine,* vol. 377, no. 18, 2017, pp. 1709–1711.

LaBonte, C.T., P. Payne, W. Rollow, M.W. Smith, A. Nissar, P. Holtz, and L.L. Sessums. "Performance on Electronic Clinical Quality Measures in the Comprehensive Primary Care Initiative." *American Journal of Medical Quality,* vol. 34, no. 2, 2019, pp. 119–126.

Lance, C.E. "The Sources of Four Commonly Reported Cutoff Criteria: What Did They Really Say?" *Organizational Research Methods,* vol. 9, no. 2, 2006, pp. 202–220. doi.org/10.1177/1094428105284919.

Maeng, D.D., D.E. Davis, J. Tomcavage, T.R. Graf, and K.M. Procopio. "Improving Patient Experience by Transforming Primary Care: Evidence from Geisinger's Patient-Centered Medical Homes." *Population Health Management,* vol. 16, no. 3, 2013, pp. 157–163. doi:10.1089/pop.2012.0048.

McWilliams, J.M., L.A. Hatfield, M.E. Chernew, B.E. Landon, and A.L. Schwartz. "Early Performance of Accountable Care Organizations in Medicare." *New England Journal of Medicine,* vol. 374, no. 24, 2016, pp. 2357–2366.

McWilliams, J.M., L.A. Hatfield, B.E. Landon, P. Hamed, and M.E. Chernew. "Medicare Spending After 3 Years of the Medicare Shared Savings Program." *New England Journal of Medicine,* vol. 379, no. 12, 2018, pp. 1139–1149.

Nichols, D., S. Haber, M. Romaire, J.M. Weiner, M. Leung, K. Smith, N. West, et al. "Evaluation of the Multi-Payer Advanced Primary Care Practice (MAPCP) Demonstration Final Report." Research Triangle Park, NC: RTI International, June 2017. Available at https://downloads.cms.gov/files/cmmi/mapcp-finalevalrpt.pdf.

Nichols, D.E., S.G. Haber, M.A. Romaire, and S.G. Wensky. "Changes in Utilization and Expenditures for Medicare Beneficiaries in Patient-Centered Medical Homes: Findings from the Multi-Payer Advanced Primary Care Practice Demonstration." *Medical Care,* vol. 56, no. 9, 2018, pp. 775–783.

Nunnally, J., and I. Bernstein. *Psychometric Theory* (3rd ed.). McGraw-Hill Humanities/Social Sciences/Languages, 1994.

Office of Disease Prevention and Health Promotion (ODPHP). "Healthy People 2020: Access to Health Services." n.d. Available at https://www.healthypeople.gov/2020/topics-objectives/topic/Access-to-Health-Services.

Office of the Inspector General (OIG). "Medicare Shared Savings Program Accountable Care Organizations Have Shown Potential for Reducing Spending and Improving Quality." OEI-02-15-00450. Washington, DC: Department of Health and Human Services, August 2017.

Orzol, S., R. Keith, et al. "The Impact of a Health Information Technology-Focused Patient-Centered Neighborhood Program Among Medicare Beneficiaries in Primary Care Practices." *Medical Care,* vol. 56, 2018, pp. 299–307.

Peikes, D., G. Anglin, A. O'Malley, M. Harrington, D. Petersen, S. Hoag, A. Ghosh, et al. "Evaluation of the Comprehensive Primary Care Plus Initiative: First Annual Report." Princeton, NJ: Mathematica, 2019.

Peikes, D., G. Anglin, S. Dale, E.F. Taylor, A. O'Malley, A. Ghosh, and contributing authors. "Evaluation of the Comprehensive Primary Care Initiative: Fourth Annual Report." Prepared for the U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services. Princeton, NJ: Mathematica Policy Research, May 2018a.

Peikes, D., G. Anglin, S. Dale, E.F. Taylor, A. O'Malley, R. Brown, N. Duda, et al. "Independent Evaluation of Comprehensive Primary Care Plus (CPC+): Draft Design Report." Princeton, NJ: Mathematica Policy Research, April 2018b.

Peikes, D., G. Anglin, S. Dale, E.F. Taylor, A. O'Malley, R. Brown, N. Duda, et al. "Independent Evaluation of Comprehensive Primary Care Plus (CPC+): Draft Design Report." Princeton, NJ: Mathematica Policy Research, April 2018c.

Peterson, G., S. Dale, and D. Peikes. "Primary and Secondary Tests for the CPC+ Impact Evaluation." Memorandum to CMS. Princeton, NJ: Mathematica Policy Research, May 23, 2018.

Pope, G.C., J. Kautter, R.P. Ellis, A.S. Ash, J.Z. Ayanian, L.I. Iezzoni, M.J. Ingber, et al. "Risk Adjustment of Medicare Capitation Payments Using the CMS-HCC Model." *Health Care Financing Review,* vol. 25, no. 4, 2004, pp. 119–141.

Reddy, A., A. Canamucio, and R.M. Werner. "Impact of the Patient-Centered Medical Home on Veterans' Experience of Care." *American Journal of Managed Care,* vol. 21, no. 6, 2015, pp. 413–421.

Reid, R., C. Damberg, and M. Friedberg. "Primary Care Spending in the Fee-for-Service Medicare Population." *JAMA Internal Medicine,* vol. 179, no. 7, 2019, pp. 977–980. doi:10.1001/jamainternmed.2018.8747.

Reid, R.J., K. Coleman, E.A. Johnson, P.A. Fishman, C. Hsu, M.P. Soman, C.E. Trescott, M. Erikson, and E.B. Larson. "The Group Health Medical Home at Year Two: Cost Savings, Higher Patient Satisfaction, and Less Burnout for Providers." *Health Affairs* (Millwood), vol. 29, no. 5, 2010, pp. 835–843. doi:10.1377/hlthaff.2010.0158.

Rich, E., D. Lipson, J. Libersky, and M. Parchman. "Coordinating Care for Adults with Complex Care Needs in the Patient-Centered Medical Home: Challenges and Solutions." AHRQ Publication No. 12-0010-EF. Rockville, MD: Agency for Healthcare Research and Quality, January 2012.

Rosenthal, M.B., S. Alidina, M.W. Friedberg, S.J. Singer, D. Eastman, Z. Li, and E.C. Schneider. "Impact of the Cincinnati Aligning Forces for Quality Multi-Payer Patient Centered Medical Home Pilot on Health Care Quality, Utilization, and Costs." *Medical Care Research and Review,* vol. 73, no. 5, 2016, pp. 532–545.

Sarinopolous, I., D.L. Bechel-Marriott, J.M. Malouin, S. Zhai, J.C. Forney, and C.L. Tanner. "Patient Experience with the Patient-Centered Medical Home in Michigan's Statewide Multi-Payer Demonstration: A Cross-Sectional Study." *Journal of General Internal Medicine,* vol. 32, no. 11, 2017, pp. 1202–1209.

Schurrer, J., A. O'Malley, C. Wilson, N. McCall, and N. Jain. "Evaluation of the Diffusion and Impact of the Chronic Care Management (CCM) Services." Washington, DC: Mathematica Policy Research, 2017.

Sessums, L.L., S.J. McHugh, and R. Rajkumar. "Medicare's Vision for Advanced Primary Care: New Directions for Care Delivery and Payment." *JAMA*, vol. 315, no. 24, June 28, 2016, pp. 2665–2666.

Shi, Leiyu, D.-C. Lee, M. Chung, H. Liang, D. Lock, and A. Sripipatana. "Patient-Centered Medical Home Recognition and Clinical Performance in US Community Health Centers." *Health Services Research,* vol. 52, no. 3, 2017a, pp. 984–1004.

Shi, Q., T.J. Yan, P. Lee, P. Murphree, X. Yuan, H. Shao, W.H. Bestermann, et al. "Evaluation of the Quality Blue Primary Care Program on Health Outcomes." *American Journal of Managed Care,* vol. 23, no. 12, 2017b, pp. e402–e408.

Sinaiko, A.D., M.B. Landrum, D.J. Meyers, S. Alidina, D.D. Maeng, M.W. Friedberg, L.M. Kern, et al. "Synthesis of Research on Patient-Centered Medical Homes Brings Systematic Differences into Relief." *Health Affairs,* vol. 36, no. 3, 2017, pp. 500–508.

Song, Z., S. Rose, D.G. Safran, B.E. Landon, M.P. Day, and M.E. Chernew. "Changes in Health Care Spending and Quality 4 Years into Global Payment." *New England Journal of Medicine,* vol. 371, no. 18, 2014, pp. 1704–1714.

Swankoski, K.E., D.N. Peikes, N. Morrison, J.J. Holland, N. Duda, N.A. Clusen, T.J. Day, and R.S. Brown. "Patient Experience During a Large Primary Care Practice Transformation Initiative." *American Journal of Managed Care,* vol. 24, no. 12, 2018, pp. 607–613.

Swietek, K.E., M.E. Domino, C. Beadles, A.R. Ellis, J.F. Farley, L.R. Grove, C. Jackson, et al. "Do Medical Homes Improve Quality of Care for Persons with Multiple Chronic Conditions?" *Health Services Research*, vol. 53, no. 6, 2018, pp. 4667–4681.

Timbie, J.W., P.S. Hussey, C.M. Setodji, A. Kress, R. Malsberger, T.A. Lavelle, M.W. Friedberg, et al. "Association Between Patient-Centered Medical Home Capabilities and Outcomes for Medicare Beneficiaries Seeking Care from Federally Qualified Health Centers." *Journal of General Internal Medicine,* vol. 32, no. 9, 2017, pp. 997–1004.

Yoon, J., E. Chang, L.V. Rubenstein, A. Park, D.M. Zulman, S. Stockdale, M.K. Ong, et al. "Impact of Primary Care Intensive Management on High-Risk Veterans' Costs and Utilization: A Randomized Quality Improvement Trial." *Annals of Internal Medicine,* vol. 168, no. 12, 2018, pp. 846–854.

Yoon, J., A. Chow, and L.V. Rubenstein. "Impact of Medical Home Implementation Through Evidence-Based Quality Improvement on Utilization and Costs." *Medical Care,* vol. 54, no. 2, 2016, pp. 118–125.

Zulman, D.M., C.P. Chee, S.C. Ezeji-Okoye, J.G. Shaw, T.H. Holmes, J.S. Kahn, and S.M. Asch. "Effect of an Intensive Outpatient Program to Augment Primary Care for High-Need Veterans Affairs Patients: A Randomized Clinical Trial." *JAMA Internal Medicine,* vol. 177, no. 2, 2017, pp. 166–175.

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